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RESEARCH FOR PEACE AND DEVELOPMENT

There are two predominant ways through which research promotes our awareness of the value and necessity of knowledge. They are: the never-ending expansion of the frontiers of the world we experience, and the creation of foundations for educational needs of the society. The same two objectives lay at the roots of the 'SAVAP International' which, being a civil society organization is determined to ensure that all activities it pursues meet the highest standards.

Recognizing the great significant power of a competent and efficient publishing policy, the SAVAP International has embarked on the launching of a journal addressed to the whole academia and researchers' community, in a belief that it will be of particular interest to young researchers at the beginning of their path as well as all those who are interested in humanities, social science, management sciences, natural and applied sciences, their achievements and prospects. Our main aim is to provide information on discoveries and phenomena that determine the rhythm of life in Asia and other regions of the globe.

The times we are now living in abound in important events and transformations that will be surely influencing the directions of global future development. Here again, the responsibility of academicians and researchers is to shape and promote attitudes for which the truth and human well-being are a primary value.

I hope that 'Academic Research International' will be well received by the research and academic community. I also believe that it will make an essential contribution to the popularization of research in world for peaceful globe.

(Muhammad Ashraf Malik)
Founder Chairman
SAVAP International
malik@savap.org.pk

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Part I

EFFECT OF GRAPHIC CALCULATOR-BASED PERFORMANCE ASSESSMENT ON MATHEMATICS ACHIEVEMENT

Prof. Dr. Noraini Idris
Faculty of Education
University of Malaya
MALAYSIA
noridris@um.edu.my

Chew Cheng Meng
School of Educational Studies
Universiti Sains
MALAYSIA
cmchew@usm.my

ABSTRACT

The purpose of this study was to examine the effect of performance assessment that incorporated the use of graphic calculator on secondary students' mathematics achievement. This study adopted a quasi-experimental non-equivalent control group design and random sampling to select eleven public secondary schools from six states in Malaysia that represent different geographical locations and diverse economic, social and cultural backgrounds of the student population in the country. Quantitative data were collected through pretest and posttest to assess secondary students' mathematics achievement before and after the intervention. The results show that the experimental groups in all the eleven schools performed significantly better than the control groups in the mathematics achievement test after the intervention, indicating that graphic calculator-based performance assessment was effective in improving secondary students' mathematics achievement.

Keywords: graphic calculator; instruction; assessment; mathematics achievement; secondary schools

INTRODUCTION

Since the invention of electronic calculators more than 40 years ago, calculator technology has evolved tremendously from simple calculator to scientific calculator and to the present advanced graphing or graphic calculator technology. Graphic calculators are handheld mathematical computers with standard computer processors, display screen, built-in graphing software, and are fully programmable (Waits & Demana, 2000). The major advantages of using graphic calculator over desktop computer are its portability and easy accessibility (especially when completing homework or assignments and during formal examinations), as well as its diminishing price which is still relatively cheaper than the cost of buying a desktop or laptop computer (Kemp, Kissane & Bradley, 1995).

Graphic calculator is a powerful tool for exploring mathematics. It empowers students to solve mathematical problems by actively engaging them in doing mathematics. In fact, a growing body of research shows that the incorporation of graphic calculator in the teaching and learning of mathematics improves students' learning of mathematics. More specifically, several research findings have shown that the use of graphic calculator in the teaching and learning of mathematics can improve students' achievement in mathematics (Ellington, 2003; Heller, Curtis, Jaffe, & Verboncoeur, 2005; Khoju, Miller, & Jaciw, 2005; Noraini Idris, 2002, 2003; Noraini Idris, Tay, Ding, Goh, Anis Sabarina, & Nilawati Mahfud, 2003). In addition, research also shows that students using graphic calculator develop flexible strategies for problem solving and a deeper appreciation of mathematical meaning than students who do not use graphic calculator (Ellington, 2003; Khoju et al., 2005).

In light of the positive research findings, the current mathematics reform has recommended the use of graphic calculator in the teaching and learning of mathematics in secondary schools (Kissane, 2000). The use of graphic calculators in the mathematics classroom began in the United States of America in the early 1990s and then spread to continental Europe and Australia where it is now commonly used in the upper secondary schools (Jones, 2003). In South East Asia, neighboring Singapore was the first country to permit the use of graphic calculators, without CAS, in the Further Mathematics paper of the national examination beginning 2001 (Rosihan, Daniel, Zarita Zainuddin, Suraiya Kassim, Hajar Sulaiman, Hailiza Kamarul Haili & Mokhtar Ismail , 2003).

In contrast, the use of graphic calculator in Malaysia is still in the early stage as compared to the developed countries (Noraini Idris, 2004). In fact, the integration of graphic calculator in the teaching and learning of mathematics was introduced to secondary schools beginning 2004. The Curriculum Development Centre in collaboration with Texas Instruments provided graphic calculators to 250 secondary schools throughout the country. Further, the Malaysian Ministry of Education has included some examples of using graphic calculator in the Form Four (the fourth year of secondary school education) Mathematics and Additional Mathematics textbooks starting from 2006. However, the use of graphic calculator in primary and secondary public examinations is not allowed, even though the use of simple calculator and scientific calculator is permitted in the *PMR* (public examination for the third year of secondary school education) Mathematics paper and in the *SPM* (public examination for the fifth year of secondary school education) and *STPM* (public examination for the second year of high school education) Mathematics papers, respectively.

Even though graphic calculator can help to build students' conceptual understanding by allowing them to explore through numeric, graphic and symbolic representations concurrently (Harvey, Waits, & Demana, 1995), some papers had also been written that questioned the policy of prohibiting the use of graphic calculator in the assessment of mathematical learning. For instance, Rosihan et al. (2003) argued that, "if a student learns differently from a changed pedagogy, then assessment must be done differently" (p. 78). Further, if students are taught how to use the graphing calculator, this use must also be assessed or else they will not be interested in learning and using it. They will prefer to work with scientific calculators once they realized that they cannot use graphic calculators in formal tests or examinations (Kor & Lim, 2003). In other words, if students use the graphic calculator to learn mathematics, then they must be allowed to use it in the assessment process. This is because the purpose of mathematics assessment is to find out how well students know, understand and are able to do mathematics (Kemp et al., 1995).

However, research findings are inconclusive regarding the effectiveness of using graphic calculator during instruction and assessment. For example, Heller et al. (2006) found that increased use of graphic calculators during instruction resulted in higher test scores even when students did not use graphic calculators during testing. Further, Ellington (2003) showed that students using graphic calculator during instruction, but not during assessment, performed as well or better in all five mathematics skill areas, namely conceptual, computational, operational, problem solving, and selectivity. Moreover, it is always recognized officially that the links between teaching, learning and assessment of mathematics are important because the nature of and the conditions for assessment have significant effects on the teaching and learning of mathematics in the classrooms (Kissane, 2000). Likewise, mathematics assessment in the form of public examinations is widely seen to have significant influence on the teaching and learning of mathematics in the Malaysian classroom. But, research on the incorporation of graphic calculator in mathematics assessment at the upper secondary school level is still limited in Malaysia as compared to other developed countries such as Australia and Singapore. Therefore, there is an urgent need to investigate the integration of graphic calculator in performance assessment on secondary students' mathematics achievement in Malaysia.

OBJECTIVE OF THE STUDY

The objective of this study was to examine the effect of performance assessment that incorporated the use of graphic calculator on secondary students' mathematics achievement. Specifically, this study aimed to address the following research question:

Was there any significant difference in mathematics achievement between students who learned mathematics with graphic calculator-based performance assessment and students who learned mathematics without graphic calculator-based performance assessment?

To answer the above research question, the following null and alternative hypotheses were evaluated:

H_0: There was no significant difference in mathematics achievement between students who learned mathematics with graphic calculator-based performance assessment and students who learned mathematics without graphic calculator-based performance assessment.

H_1: There was a significant difference in mathematics achievement between students who learned mathematics with graphic calculator-based performance assessment and students who learned mathematics without graphic calculator-based performance assessment.

METHODOLOGY

Research Design and Sample

The research design of this study was a quasi-experimental non-equivalent control group design. Random sampling was employed to select eleven public secondary schools from six states in Malaysia, namely Malacca, Selangor, Pahang, Terengganu, Johor and the Federal Territory of Kuala Lumpur. These states represent different geographical locations and diverse economic, social and cultural backgrounds of the student population in the country. Of the eleven schools selected for the study, eight of them are located in the various state capitals and thus the students were from a more urban background, especially the three city schools in Kuala Lumpur. However, the students in the school in Pahang were from a more rural background whose parents were mainly involved in agricultural and fishing activities. The schools chosen had to have at least two Form Four classes with a trained Mathematics teacher teaching them. For each school, one of the classes served as the experimental group whilst the other class served as the control group.

The sample consisted of Form Four students. The average age of the students was 16 years old. They represented all the major races in the country, namely Malays, Chinese and Indians. At Form Four, these students had successfully completed three years of lower secondary education which culminated in a major public examination called the Lower Secondary School Assessment (*Penilaian Menengah Rendah or PMR*) at the end of Form Three. To be promoted to Form Four, these students had to pass seven subjects in the *PMR,* namely Malay Language, English Language, Mathematics, Science, History, Geography and Living Skills. Some students might also opt to take Islamic Studies, Chinese Language or Tamil Language as an additional subject. The total number of students in the sample was 844 students with 423 students in the experimental group and 421 students in the control group as shown in Table 1.

Table 1 Location and number of students in the sample (N=844)

No.	State	School	Experimental Group (n)	Control Group (n)
1	FT of Kuala Lumpur	School A, Kuala Lumpur	31	26
2	FT of Kuala Lumpur	School B, Kuala Lumpur	33	30
3	FT of Kuala Lumpur	School C, Kuala Lumpur	36	37
4	Malacca	School D, Malacca	39	42
5	Malacca	School E, Malacca	39	41
6	Johor	School F, Johor Bharu	39	38
7	Pahang	School G, Kuantan	43	45
8	Terengganu	School H, Kuala Terengganu	41	42
9	Selangor	School I, Selangor	40	41
10	Selangor	School J, Selangor	43	41
11	Selangor	School K, Selangor	39	38
		TOTAL	423	421

Note: FT = Federal Territory

Instrument

The Mathematics Achievement Test (MAT) was used to assess students' mathematics achievement before and after the intervention. The MAT was designed to measure students' content knowledge of and ability to solve problems related to Straight Line and Statistics in the Form Four Mathematics syllabus. The research team constructed the test based on the Form Four Mathematics Curriculum Specifications. To ensure its content validity and construct validity, the MAT was meticulously constructed based on the Form Four Mathematics Curriculum Specifications by the research team who has expertise in this field from the Mathematics Education Department in a local public university. A class of Form Five students in a school in the Federal Territory of Kuala Lumpur piloted the MAT. The degree of internal consistency as estimated by Cronbach's alpha for the overall MAT was 0.8. The MAT was thus found to be valid and reliable for use in the actual study.

Research Procedure

Prior to the administration of the treatment, the teachers from the eleven participating schools were invited to attend a one-day training workshop. During the workshop the teachers were introduced by the researchers to the objective and procedures of the study. They were first briefed on the various steps of carrying out the study in their respective schools. They were then presented with five assessment tasks for the topic of Straight Line and six assessment tasks for the topic of Statistics. Next, they were given the opportunity to perform one of the tasks with the help of the TI-83 Plus graphic calculator. Subsequently, they were introduced to the rubrics for interpreting students' performance in the eleven assessment tasks. At the end of the workshop, the researchers distributed the eleven assessment tasks and rubrics for the two topics to the teachers. The teachers also collected the MAT to be administered to the experimental and control groups before and after the treatment.

During the treatment, students in the experimental group were given formatively eleven assessment tasks by their mathematics teacher that required them to use graphic calculator to perform the tasks. The tasks required students to investigate, explore and solve real-world problems related to the topics of Straight Line and Statistics. Each student in the treatment group was provided with a TI-83 Plus graphic calculator to complete the given tasks. Students in the treatment group were asked to perform the following five tasks on Straight Line and six tasks on Statistics as shown in Table 2.

Table 2 Contents of the tasks on Straight Line

Topic	Task	Contents
Straight Line	One	Gradient
	Two	Gradient in Cartesian Coordinate
	Three	Developing Linear Equation
	Four	Equation of Straight Line
	Five	Investigating Linear Equations
Statistics	One	Modal class, class interval and Mean
	Two	Grouped Data Modal
	Three	Cumulative Frequency
	Four	Histogram
	Five	Frequency Polygons
	Six	Measures of Dispersion

An example of the first task on Straight Line and an example of the first task on Statistics are provided below:

Assessment Task One on Straight Line

Purpose:

a) To assess students' understanding of the concept of gradient and gradient of straight line graph.

b) To assess students' reasoning when using the gradient of straight line graphs in drawing conclusions about the real-world context being modeled by the graphs.

c) To assess students' communication when presenting the conclusions they had drawn about the real-world context based on the information contained in the gradient.

In this task, students were assessed when they constructed the graph based on the real-world data and used the graph to draw conclusion about the real world involving outdoor activities. In this task, students were provided with real-world data in which they were asked to graph the data and find the gradient of the various graphs. Students used the gradient to conclude about the geographical terrain used for outdoor activities like kayaking and mountain climbing. They modeled the data and the graphs using an equation and used the equation for making decisions about the outdoor activities. Finally, students were assessed as they explored the real-world context using the gradient they had found by using graphic calculator.

Assessment Task One on Statistics

Purpose:

a) To assess students' understanding of the concept of modal class, interval class and means.

b) To assess students' reasoning when investigating the relationship between the class size and the mean of grouped data.

c) To assess students' communication when presenting their findings about the relationship between class size and mean of grouped data.

In this task, students were assessed when they investigated the relationship between the class size and the mean of grouped data. In this investigational task, students were provided with real-world data in which they were asked to find the mean and mode of the ungrouped data. Students had to explain the meaning of the mean they had found. They then grouped the data according to several different class sizes and constructed several tables of frequency for the different class sizes. For each table of frequency, they calculated the mean of the data set. Next, they determined the class size that had the nearest mean to the mean of the ungrouped data and made a generalization about the relationship between the mean and class size. Lastly, they explored the effects of changing the size of class intervals on the mean of the grouped data of other data sets.

The teachers used assessment rubrics to interpret and evaluate students' performance of the tasks and to provide feedback to the students on their performance and progress in learning the topics of Straight Line and Statistics.

The students in the control group were also taught Straight Line and Statistics by the same mathematics teacher using TI-83 Plus graphic calculator. However, they were not given any of the eleven performance assessment tasks by their teacher during the teaching and learning of the two topics.

Before the intervention which involved administering the treatment to the experimental class, the teachers collected the pre-test data on students' mathematics achievement by administering the MAT to their students in both the experimental and control groups. After the intervention, the same teachers collected the post-test data on students' mathematics achievement by administering the same instrument.

Data Analysis

To answer the research question and to evaluate the null hypothesis of this study, the data collected from the pre-test and post-test were analyzed using both descriptive and inferential statistics. The independent-samples *t* test was first conducted on the scores of mathematics achievement in the pretest to determine whether the difference in mathematics achievement between the experimental group and the control group of each participating school prior to the intervention was significant at $p < .05$. If the test showed that the difference between the two groups prior to the intervention was not significant, then the independent-samples *t* test would be conducted on the scores of mathematics achievement in the post-test to determine whether the difference in mathematics achievement between the experimental group and the control group of each participating school after the intervention was significant. On the contrary, if the test showed that the difference between the two groups prior to the treatment was significant, then the ANCOVA test would be conducted on the scores of mathematics achievement in the post-test to determine whether the difference in mathematics achievement between the experimental group and the control group of each participating school after the intervention was significant at $p < .05$. The ANCOVA test would be used to make correction to the difference that existed between the experimental and control

groups prior to the intervention so that the difference observed between the experimental and control groups after the intervention was only due to the treatment and not because of the difference that existed between the two groups prior to the intervention.

RESULTS AND DISCUSSION

Pre-test results

The mean and standard deviation of the mathematics achievement scores in the pre-test, as well as the results of the independent-samples t tests for all the eleven schools are presented in Table 3. The results of the independent-samples t tests show that there was no significant difference in the mean mathematics achievement scores between the experimental and control groups for all the eleven schools at $p < .05$, indicating that there was no significant difference in mathematics achievement between the experimental and control groups for all the schools.

Table 3 Mean, standard deviation, t- and p-values for the experimental and control groups

School	Groups	Mean	Standard deviation	t	Sig. (2-tailed)
School A, Kuala Lumpur	Control (n = 26)	11.26	3.40	- 1.17	.907
	Experimental (n = 31)	11.23	1.17		
School B, Kuala Lumpur	Control (n = 30)	9.53	1.62	2.43	.310
	Experimental (n = 33)	9.11	1.73		
School C, Kuala Lumpur	Control (n = 37)	8.30	0.74	-0.90	.370
	Experimental (n = 36)	8.16	0.56		
School D, Malacca	Control (n = 42)	12.07	2.19	0.79	.413
	Experimental (n = 39)	11.51	2.77		
School E, Malacca	Control (n = 41)	9.07	2.19	0.72	.373
	Experimental (n = 39)	9.51	2.77		
School F, Johor	Control (n = 38)	8.07	2.19	0.69	.813
	Experimental (n = 39)	8.51	2.77		
School G, Kuantan	Control (n = 45)	11.07	2.19	0.53	.713
	Experimental (n = 43)	10.51	2.77		
School H, Kuala Terengganu	Control (n = 42)	8.07	2.19	0.66	.613
	Experimental (n = 41)	7.51	2.77		
School I, Selangor	Control (n = 41)	9.07	2.19	0.57	.412
	Experimental (n = 40)	8.51	2.77		
School J, Selangor	Control (n = 41)	9.57	2.19	0.44	.613
	Experimental (n = 43)	10.12	2.77		
School K, Selangor	Control (n = 38)	9.07	2.19	0.57	.523
	Experimental (n = 39)	8.51	2.77		

*significant at $p < .05$

Post-test results

The mean and standard deviation of the mathematics achievement scores in the post-test, as well as the results of the independent-samples t tests for all the eleven schools are presented in Table 4. The results of the independent-samples t tests show that there was a significant difference in the mean mathematics achievement scores between the experimental and control groups for all the eleven schools, indicating that there was no significant difference in mathematics achievement between the experimental and control groups for all the schools at $p < .05$. In addition, for each of the eleven schools, the mean mathematics

achievement score of the experimental group was higher than that of the control group, indicating that the experimental groups performed significantly better than the control groups in the mathematics achievement test for the two topics of Straight Line and Statistics. The results suggest that graphic calculator-based performance assessment was effective in improving Form Four students' mathematics achievement in the topics of Straight Line and Statistics.

Table 4 Mean, standard deviation, *t*- and *p*-values for the experimental and control groups

School	Groups	Mean	Standard deviation	*t*	Sig. (2-tailed)
School A, Kuala Lumpur	Control (n = 26)	30.73	7.48	4.89	.010*
	Experimental (n = 31)	35.35	6.15		
School B, Kuala Lumpur	Control (n = 30)	34.73	3.33	7.18	.002*
	Experimental (n = 33)	39.81	2.27		
School C, Kuala Lumpur	Control (n = 37)	27.91	3.13	2.80	.007*
	Experimental (n = 36)	31.13	3.64		
School D, Malacca	Control (n = 42)	25.08	8.20	2.67	.008*
	Experimental (n = 39)	29.65	7.12		
School E, Malacca	Control (n = 41)	32.08	8.20	2.62	.003*
	Experimental (n = 39)	39.65	7.12		
School F, Johor	Control (n = 38)	28.08	8.20	2.22	.005*
	Experimental (n = 39)	31.65	7.12		
School G, Kuantan	Control (n = 45)	31.08	8.20	2.57	.003*
	Experimental (n = 43)	38.65	7.12		
School H, Kuala Terengganu	Control (n = 42)	27.08	8.20	2.77	.004*
	Experimental (n = 41)	36.65	7.12		
School I, Selangor	Control (n = 41)	27.08	8.20	3.12	.006*
	Experimental (n = 40)	28.65	7.12		
School J, Selangor	Control (n = 41)	31.08	8.20	2.76	.007*
	Experimental (n = 43)	39.65	7.12		
School K, Selangor	Control (n = 38)	32.08	8.20	2.17	.003*
	Experimental (n = 39)	39.65	7.12		

*significant at *p* < .05

The results of this study in general concur with the results of several recent studies on the usage of graphic calculator in the teaching and learning of mathematics that were conducted in Malaysia (Noraini Idris, 2006) and also in other parts of the world (Graham & Thomas, 2000; Horton, Storm & Leonard, 2004). Noraini Idris's study which investigated the effect of using graphic calculator in the teaching and learning of secondary mathematics on students' mathematics achievement showed that the pre-test mean mathematics achievement score for the experimental group (using graphic calculator) was 12.20 (SD=3.68) as compared to the pre-test mean mathematics achievement score for the control group (without using graphic calculator) of 12.21 (SD=3 .22). The post-test mean mathematics achievement score was higher than the pre-test mean mathematics achievement score for both the experimental group (29.27, SD=3 .15) and control group (29.27, SD=3 .15), with the experimental group showing a greater increase than the control group. The results revealed that the students in the experimental group showed significantly greater improvement in mathematics achievement than the students in the control group, suggesting that using graphic calculator in the teaching and learning of secondary mathematics was effective in improving students' mathematics achievement.

In addition, Graham and Thomas' (2000) study which examined the effect of using graphic calculator activities in the teaching and learning of algebra on students' mathematics achievement showed that the experimental groups significantly outperformed the control groups on the post-test, even though there was no significant difference in mathematics achievement between the two groups on the pre-test.

Further, Horton, Storm and Leonard's (2004) study which sought to determine if the Casio FX2.0 tutorial would help students improve their skills in solving linear equations. The results of a one-tailed independent-samples t test showed that the experimental group (M = 2.74) significantly outperformed the control group (M = 2.25) on the post-test. Post hoc statistics were performed to determine on which questions there was a significant difference between the two groups. The experimental group outperformed the control group on six questions; the control group did not outperform the experimental group on any questions.

CONCLUSION

The results of this study show that graphic calculator-based performance assessment was effective in improving Form Four students' mathematics achievement in the two topics of Straight Line and Statistics. One of the factors that contributed to the improvement of students' mathematics achievement in the two topics might be the students' use of graphic calculator in the performance assessment tasks had increased their use of graphic, numeric and symbolic solution strategies which, in turn, enhanced their understanding of the mathematical topics studied. At the same time, graphic calculator-based performance assessment increased the time spent by the teachers in the experimental groups on the teaching and learning activities which involved more problem solving and investigation as compared to the teachers in the control groups. In general, the results suggest that performance assessment that incorporated the use of graphic calculator has influenced the teaching and learning of mathematics which supports students' visualization, allowing them to explore problems which they may not otherwise be able to solve and thus enable them to better understand the two mathematical topics. In conclusion, graphic calculator-based performance assessment enables students to solve problems graphically, numerically and symbolically which, in turn, enable them to better understand the mathematics they are learning.

REFERENCES

Ellington, A. J. (2003). A meta-analysis of the effects of calculators on students' achievement and attitude levels in precollege mathematics classes. *Journal for Research in Mathematics Education, 34*(5), 433-463.

Graham, A. T., & Thomas, M. O. J. (2000). Building a versatile understanding of algebraic variables with a graphic calculator. *Educational Studies in Mathematics*, 41(3): 265-282.

Harvey, J. G., Waits, B. K., & Demana, F. D. (1995). The influence of technology on teaching and learning of algebra. *Journal of Mathematical Behavior, 14,* 75-109.

Heller, J. L., Curtis, D. A., Jaffe, R., & Verboncoeur, C. J. (2005). Impact of handheld graphing calculator use on student achievement in algebra 1. Complete study available at the Texas Instruments Web site: http://education.ti.com/sites/US/downloads/ pdf/EEI_GraphingCalcReviewReport_2006.pdf.

Horton, R. M., Storm, J., & Leonard, W. H. (2004). The graphic calculator as an aid to teaching algebra. *Contemporary Issues in Technology and Teacher Education*, *4*(2), 152 -162.

Jones, P. (2000). Realizing the educational potential of the graphic calculator. In Edward. D. Laughbaum. *Hand-Held Technology in Mathematics and Science Education: A Collection of Papers*. Columbus, OH: The Ohio State University.

Kemp, M., Kissane, B. & Bradley, J. (1995). Assessment and the graphics calculator. In Anne, R. (Ed.), *FLAIR: Forging links and integrating resources* (pp. 235-241). Darwin: The Australian Association of Mathematics Teachers.

Kissane, B. (2000). Technology and the curriculum: The case of the graphics calculator. In M. O. J. Thomas (Ed.), *Proceedings of TIME 2000: An international conference on*

Technology in Mathematics Education (pp. 60-71). Auckland, New Zealand.

Khoju, M., Jaciw, A., & Miller, G. I. (2005). Effectiveness of graphing calculators in K-12 mathematics achievement: A systematic review. Palo Alto, CA: Empirical Education, Inc. Complete study available at the Texas Instruments Web site: http://education.ti.com/sites/US/ downloads/pdf/Heller_GrCalcReport_2005.pdf.

Kor, L. K., & Lim, C. S. (2003). Learning statistics with graphics calculator: A case study. *Proceedings of First National Conference on Graphing Calculators,* (pp. 18-26). Petaling Jaya: University Malaya.

Noraini Idris (2002). Developing self-confidence among Malay students: Usage of graphing calculator. In Douglas Edge & Yeap Ban Har (Eds.), *Proceedings of Second East Asia Regional Conference on Mathematics Education and Ninth Southeast Asian Conference on Mathematics Education (Volume 2, Selected Papers)* held on 27-31 May 2002 in Singapore, pp. 447-451.

Noraini Idris (2003). Communication in mathematics: Usage of graphing calculator. *Proceedings of First National Conference on Graphing Calculators,* (pp. 91-108). Petaling Jaya: University Malaya.

Noraini Idris, Tay, B. L., Ding, H. E., Goh L. S. Anis Sabarina, & Nilawati Mahfud (2003). A graphing calculator-based instruction and its impact on the teaching and learning of mathematics. *Proceedings of First National Conference on Graphing Calculators,* (pp. 1-17). Petaling Jaya: University Malaya.

Noraini Idris (2004). Exploration and entertainment mathematics: Why graphics calculator? *Proceedings of Second National Conference on Graphing Calculators*. Penang, Malaysia.

Noraini, Idris (2006). Exploring the effects of ti-84 plus on achievement and anxiety in Mathematics. *Eurasia Journal of Mathematics, Science and Technology Education*, 2(3), 66-78.

Rosihan, M. Ali, Daniel, Zarita Zainuddin, Suraiya Kassim, Hajar Sulaiman, Hailiza Kamarul Haili and Mokhtar Ismail (2003). A graphic calculator lab course in mathematics. *Proceedings of First National Conference on Graphing Calculators,* (pp. 71-90). Petaling Jaya: University Malaya.

Waits, B., & Demana, F. (2000). The role of hand-held computer symbolic algebra in mathematics education in the twenty-first century: A call for action! In Edward D. Laughbaum (Ed.), *Handheld technology in mathematics and science education: A collection of papers*. Columbus, OH: The Ohio State University.

INTER-LINKAGES OF PUBLIC INVESTMENT AND ECONOMIC GROWTH IN PAKISTAN: AN ECONOMETRIC ANALYSIS

Abdul Qayyum Khan

Assistant Professor,
COMSATS Institute of Information Technology, Wah Cantt
PAKISTAN
qayyum_72@yahoo.com

ABSTRACT

This paper critically evaluates the effects of economic growth on public investment in Pakistan. Annual secondary data for the period ranging from 1960 to 2005 are used, taken from Economic Survey of Pakistan (various issues) and International Financial Statistics (various issues). Linear regression model followed by Two Stage Least Squares (2SLS) techniques is used for the analysis. The study revealed that expansion in out put and reserves has favorable impacts on public investment. Based on the finding of the study it is recommended that long term private/public investment policies of government, can gain better results in economic growth which ultimately enhance public investment and will ensure increasing employment opportunities and reduce poverty. Export sector needs more attention in term of quality, prices and marketing strategies for growth enhancement.

Keywords: Economic Growth, Public Investment, Employment Opportunities, and Poverty Reduction

INTRODUCTION

Since independence Pakistan could not find true path for sustaining desirable level of economic growth. A continues interruption has been seen in government formation, which not only weakened the economic position internally, but out-side country image has also been affected badly, which further worsen the economic status of Pakistan. Real GDP growth decreased from 6.26 percent (1960-73) to about 5 per cent in (1973-77) again increased to 6.6 per cent in (1978-88). This acceleration in the GDP growth was induced to some extent by increased in investment. The gross fixed capital formation as a percentage of the GDP increased from 15.5 per cent in (1973-1977) to 16.8 per cent in (1977-88). Average gross fixed capital formations private and public during 1960-1973 were 8.21 and 7.26 percent of GDP respectively. The situation become worsens in 1990s. GDP growth declined to 3.1 percent from 4.3 percent in 1998. Following nuclear tests in late May 1998, economic sanctions imposed by G7 countries seriously affected the economy. Economic growth declined steeply as investors lost confidence, private capital flows virtually ceased, and the new official development assistance was suspended. Private and public investment decreased to 8.10 and 5.21 percent respectively during 1999-2000.Budget deficit was 5.5 percent of GDP in 1960, and increased to 7.4 percent of GDP in 1989-1990. Total expenditure continuously decreasing from financial year 2000-01. Rise in revenue and reduction in expenditure reduce the gap between revenue and expenditure and fiscal deficit reduced to 3.8 percent of GDP in 2005 (Economic Survey of Pakistan various issues).

The empirical evidence regarding the affect of economic growth on public investment is not conclusive. Roubini and Sachs (1989) observed that slower growth and higher unemployment after 1973, and higher real interest rates in 1980s decrease public investment of industrialized countries. Nelson and Singh (1994) observed that the growth variable exercised little or no impact of any statistical significance on public investment in LDCs during the 1970s and 1980s. Burney and Akhtar

(1992) observed that budget deficits have significant positive impact on the real exchange rate directly as well as indirectly through the price level. Chaudhary and Shabbir (2005) observed that increase in government budget deficit, partially due to an income inelastic revenue structure, create excessive supply of money over demand and lead to foreign reserves outflow. The present study will analyze the inter-linkages of economic growth and public investment by taking period from 1960 to 2005.

OBJECTIVE OF THE STUDY

The main objective of this study is to investigate the mechanism through which the economic growth affects is transmitted to public investment.

MATERIALS AND METHODS

Time series data for the sample period 1960-2005, which are taken from Economic survey of Pakistan, and International Financial Statistics, is used. Linear regression model with 2SLS method is used for analysis. More specifically, the following linear regression model is used for estimation:

$$PUINV = f \ (EG, RES, r) \tag{1}$$

Where PUNIV is public Investment, RES is the foreign exchange reserve (balance of payment), and r is real interest rate.

The Economic growth, Balance of Trade and foreign exchange reserve (balance of payments) equation are defined as:

$$EG = \Delta y \ / \ y \tag{2}$$

$$BT = \text{Export-Import} \tag{3}$$

$$RES = RES \ _{(-1)} + BT + fB \tag{4}$$

Where BT is the trade balance, fB is the net foreign borrowing, EG is economic growth, Δy change in real out put.

The linear model in log form can be written as

$$\ln (PUINV) = e_0 + e_1 \ln(EG) + e_2 \ln(RES) + e_3 \ln(r) + \mu_1 \tag{5}$$

Endogenous variables is: PUINV

Exogenous variables are: RES fB, r, and BT.

The workings of the models are as follows: When the government spend this borrowing (increase both in consumption and investment expenditure), means increase in out put, that in turn raises the public investment. The change in domestic price level depends on change in aggregate income or expenditure. If increase in aggregate spending is more than the volume of production then prices increases, if increase in volume of production of output is more than the increase in aggregate spending then prices will decreases, and if aggregate spending and volume of production of output is same then prices remain the same. The change in prices affects the supply of export and demand for import through relative prices of exports and imports. Changes in exports and imports affect the balance of trade (BT), which in turn affects the reserve. This will bring a corresponding change in output, which again affect public investment.

RESULTS AND DISCUSSIONS

The results in Table 1 and 2 of the unit root test indicate that all the three variables including economic growth, public investment and reserves are non-stationary at level whether trend is included or not.

Johansen Likelihood Ratio (LR) test is used to find out the co integration in the regressions used for analysis. The result of Likelihood Ratio (LR) test is depicted in table 3. The Likelihood Ratio (LR) test results point out that the assumption of no co integration has been rejected for public investment equation by Likelihood Ratio (LR) statistics. The test denotes the existence of two co integrating equations as the calculated values of Likelihood Ratio (LR) statistics are greater than the critical values at 5 percent as well as 1 percent. The test results show that the variables are co integrating and they have long-term relationships.

The results of the linear regression model reported in table 4. In general the results are logical because the explanatory power, R^2 is fairly high, and there is no serious autocorrelation problem as shown by Durbin Watson and H Statistics[1].

The result of public investment equation shows that 1% increase in out put and foreign reserve increase public investment by .94% and .11% respectively. The public investment relationship with real interest rate indicate that 1% increase in real interest rate reduce public investment by .003% but insignificant. The coefficient of out put and foreign reserve are significant at 1% and 5% respectively. The increase in foreign reserve leads to rise in public investment level, which enhances the productive capacity of the economy.

CONCLUSIONS AND RECOMMENDATIONS

The present study revealed that expansion in government capital expenditure in the long term has favorable impacts on public investment. Consumption expenditure, capital expenditures and balance of trade have favourable impact on output development. From the finding it is clear that in order to enhance reserve export will to encourage and import to discourage. For this purpose the export sector needs more attention in term of quality standard, price control, and internationally adopted marketing strategies. The empirical evidence leads to the conclusion that fiscal and monetary variables are important to determine the macroeconomic stability in Pakistan. If the government gives priority to long term and stable growth policies, it can gain better results in public investment.

REFERENCES

Aghevli, B. B. 1977. "Money Prices and Balance of Payments: Indonesia 1968-73". *The Journal of Development Studies,* 13(2): 37-57.

Burney, N.A. and N. Akhtar 1992. "Government Budget Deficits and Exchange Rate Determination: Evidence from Pakistan ". *The Pakistan Development Review.* 31(4): 871-882.

Chaudhary, M.A. and G. Shabbir 2005. "Macroeconomic Impacts of Budget Deficit on Pakistan's Foreign Sector". *Pakistan Economic and Social Review.* XLIII (2): 185-197.

Durban, J. 1970. "Testing for Serial Correlation in Least Squares Regression, When Some of the Regressors are Lagged Dependent Variables". *Econometrica*l 38: 410-421.

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[1] When lagged value of dependent variable is used as an independent variable in regression equation then estimated DW statistic has no importance regarding the existence of autocorrelation. Thus, H test is used to check the presence of autocorrelation. If DH statistic is significant, then we reject the hypothesis that there is no serial auto correlation other wise accept it. For further detail see J. Durbin (1970)

Ghali, K.H. 1997. "Government Spending and Economic Growth in Saudi Arabia". *Journal of Development Economics.* . 22(2): 165-172.

Government of Pakistan*, Pakistan Economic Survey*, (Various Issues), Islamabad, Pakistan

Hussain, F. and T. Mahmood 2001). "The Stock Market and the Economy of Pakistan". *The Pakistan Development Review.* 40(2): 107-114.

IMF 2003. *International Financial Statistics.* Washington, D.C. International Monetary Fund.

Kemal, A.R. 'Patterns of Growth in Pakistan's Industrial Sector', in Shahrukh Rafi Khan (ed.), *Fifty Years of Pakistan's Economy*, OUP, Karachi, p. 165.

Nelson, M.A. and R.D. Singh 1994. "The Deficit Growth Connection Some Recent Evidence from Developing Countries". *Economic Development and Cultural Change.* 42: 167-191.

Pasha, H. 1999 " Fifty Years of Finance in Pakistan : A Trend Analysis in Khan, Shahrukh Rafi (ed.)".*Fifty Years of Pakistan Economy.*

Premchand, A. 1984. "Government Budgeting and Expenditure Controls: Theory and Practice". *International Monetary Fund*, Washington, D.C.

Roubini, N. and J. Sachs 1989. "Political and Economic Determinant of Budget Deficit in the Industrial Democracies". *European Economic Review.* 33(5): 903-933.

Sargent, T. and N. Wallace 1981. "Some Unpleasant Monetarist Arithmetic". *Quarterly Review,* Federal Reserve Bank of Minneapolis. No. 5, pp. 1-18.

Sikander, R. 2001. "Myths of Economic Development". *Lahore School of Economics,* Occasional Paper No.10.

Soligo, and J.J. Stern, 1965. 'Tariff Protection, Imports Substitution and Investment Efficiency', *The Pakistan Development Review.* 5(2): 249-269.

Sterin, G. M. and S.K Mohsin 1978. "The Supply and Demand for Export: A Simultaneity Approach". *The Review of Economic and Statistic.* 50(2): 278.

White, L.J. 1974. "Industrial Concentration and Economic Power in Pakistan". Princeton NJ: University Press. pp. 63.

World Bank 2006. "Pakistan Economy's in 2006 Performance and outlook".

APPENDIX

Table 1: ADF Test for Stationarity (includes intercept but not a trend)

Variables	I(0)		I(1)		I(2)		Result
	Test statistics[1]	Critical value	Test statistics	Critical value	Test statistics	Critical value	
EG	0.3205[0]	-3.6422	-6.2061[0]	-3.6496			I(1)
PUINV	-1.7403[1]	-3.6496	-5.5255[1]	-3.6496			I(1)
RES	-2.8745[0]	-3.6422	-5.7169[0]	-3.6496			I(1)

[1] Figures in square brackets besides each statistics represent optimum lags, selected using the minimum AIC value. INF stands for inflation.

Table 2 : ADF Test for Stationary (includes intercept and a trend)

Variables	I(0)		I(1)		I(2)		Result
	Test statistics[1]	Critical value	Test statistics	Critical value	Test statistics	Critical value	
EG	-1.9760[0]	-4.2605	-6.3844[0]	-4.2712			I(1)
PUINV	-1.9677[0]	-4.2605	-4.8225[1]	-4.2826			I(1)
RES	-2.8357[0]	-4.2605	-5.5901[0]	-4.2712			I(1)

[1] Figures in square brackets besides each statistics represent optimum lags, selected using the minimum AIC value. INF stands for inflation.

Table 3. Johansen co integration test result with intercept (no trend) in CE and no intercept in VAR. (Variables included in the co integrating vector: PUINV, EG, RES and r).
Test assumption: No deterministic trend in the data. Lag interval is 1 to 1

Eigenvalue	Likelihood Ratio	5 Percent Critical Value	1 Percent Critical Value	Hypothesized No. of CE(s)
0.5093	60.64	34.91	41.07	None **
0.3829	29.32	19.96	24.60	At most 1 **
0.1678	8.08	9.24	12.97	At most 2
0.0369	4.25	8.69	10.86	At most 3

Table 4. Result of Linear Regression
Public Investment Equation
PUINV = 0.998 + 0.943 EG + 0.113 RES - 0.00274 r + 0.772 LPUINV
s.e   0.2626   0.4475   0.0469   0.0045   0.0666
t.stat $(3.80)^*$ $(2.11)^{**}$ $(2.41)^*$ (-0.61) $(11.6)^*$
R-sq = 97.5%,   R-sq (adj) = 97.2%,S.E of regression = .1090, h- statistic = - .43
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*Significant at 1%, **Significant at 5%, ***Significant at 10%, 2SLS is used for estimation

THE FRAMEWORK OF
"USES AND GRATIFICATIONS APPROACH"
THE TELEVISION VIEWING PURPOSE OF
CHILDREN IN THE 3-6 AGE GROUP

Çiğdem CALAPKULU
Anadolu University
Social Science Graduate Institute
Eskisehir, TURKEY.
cigdem.calapkulu@hotmail.com

ABSTRACT

Today's children are living in environments where technological advancement is rapid and its usage wide-spread. This situation means new life styles for children. In information societies, for children to be able to reach the information that they need, form their own opinions based on this information and express them, constitutes their contribution to society. The most ubiquitous and effective mass communication tool that has entered into our lives with technological advancement is television.

Children in front of the television are living creatures who demonstrate the behaviors of seeking, selecting and organizing. In this context, what television brings to them is equally as important as what they bring to television.

This study sets forth from the importance of the audience and its purpose is to discover the television consumption of children in the 3-6 age group from the position of the uses and gratifications approach, and their perception and television usage. This study carries importance from the standpoint of learning reasons for television usage and the satisfactions that children gain by watching television in today's world, and providing information on the conscious consumption of television programs. In the same manner, it will provide data on the development of the parents' consciousness regarding broadcasted programs that contribute most to the development of their children and on the regulation of the broadcasts by the regulating bodies within pre-determined limits and under certain circumstances

Keywords: Children, television, audience, motivation, satisfaction

INTRODUCTION

The purpose, importance, assumptions, limitations, and definitions will be discussed in this part of the study.

Problem

Mass media tools have effects on people's minds and their daily lives: this is why they are considered and made subjects of research projects. Due to its prevalence and its reach, television is usually at the center of these studies. The effect of television encompasses a wide range of research fields; especially from the standpoint of children being unable to tell the difference between the fiction and the reality[1].

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[1] Ulken, F. B. Televizyon İzlemede Anne-Baba Aracılığı ile Çocukların Saldırgan Davranış- ları Arasındaki İlişki [Television Watching Via Mother-Father The Relationship Between Children's Violent Behavior], unpublished PhD dissertation, Anadolu University Social Sciences Graduate Institute, (Eskisehir, 2009) p.1, Turkey.

Television, which is the most ubiquitous and the most effective mass media communication tool to enter our lives with the advancements in technology, has always been treated differently than other mass communication tools. Within the structure of modern society, societal relationships are going through radical changes and television satisfies many functions whether it is for individuals or for society as the whole.

These functions can be briefly summarized as: information, education and entertainment. Many researchers and critics indicate the reason for television's existence is because it entertains people or makes them feel they are enjoying their pastime, in short: keeping them occupied. However, the questions of "why people watch television" or "what kind of satisfaction they get from television" are still relevant and being examined even today[2].

There are broadcasts on television for every single age group in society. It is a known fact that these broadcasts affect children. For the broadcasts targeting children, the principle of "educates while entertains" is usually valid. Research shows television as a tool that helps people to form a society, to provide information to children at an early age, to expand children's vocabulary, and be the most important factor aside from the mother and the father[3]. Television has a significant impact on children's lives. So much so that it could remain as the most important means for children throughout their infancy period and in the years following of bringing the outside world into the house. Therefore, children always remain open[u1] to television's messages[4].

How children watch television and how they interpret broadcasts differs according their age. The level of the information that they gather from the broadcasts depends on their attention levels, their efforts of comprehension and their life experiences[5].

Today's children live in an environment that is occupied with rapidly spreading and advancing technologies. From technological and cultural standpoints, this situation translates into new life styles for children. In information societies, for children to reach the information that they need, to form their opinions based on this information and to express those thoughts lays the foundation for their societal contribution. A child in front of a television is a living creature who demonstrates the behavior of searching, choosing and organizing. From this standpoint, what television brings to the child is equally important as what the child brings to the television[6].

The purpose of this study - which was conducted in the framework of "uses and gratifications approach"- is to research the television viewing habits of children in the 3-6 age group, and the motivations related to these habits. The data derived from interviews conducted with the television viewers will be examined and the reasons why children watch television will be researched by utilizing the hypothesis of the uses and gratifications approach.

The question of how the uses and gratifications approach and children are related is the problem posed by this research study. Under the topic of the "problem", the concept of *child* and the development characteristics of children between the ages of 3-6, within the conceptual framework of uses and gratifications approaches regarding the effects of television and research studies on the effects of television on children, will be explained in this research study.

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2   Cakir, V. Bir Sosyal Etkinlik Olarak Eğlence ve Televizyon [Entertainment and Television as a Social Activity], unpublished PhD dissertation, Selcuk University Social Sciences Graduate Institute, (Konya, 2005) p.1, Turkey.

3   Guler, D. "Çocuk, Televizyon ve Çizgi Film [Children, Television and Cartoons"], **Kurgu**, Open Education Faculty, (Eskisehir, 1989), Issue: 5. p.166, Turkey.

4   Guler, **ibid** p.166-167

5   Iscibasi,, Y. "Çocuğun Sosyalleşmesinde Aile-Televizyon İlişkisi [Family-Television Relationship in Children's Socialization"], **Kurgu**, Open Education Faculty, (Eskisehir, 2003), Issue: 20. p. 82, Turkey.

6   Hizal, A. "Televizyonun Çocuklar ve Ergenler Üzerindeki Etkisi [Television's Effect on Children and Adults"], Journal of Education Faculty, Issue: 1-4 (Ankara, 1977) p.172, Turkey.

Childhood and Children's Development Characteristics

The term of *child* is defined as a "developing small human", or a "human who is in the development period which is in between the infancy and the puberty periods", and to some it is "the period between the ages of 1 to 13-14"[7]. Guler emphasizes that without understanding children or knowing the characteristics of the childhood period it would be difficult to interpret and evaluate what they do[8]. To understand children, it is very important to classify the childhood period, which further breaks down into different periods. The childhood period of the human life -which is widely known as the period from the insemination until the death- is divided into development phases as: infancy period (0-2), early childhood period (3-6), late childhood period (6-12) and puberty period (beginning at 11-13 and ending at 18-20)[9]:

Infancy Period (0-2) According to Piaget this period is defined as the emotional motion and babies show an incremental progression from reflexive motions to a symbolic thinking phase. They start distinguishing themselves from objects. They recognize objects based on their experiences. Towards the end of this phase, they start establishing temporary cause and effect relationships regarding the dimensions of time and place. The first television viewing experiences of babies occur as grouping the types of recognizable human and animals with the light and sound parts of what is being broadcast into meaningful components. It has been pointed that there is evidence that children in this period can imitate a simple behavior shown on television[10].

Early Childhood Period (3-6): In this period-named by Piaget as pre-processing period-children start using language and thus improve their skills of thinking with symbols. They learn to present objects with symbols and words. They can treat an object in their play as if it were another object. However, thinking is still under the command of images. When images change, they cannot comprehend that the object is the same object and they try to classify the object under a certain specification. Thinking is still egocentric, and because of this they experience difficulty in understanding problems from others' points of view.

The children in this period look at the television from a researcher's standpoint. They look for a meaning in the context of the images they see, but their attention is usually focused on the rapid movements of the characters, rapid changes of the scenes, violence or unexpected surprises[11].

Late Childhood Period (6-12): In this period-which is also known as tangible processing-oriented period - children can establish logical relationships between tangible objects and incidents. They cannot, however, perform reasoning intangibly. Their thoughts are not egocentric anymore. Therefore, they can approach problems by accounting for other people's points of view. In this period children's abilities concerning the length of focusing their attention on the program being broadcasted and their comprehension skills towards following the intrigues occurring in the program improves. They start reaching the conclusion based on the program's subject and start recognizing the actions of the characters that they are watching in the show, which are familiar to themselves[12]. This period which encapsulates the early childhood period is divided further into development phases - that carries wholeness within itself from the point of view of certain specifications, and interact with each other - to simplify the examination and definition of the development process of the 3-6 age group, which will be the subject of this research study. Within this framework the development will be investigated

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[7]   Guler, D. **Çocuk Dediğin? [What You Call a Kid?],** (Eskisehir, 1997), Foundation of Education, Health and Scientific Researches, p. 3. Turkey.; Hancerlioglu, O. **Felsefe Ansiklopedisi: Kavramlar ve Akımlar [Encyclopedia of Philosophy Concepts and Movements],** (Istanbul: Remzi Bookstore Publishing, 1977), p. 20, Turkey.

[8]   Guler, (1997), **ibid,** p.163-177.

[9]   Iscibasi, **ibid,** p. 82

[10]   **Ibid.**

[11]   **Ibid,** p. 83

[12]   **Ibid.**

from these five directions from a general perspective: Physical, cognitive, linguistic, emotional and social[13].

Development Characteristics of the Children Between 3-6

The childhood period between the ages of 3-6 - also known as "Early childhood" and "pre-school period" - carries a great importance because it is the period when the milestones of development are formed, and the years constituting this period are the ones when basic knowledge and skills are gained[14]. According to Ocel, to be able to understand how children form attitudes and behaviors towards their social and physical environment, the phases regarding the children's development must be understood first[15]. Therefore, it will be beneficial mentioning the development phases, which show changes according to the age of the children in the 3-6 age group.

Physical Development

Physical growth and development has a significant effect on individuals' personalities. Physical structure constitutes the foundation for all the functions and behaviors necessary for a human being to keep living. Therefore, physical growth and development affects individuals' development significantly. Thus the personality grows out of this interaction[16]. The physical development process, which is experienced for improving and maturing the body's systems, through the increase in children's height and weight, encapsulates: the increase in height, increase in the weight, eruption of the first teeth and their evolution, the changes in the body-related ratios, and the development of bones, muscles, the nervous system and sensory organs[17].

Linguistic Development

Oral communication is the skill of being able to construct sentences out of meaningful words and being able to comprehend what other people say.

The basic principles of linguistic development in the period between the ages of 3-6 are "being able to understand other people's languages, being able to pronounce words, constructing vocabulary, and being able to place words into sentences".

Children are expected to comprehend what they listen to and to have an understanding in distinguishing simple and complicated words before being registered at a school. In this period children ask questions such as: "Why?", "When?", "How" and "What for?" perseveringly to understand the meanings of words and the reasons behind incidents[18].

Emotional Development

Emotions and excitement are the general states of stimulation which differ from person to person level-wise. These states are expressions of behaviors which can be observed by other people. Fear, jealousy and fury are the excitement types that can be observed in this period. To be able get rid these emotional states, they develop some kinds of defense mechanisms. These defense mechanisms are: the behavior of closing in, declining, denial, suppressing and reflecting. Closing in includes the following defense methods: the scared child, when a stranger comes into the room they look away from him/her, escape from the room, refuse other children when they want to play with him/her.

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[13] Can, G.; I. Ozguven, E.; Senemoglu, N.; Ceyhan, A. A. & Turkum, S. **Çocuk Gelişimi ve Psikolojisi 4. Baskı [Child Development and its Psychology, Fourth Edition]**, Editor: Ceyhan, E., (Eskisehir: Anadolu University Publishing, 2004), p. 122, Turkey.

[14] Aral, N.; Adalet Kandir, A. & Yasar, M. C. **Okul Öncesi Eğitim ve Anasınıfı Programları [Pre-School Education and Nursery Class Programs]**, (Istanbul: Ya-Pa Publishing, 2000), p. 50, Turkey.

[15] Ocel, N. **İletişim ve Çocuk [Communication and Children]** (Istanbul: Istanbul University Communication Faculty Publishing, 2002), p.17, Turkey.

[16] Bilgin, M. "Bedensel ve Devinsel Gelişim [Physical and Kinetic Development"], in **Gelişim ve Öğrenme Psikolojisi [Psychology of Development and Learning]**, (Ankara, Pegem Publishing, issue. 51-73, 2003), p. 53, Turkey.

[17] Aral, N. Baran, G.; Bulut, S. & Cimen, S. **Cocuk Gelişimi 2 [Child Development 2]**, (Istanbul: Ya-Pa Publishing, 2000), p. 33, Turkey.; Fisek, G. O. & Yildirim, S. M. **Çocuk Gelişimi [Child Development]** (Istanbul: Milli Egitim Publishing, 1983), p. 5, Turkey.

[18] Yavuzer, H. **Çocuk Psikolojisi [Child Psychology]**, (Istanbul: Remzi Publishing, 2000), p. 93, Turkey.

Declining is when children experiencing a spiritual conflict demonstrate the characteristics of the previous development periods. Denial is the state of ignoring, forgetting about the main object of conflict to ease their worries regarding an emotional conflict. Reflecting is the state where children reflect upon an undesired thought or an action, subliminal emotions such as an attacking desire, hatred or guilt towards another person[19].

Human beings do not come into the world with some certain emotional behavior characteristics. Attitudes and emotions are developed over time. The emotional development of children emerges as a result of maturing and learning. In the process of emotional development for children between the ages of 3-6, the effects coming from their inner and outer worlds and the state of any given incident being perceived as nice or not nice gains importance[20].

Social Development

In the play stage, children in the 3-6 age group grow physically, intellectually and personally in a very rapid way. They expand their network in parallel with the emotions of trust and independency that they gained during the previous period and they explore things. During this period, curiosity and the tendency towards learning about their environment and themselves, especially their sexuality, manifests itself. This is the period when they start asking even more questions. This is also the period in which they develop a conscience. Children start internalizing the discipline coming from their parents and their outer world. While an appropriate amount of discipline results in the development of a righteous and healthy conscience, accusatory and retributory discipline results in the development feelings of guilt.

Guilt feelings restrain children's actions and prevent them from learning new things and wondering; in other words, from the skill of entrepreneurship. An appropriate amount of conscience development will ensure a personality which follows societal rules but does not restrict themselves with unnecessary guilty feelings; and eventually, it results in a personality that can think freely, set targets, be open to learning and be entrepreneurial[21].

Cognitive Development

At this stage, children have linguistic and symbolical thinking abilities. Symbolical thinking ability lays the foundation for conceptual development, language, gestures, creativity, painting and other artistic tasks. Symbolical thinking ability also manifests itself in games. Children use different objects in the way they imagine them, and they play with them. Intellectual processing of children in this period is under the influence of what is being seen. For example, when they are shown two pieces of play dough equal in weight but differing in shape - such as one of them is shaped bigger than the other - the children in this age group, under the influence of the images, will say the bigger piece is the heavier one. Egocentrism is the typical characteristic of the thinking structure in this period. They show incompetence in noticing others' emotions and needs. Towards the end of this period, their skills regarding the feelings and thoughts of others start developing[22]. In conclusion, during the "pre-processing period" of childhood learning occurs very rapidly, and physical, emotional, social and cognitive development gains importance. In this period, children want to know and recognize things[23].

Children and Television

The media-which consists of broadcasting tools such as: newspapers, magazines, television, radio, motion pictures and the internet- enters into our children's lives before formal education. Many children learn about the world aside from their own surroundings, such as concepts regarding the

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[19]   Oktay, A. Yaşamın Sihirli Yılları: Okul Öncesi Dönem, Üçüncü Baskı [Magical Years of Life: Pre-School Period Third Edition], (Istanbul: Epsilon Publishing, 2002), p. 122, Turkey.; Yavuzer (2000), ibid., p. 74-107.

[20]   Aral, Baran, Bulut & Cimen (2000), **ibid**, p. 45.

[21]   Oter, G. **3 - 6 Yaş Arası Çocukların Gelişim Özellikleri [Characteristics Development of the Children in the Age Group of 3-6],** http://www.benimyuvam.com/yazilar.asp?id=5&y=217 retrieved on 01.05.2010

[22]   **Ibid**, p. 56.

[23]   Yorukoglu, A. **Çocuk Ruh Sağlığı [Child Mental Health]**, (Istanbul: Ozgur Publishing, 2004), p. 60-62, Turkey.

world, its creatures, its possibilities, and its values, through the media. Television - which is the most ubiquitous of all mass communication tools- constitutes the most indispensible part of children's surroundings. In Turkey, there is at least one television in every household[24]. The stage at which individuals are introduced to television has fallen to a much earlier age, and television has almost started to become children's closest friend[25].

This period gains importance because values and attitudes are learned throughout and this matter necessitates the questioning of the television's place. In a survey study conducted by RA on television's importance in children's lives, 44% of children participating in the survey replied to the question: "Which one do you like more: your father or the television?" as "the television". The question: "Which one do you like more: your mother or the television?" was answered by 20% of the children participating in the survey as "the television"[26]. Considering the results of this survey study, it can be concluded that: television carries importance for children almost as much as if it was a member of their family.

According to Postman, television erodes the intersection between the childhood and adulthood in three ways. These are: television does not require a formal training to be comprehended, television does not require complex intellectual or behavioral processing to be watched, and television does not discriminate between its viewers[27]. Children, however, cannot perceive what they watch like adults due to the characteristics of their intellectual processing and they are affected by it in a much different way than adults. When the reasons for using television are considered, differences also become apparent between the children and adults. While most adults watch television for entertainment purposes, children find television entertaining, but they also watch it to get acquainted with and understand the world. Children cannot perceive the difference between the fiction and the reality as easily as adults do. Children observe the society that they live in to identify the place they take in it. While performing this action of observing, children do not receive any benefits from adults and instead they lean towards television[28].

At this point, it will be appropriate to examine the uses and gratifications theory for us to be able to understand the reasons for children's television usage.

The Theory of Uses and Gratifications
In the research studies conducted within the scope of the relationship between media and society, it is widely accepted by all of the researchers that television has a special place. While some of the reasons of this occurrence stem from the characteristics of this tool, some of them depend on the level of television's penetration into the society and the intensity of its usage in daily life. Up until today, many hypotheses regarding the functions of television as a mass communication tool or regarding the reasons why people watch television have been proposed, and these ideas were supported by several arguments[29].

Historical Development of the Theory of Uses and Gratifications
McQuail expresses the sources and the foundations of the historical development of the uses and gratifications approach with the following statements: the desire of knowing more about the viewers,

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[24] Yilmaz, G. **Basın Yayının Çocuk Sağlığına Etkileri [Press's Effects on Children's Health],** (Ankara, Impress Publishing Facilities, 2007) p.42, Turkey.

[25] Buluc, B. Televizyonlarda Yer Alan Şiddet İçeren Programların Okulda Şiddete Etkisi ve Şiddet Önleme Amacıyla Okul Yöneticilerinin Alabileceği Önlemler [The effect of the programs containing violence in television on the Violence and the Precautions that can be taken by school administrators to circumvent the Violence], Gazi University, Gazi Üniversitesi, **Mesleki Eğitim Dergisi**, (Ankara, 2005), 7 (14), 44-73, Turkey.

[26] Ocel, **ibid,** p. 283.

[27] Postman, N. **Public Speech in the Television Killing Entertainment Shows Age**. Translated by: Osman Akinhay. (Istanbul, 1994), Ayrinti Publishing, p. 104, Turkey.

[28] Capli, B. **Medya ve Etik [Media and Ethics]** (Ankara: Imge, 2002), p. 111-112, Turkey.

[29] Cakir, **ibid,** p. 126

knowing the importance of individual differences in viewers' experiences, the existing confusion due to the viewers pulled in by popular media, example event as the appropriate tool, help in explaining media and psychological state.[30]

Uses and gratifications studies can be broken down into two strands: the classic and the modern era studies. The classic era studies can be examined in 5 different sections: studies on uses and gratifications approach in 1940's, the period between 1950 and 1960, 1970's, the period between 1980 and 1990 and the period from 2000 up until today.

The uses and gratifications studies conducted in 1940's encompass the studies conducted by The Bureau of Applied Societal Studies. Some of these studies are: Cantril and Allport's (1935) radio listeners studies, Herzog's (1940, 1944) study on satisfaction obtained from contests and cliffhangers on the radio, Berelson's (1949) studies aimed at the functions of reading newspapers and Wolfe and Fiske's (1949) studies conducted on the progression of children's interest in comedy shows.[31]

In 1950's and 60's, researchers conducted studies aimed at defining social and psychological variables which were presumed to be leading the way in the determination of distinctive media consumption molds. Schramm, Lyle and Parker (1961) reached the conclusion that children's television usage is determined by their intellectual skills and the relationships that they build with their families and peers. Gerson (1966) noticed ethnic root diversity and proposed that this was an important factor in determining how adults use the media. Greenberg and Dominic (1966) proposed that ethnic roots and social classes could play a determinant role in predicting teenagers' television usage as a resource for informal information gathering.[32] At the beginning of the 1970's, some scientists led the birth of The Uses and Satisfaction Approach by bringing new theoretical information into the light through reviewing the studies conducted in the era of strong effects[33].

Basic Concepts of the Uses and Gratifications Theory

To make the studies conducted in this field more understandable, and to understand their tendencies, it will be appropriate to elaborate on the basic concepts of the theory.

The Uses and Gratifications Theory is composed of four main concepts:

1-Active audience
2-Satisfaction sought
3-Needs and motivations
4-Satisfaction obtained

The Concept of Active Audience

The uses and gratifications model brings criticisms against the passive audience concept. Briefly, during the communication process, different individuals have a tendency to demonstrate different

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[30]   McQuail, D. "With The Benefit of Hindsight: Reflection on Uses and Gratifications Research", **Mass Communication Review Yearbook,** Vol. 5: 125-141, 1985, USA. Bayram, F. Bireylerin Gazete okuma alışkanlıkları: Kullanımlar ve Doyumlar Yaklaşımına Göre Okuyucu Davranışları Tercihleri ve Nedenleri Üzerine Bir Uygulama [An Application On the Individual's Newspaper Reading Habits, Reader Behavior, Preferences and Reasons According to Uses and Gratifications Approach], unpublished PhD dissertation, (Eskisehir, 2007), p. 7, Turkey.

[31]   Ruggiero, T. E. "Uses and Gratifications Theory in the 21st Century", **Mass Communication & Society**, Winter 2000, Vol.3. Database: Academic Search, Primer, USA.; Birsen, O. Çok Seçenekli Medya Ortamında Kitle İletişim Araçlarının   Tüketim ve Seçim Biçimi, Eskişehir Örnekleminde Bir İzlerkitle Araştırması **[**Consumption and Selection Methods of Mass Communication Tools in a Multi-choice Media Environment], unpublished PhD dissertation, (Eskisehir, 2005) p.27, Turkey.

[32]   McQuail, D. Windalh, S. Kitle İletisim Çalışmaları İcin İletisim Modelleri [Communication modals for Mass Media], Translated by: Banu Dagtaş-Ugur Demiray (Eskisehir, 1994), Anadolu Üniversitesi Egitim Saglık ve Bilimsel Arastrıma çalışmaları Vakfı Yayınları No:92, Turkey.; Birsen, **ibid.** p.29.

[33]   Lull, J. **Media Communication Culture**. Translated by: Nazife Gungor, (Ankara, 2001) Vadi Publishing, Turkey.; Bayram, **ibid** , p.27

shapes and amounts of action in different communication environments at different times. Ultimately, the active audience is the key concept in media gratification studies. According to Blumler, it is possible for the audience to be active in three different states:

> ➢ benefit
> ➢ purpose
> ➢ selectivity.[34]

Here, benefit corresponds with the reasons or the motivation behind why people communicate; purpose is the planned or targeted nature of the communication; selectivity is the communication selection based on prior interests and desires; and lastly, being closed to the effect is resisting any kind of effect originating from the communication tools.[35]

In summary; the active audience is an essential concept in understanding how people use mass media communication tools. There are two mutually consistent theories regarding audience behavior. The first theory proposes that motivations and needs have a direct impact on audience behavior. The second theory proposes that new technologies increase the level of being active in audience behavior. From this standpoint, people are aware of their needs, they evaluate several communication channels and their context and they select the channel which will provide the satisfaction they seek. In other words, mass media communication studies' perspectives define the audience as active communicators. The motivations behind using mass media communication tools are classified by McQuail as follows:

> ➢ Obtaining information and recommendation;
> ➢ Mitigating personal insecurities;
> ➢ Learning information regarding the society and the world;
> ➢ Finding support for one's own values;
> ➢ Making one's own life meaningful;
> ➢ Building empathy with others' problems;
> ➢ Acquiring a foundation for the social contact;
> ➢ Feeling one's self in touch with others;
> ➢ Escaping from problems and troubles;
> ➢ Providing an entrance into a fictional world;
> ➢ Filling in the time;
> ➢ Experiencing an emotional relaxation;
> ➢ Providing a structure for daily routines.[36]

Satisfaction Sought

For instance: Social and psychological roots of needs that increase the motivation to realize the behaviors, media consumptions and several satisfactions in behaviors except the media, and researching the social conditions are the intersection point of the expectation value theory and the use and satisfaction theory.[37] The expectation-value model proposes that usage of mass communication tools results in perceiving the benefits offered by the tool, and these proposed benefits cause different assessments.[38] The expectation-value theory assumes "people guide themselves towards their own expectations and progress".

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[34]   Blumler, J. G., "The Role of Theory in Uses and Gratifications Studies", **Communication Research,** 6(1), 1979, USA.; Birsen, **ibid,** p.33

[35]   Kocak, A. Televizyon İzleyici Davranışları Televizyon İzleyicilerinin Tercihleri ve Doyumları Üzerine Teorik ve Uygulamalı Bir Çalışma [A Theoretical and Applied Study on Television Viewer Behaviors, Preferences and Satisfactions of Television Viewers] , unpublished PhD dissertation, Selcuk University, Konya, 2001), Turkey.

[36]   **Ibid,** p. 34.

[37]   **Expectancy Value Theory** (http://www.tcv.utwente.nl / theorieenoverzicht/micro/expectancy %20Value %2oTheory.doc retrieved on 01.05.2010, **Ibid,** p.35

[38]   I**bid** , p.36.

Needs and Motivations

The uses and satisfaction theory approaches mass communication tools with the assumption that individuals feel the need to use several tools. The latest interest area of the studies conducted on uses and gratifications were aimed at bringing media usage motivations and their relations with the certain media behaviors into the light.

Motivations are the general compulsions that affect people's actions. All of the research studies conducted on uses and gratifications place emphasis especially on the concept of "the need". The basic underlying reason of why people use mass communication tools is to satisfy needs. Our need to feel a sense of belonging is satisfied by conditions such as: family, race, ethnicity, gender, religion and societal class. Societal experience, which is positioned culturally, reinforces the basic biological and psychological needs.[39]

Satisfaction Obtained

Empirical and theoretical studies conducted with the utilization of the uses and satisfaction theory show that satisfactions sought or the satisfactions expected and the satisfactions obtained are different things. According to Dobos, the satisfaction sought or the need for satisfaction is compensating the media related expectations through the accumulation of the alternatives.[40]

The Uses and Gratifications Approach

Beyond the dimension of communication processes being a means, audiences contributing to the production of the communication process and their practice of using mass communication tools, which are humanly needs, is very important for UGA. Rubin denotes the basic components of the uses and gratifications approach as: individuals' psychological and social environment, needs and motivations towards communication, media systems, attitudes and expectations towards media, communication behavior and the outputs of this behavior[41].

The uses and gratifications approach, which considers the audience as dominant within the communication process, is an approach that has changed the "sender-message-receiver" model that prevailed in the mass communication process. This approach, which focuses on what the public do with mass communication tools, emphasizes that the receiver or the viewer plays an active role in mass communication[42].

Also according to Morley, the viewer in the form a passive consumer prevailed in the past. Television viewers are no longer perceived as passive consumers who are under the influence of magical powers as it used to be, because people in front of the television are not passive but active viewers[43]. The uses and gratifications approach explains audience's acquisition of satisfaction by using mass communication tools as seeking satisfaction that serve their own self-interest. According to the uses and gratifications approach, the relationship between individuals and mass communication tools happens through "needs". Rosengren argues that behind the concept of "need" there is a biological and psychological structure that shapes human behaviors. This structure also accommodates the action and the reaction[44]. Also Katz's formulation regarding the uses and

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[39]   Lull James. **Ibid.**, Birsen, **ibid**, 37.

[40]   Dubos, J. "Gratification Models of Satisfaction and Choice of Communication Channels in Organization" **Communication Research,** 1992, USA.

[41]   Rubin, A. M. "The Uses-and- Gratifications Perspective of Media Effects", in **Media Effects: Advances in Theory and Research**, Editor: Jennings Bryant, NJ USA: Lawrence Erlbaum Associates, 2002.; Bayram, **ibid,** p. 27.

[42]   Erdogan, I & Alemdar, K. **Kitle İletişimine Yaklaşımların Tarihsel ve Eleştirel Bir Değerlendirilmesi [The Other Theorem: A Critical Approach to The Theorem and the Researches of Mass Communication],** (Ankara, 2002) Erk Publishing, Turkey.; Bayram, **ibid**, p.28.

[43]   Morley, D. "Active Viewer Theorem: Pendulums and Traps", in **Media and the Viewer**, Translated by: Yigit Yavuz, Compiled by: Sahinde Yavuz, (Ankara, 2005), Vadi Publishing, pp. 98-105, p.99, Turkey.

[44]   Rosengren, R. "Uses and Gratifications: A Paradigm Outlined" in **The Uses of Mass Communication: Current Perspectives on Gratifications Research, (**London, 1974), Sage Publications, UK.; Bayram **ibid**

gratifications approach leans on this foundation. According to Katz: "The approach of uses assumes that people's values, their self-interests, their groups, their social roles are effective initially and based on these self-interests, people selectively shape what they see and hear"[45].

"According to the uses and gratifications approach, needs have societal and psychological bases. These needs extract expectations from mass communication tools and other sources. These expectations direct individuals to differing forms of mass communication tools. As a result, satisfaction needs are met, and for most of the time other gratifications, which were not targeted previously, are maybe obtained as well[46].

The uses and gratifications approach presents definitions regarding how people obtain satisfaction from the content and by using which communication tools. The research studies on what people do with the media and why they use it can be evaluated within this framework. 5 categories that have been determined regarding the media usage of most people are as follows: Environment observation, decision making, social/cultural interaction, entertainment and personal identity[47].

Environment observation emphasizes that people gather information and news according to the events that affect their lives. Topics like: knowing the weather forecast, information regarding the traffic, the price of fruit and vegetables, and investment information grab the attention of viewers. Environment observation is essential for individuals to be able to maintain their daily lives and to be able to simplify their daily routine. Socializing helps people acclimate to society as a process that continues for a life time. Also media usage can be utilized as a social activity for socialization by bringing people together.

The friends who go to the movies together and the people who discuss and comment on an article that they have read have a common understanding. From the standpoint of socialization and molding public opinion, individuals who buy and read the same newspaper form a unity.

People also use media to escape from the boredom and routine of daily life. For instance, the following situations can be the examples of escaping from daily life: listening to the music loudly when emotions are running high; listening to the easy listening songs when it is quiet around; experiencing a different type of excitement through watching horror movies; laughing and having fun by watching comedy movies. It can be concluded that amongst mass communication tools, television especially provides satisfaction to the audience for entertainment and escaping purposes.[48] According to Anik, what lays the foundation of the uses and gratifications approach is the belief that viewers have complicated need strings which they try to satisfy through the media. This approach assumes that the viewer is as powerful as the sender and it also implies that what makes the "message" is not what the sender intended to transmit, but the meaning that viewers attach to it.

According to the theory, people who gravitate towards media for psychological satisfaction purposes follow the media for these following four reasons[49]:

> First, by watching entertainment programs, media-related products' consumers obtain emotional relaxation and the joy of being purified from daily stress.
> Second, by watching programs that fit their personalities, they learn ways of making new friends and get rid of their solitude, or by building identicalness, they satisfy their needs towards this virtually.

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[45] Justin, L. "Audience", in **Mass Communication Theorems**. Translated by: Erol Mutlu, (Ankara, 2005): Utopya Publishing, Turkey.; Bayram, **ibid.** p.13.

[46] Rosengren; Bayram **ibid** p.29.

[47] Jean, F. & Stephen Lacy, S. **The Media In Your Life.** Pearson Inc., 2004, USA.; Bayram **ibid,** p.30

[48] John., V. **The Media of Mass Communication.** Pearson Inc., 2003, USA. Bayram, **ibid**, p..30,

[49] Anik, C. **Bilgi Fabrikaları ve Müşteriler [Information Factories and Customers].** (Ankara, 2003), Altın Kure, p.72-73, Turkey.

> Third, viewers obtain the following by using the media: impressing others and entering into their sights, gaining prestige, being respected, acquiring aesthetic and literacy skills, and motivating themselves for achievement.

> Lastly, people are addicted to media context for the purposes of: to see what they believe is being endorsed; to make sure that they are on the right path; to position themselves and others by analyzing their own and others' personalities.

The Models Used Along With Uses and Gratifications Theory

Some of the models based on the source of uses and gratifications focus on mass communication tools and their audience. Some other models leaned towards the communication tool usage in organizations and in small groups by becoming independent of mass communication.

These are the models of social readiness and media richness. The social readiness model is related to the selection of the best communication method, which could reflect the communication tool's user's him/herself and his/her preferred message best.[50]

The media richness model is built upon the social readiness model. Priority is placed on the closeness felt towards the tool. The message's target audience carries the same amount of importance as much as the sender of the message. Feedback is the most important criterion. From this position, the scale varies from weak feedback to strong feedback.[51]

Figure 1.
Addiction Model (Adopted from: Alemdar & Erdoğan,1990)

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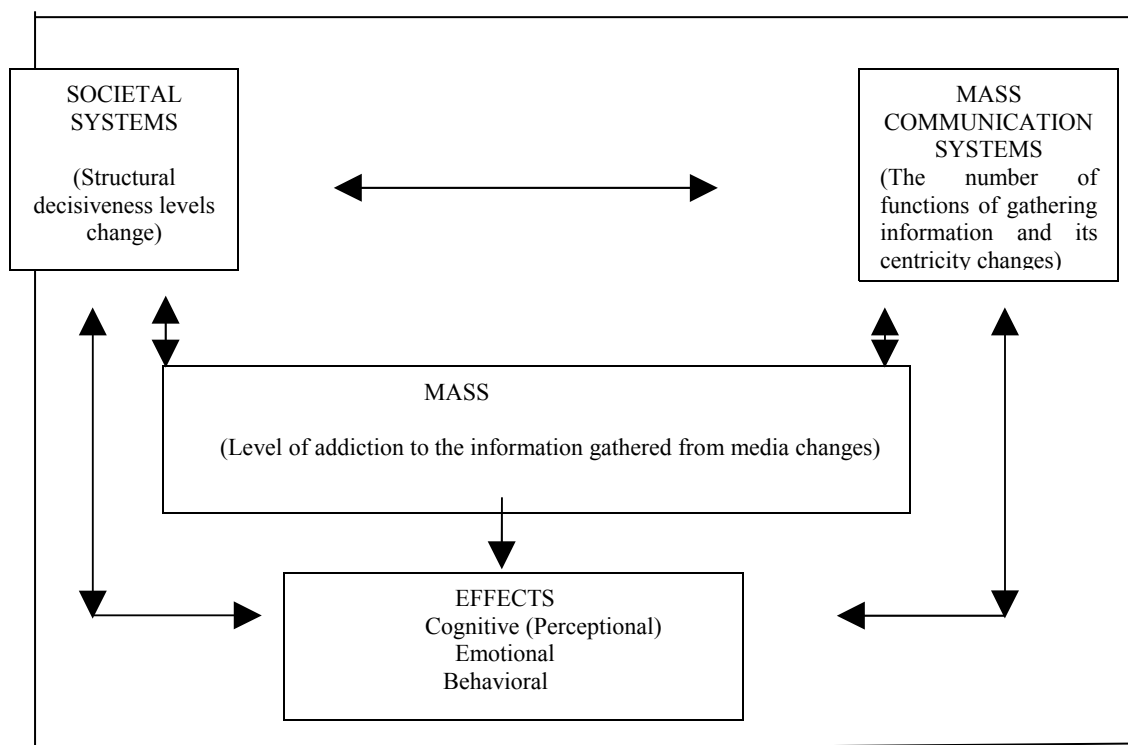
[50]   USA Department of Defense " **News Channel Selection Among Military Members: The Utility of Specific Military Information Sources**", retrieved on 08.12.2010
http://www.ou.edu/deptcomm/dodjcc/groups/01B1/literature.htm, Birsel, **ibid**, p. 38

[51]   Alan R. Dennis, R. D. & Valacich, S. J. "**Rethinking Media Richness: Towards a Theory of Media Synchronicity",** Hawaii International Conference on System Sciences-1999; Brain Newberry, 'Media Richness, Social Presence and Technology Supported Communication Activities in Education"
(http://www.computer.org/portal/web/csdl/doi/10.1109/HICSS.1998.653082, retrieved on 0.05.2010.

One of the most effectively used theories within the framework of uses and approaches theory is the addiction model. Defleur and Ball-Roceah examined the effects caused by mass communication tools on the audience due to their information transmission functions in society in three categories. These categories encompass cognitive, emotional and behavioral effects.

Cognitive effects are related t uncertain attitudes, beliefs and values. Uncertainty stems from the existence of insufficient or conflicting information.[52]

Emotional effects embody emotions like affection, dislike, having fun, excitement, fear and boredom.[53]

The studies towards identifying media usage constitute the foundation of uses and gratifications traditions.

The complicated and dynamic relationship during the perception of audience to mass communication tools necessitate taking into consideration the needs, demographic features, external pressures and social structure.[54]

During this process, the individual's position and his/her needs are challenged by his/her motivation towards the mass communication tool and his/her satisfaction sought; and the mass communication tool is challenged by accessibility factors.

Figure 2.
Weibull Model (Adopted from Alemdar & Erdoğan, 1990)

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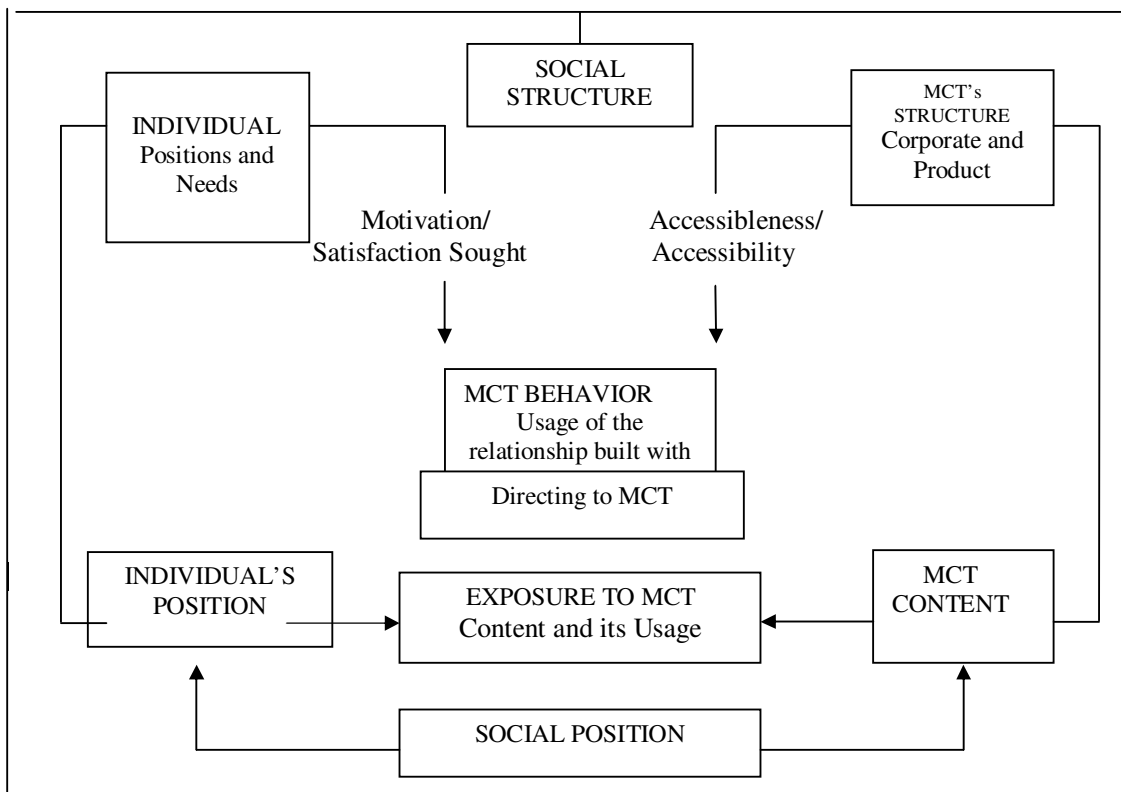
[52] Alemdar, K. & Erdogan, I. **Iletisim ve Toplum [Communication and Society]**, (Ankara, 1990), Bilge Publishing, p.40, Turkey.

[53] **Ibid,** p.53.

[54] **Ibid,** p.54.

Figure 3.
Rosengren's General Model (Adopted from Alemdar & Erdoğan,1990)
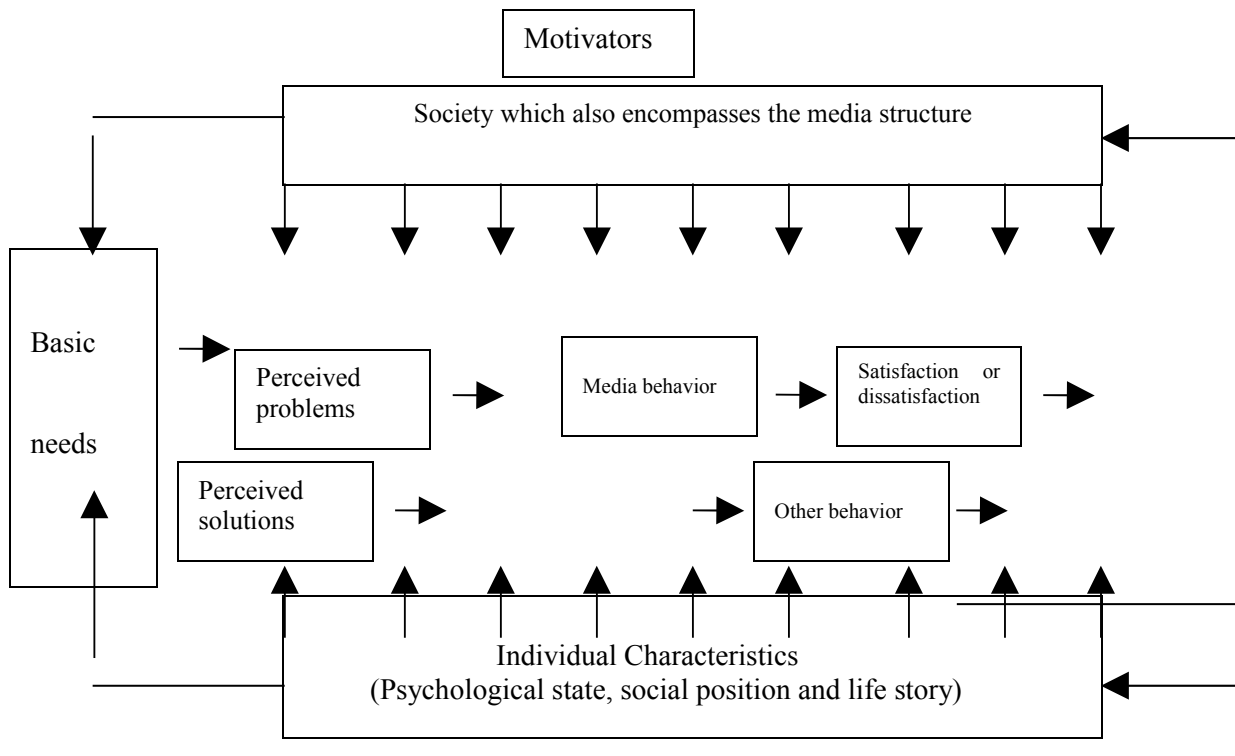
The emergent media behavior forces a direction and this occurrence reveals an "exposure to media" situation. This situation is related to "media context" and "individual position". As a result, this occurrence determines the "social position" within the "social structure". The uses and gratifications theory proposes that viewers select the communication tools and the content according to their own needs and they seek their own effects by themselves. This theory proposed the hypothesis of "active viewer".

According to this theory, individuals have social and personal needs which can be met through different types of behaviors. The theory argues that viewers play an initiator role in satisfying their own needs and in selecting the tools during the mass communication process. As such, the theory argues that the concept of "effect" is misleading. For instance, it argues that children use television as opposed to the view that television uses children[55].

In summary, so far the terms of "child" and "childhood periods" have been elaborated on; the relationship between children and television explained and the uses and gratifications concept expounded.

Children's television viewing habits and the factors that affect their motivations will be questioned within the framework of the uses and gratifications approach. In other words, it can be expressed that the problem, which this study will attempt to solve, is identification of the reasons why children watch television.

Purpose
The purpose of this study is to define the factors that affect motivation and television watching habits of children in the 3-6 age group, which is the period that covers early childhood, and the satisfaction that they gain by assuming that instead of television using children, children are using television.

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[55]   Erdogan & Alemdar (2002), **ibid**, p. 188-190.

According to the countless studies conducted on the television viewers, people watch television for different reasons. Moving from this point forward, the first question of this study is determined as:

1- Determining the themes of pleasure and the satisfaction that child viewers reach in the need factors denoted in the uses and gratifications approach?

- Entertainment/relaxation factors
- Escape/friendship factor
- Morale/support factor
- Information factor
- Habituation factor

2- What kind of a relationship is there between children's motivation in watching television and their television viewing habits?

Significance

In today's world, where technology and science is fast advancing, and the number and type of communication tools increasing; children, who are the main component of societies, draw a lot of attention. Childhood is a very important period since it develops mature human beings and it is recognized as a research area in many science domains. Without understanding children, it is very hard to evaluate what they do and how to communicate with them.

Today's children are living in environments where technological advancement is rapid and its usage wide-spread. This situation means new life styles for children. In information societies, for children to be able to reach the information that they need, form their own opinions based on this information and express them, constitutes their contribution to society. The most ubiquitous and effective mass communication tool that has entered into our lives with technological advancement is television.

Children in front of the television are living creatures who demonstrate the behaviors of seeking, selecting and organizing. In this context, what television brings to them is equally as important as what they bring to television.

This study sets forth from the importance of the audience and its purpose is to discover the television consumption of children in the 3-6 age group from the position of the uses and gratifications approach, and their perception and television usage. This study carries importance from the standpoint of learning reasons for television usage and the satisfactions that children gain by watching television in today's world, and providing information on the conscious consumption of television programs.

In the same manner, it will provide data on the development of the parents' consciousness regarding broadcasted programs that contribute most to the development of their children and on the regulation of the broadcasts by the regulating bodies within pre-determined limits and under certain circumstances

Limitation

Throughout this study the limitations that will be determinative will be as follows:

   1. This study is being compiled during two academic terms in total within the scope of the classes of RHI517 Communication Research and Theories I and RHI518 Communication Research and Theories 2. Therefore, pre-determined durations of these classes also constitute the limitations of this study.
   2. The study is limited to 20 students who are between the ages of 3-6 and receive education in the nursery class of a private primary school located in the center of Eskisehir.

Definitions
Some of the definitions that are repeated frequently throughout this study and belong to the concepts embodying definitions unique to this study can be explained as follows:

Children: Children in the age group of 3-6.
Television: A communication system in which images and sounds are transmitted from a transmitter as electromagnetic waves and are transformed into images and sounds by electronic receivers with screens and speakers.
Audience: viewers.
Motivation: A strong desire that we feel inside towards performing a task.
Satisfaction: The state of being happy with what is in hand**;** being content; being fulfilled; satisfying certain desires, gratification**.**

METHOD

In this section the following subjects will be given a place as separated titles: the model of the research, universe and sampling, data and its collection, and lastly, the processing of the data and its interpretation.

The Model of the Research
This is a qualitative situational research study which has been conducted by sampling 36 participants with the method of taking appropriate samples, who are the students of Eskisehir Atayurt Private School's nursery class, in the age group of between 03-06, who make 20 students in total as 10 female and 10 male and who watch television.

By utilization of the literature research method, previously conducted studies, researches and resources prepared by experts have been sifted through and the information regarding mass communication, mass communication tools, children and television, forms of media consumption, theories on mass communication and the uses and gratifications approach has been compiled. With the semi-constructed interview method prepared by utilizing this information, the data of the 20 children-who are the students of a nursery class of Atayurt Private School located in the center of the Eskisehir - will be the outcome of this study.

According to Gillham, if it is done well, the richest data collection source for situational studies is the semi-constructed interviews[56]. During these interviews, questions are prepared and asked to the participants in the same order and the participants can answer the questions to the length they wish. During the interviews –if it is necessary– the researcher can make additional explanations regarding the questions.

These types of interviews allow participants to expand their answers for the purpose of discovering their thoughts and opinions[57]. The technique of the semi-constructed interview is a little more flexible than the constructed interview technique.

The data of the children - who are the students of the previously mentioned school- who replied to the question of "Do you watch television?" as "no" will be considered as invalid; only the ones who said "yes" or "sometimes" will be interviewed and the results of which taken into consideration. From this standpoint, the research will gain its shape with the answers given by the children who watch television.

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[56]   Gillham, B. **Case Study Research Methods**, (London: Continuum, 2000), p. 9, UK.
[57]   Gray, E. D. **Doing Research in the Real World**, (London, 2004), Sage Publishing, UK. And Bogdan, C. R & Biklen, S. K. **Qualitative Research For Education: An Introduction To Theory And Methods**, (Boston, 1997), Allyn and Bacon, p. 97-98, USA.

The Universe and the Sample

This is a qualitative situational research study which has been conducted by sampling 36 participants with the method of taking the appropriate samples, who are the students of Eskisehir Atayurt Private School's nursery class, in the age group of between 03-06, who make 20 students in total as 10 female and 10 male and who watch television.

Therefore the situation examined in the study is unique in itself from the standpoint of the environment, time and individuals, and the concern about generalizing is unnecessary. The purpose of trying to define the situation as it exists has not put the researcher into a situation that requires interfering with any of the stages of this study. It is not important to reach numeric conclusions in a qualitative research.

However, the researchers are obligated to analyze and synthesize this data in great depth and are able to interpret-define without prejudgment[58]. In this way, the results derived from the research cannot be generalized. However, they can be imparted into other studies.

In this study, the form that the child audience will take will be examined from the point of view of the indicators from "The Uses and Gratifications Approach".

With this research, the results acquired by making determinations regarding an existing condition, the reasons for the children watching television will determined from the standpoint of the uses and gratifications approach.

Data and Its Collection

The data of the research is composed of interviews made with the children between the dates of May 17th-20th, 2010. In the study, by interviewing the children face to face by utilizing the semi-constructed interview technique, the reasons why they watch television was questioned.

Table 1 Interview Form

Factors	Questions
Entertainment/Relaxation	1. Do you have fun while watching television? How do you have fun? 2. What kind of a pleasure does watching television give? 3. Does your time pass more entertainingly when you watch television?
Escape	1. Does watching television make you happy when you don't have anybody to talk to or play with? 2. What do you do in your free time? 3. Do you still watch television if your friends come over?
Morale/Support	1. Do you ask your friends what they watch? 2. Do you discuss the programs you watch with your friends? What do you talk about them? 3. Do you feel happy when your friends watch the same program with you? 4. Would you feel sad when you didn't watch the programs/movies that your friends are talking about amongst themselves? Why would you feel sad?
Information	1. Do you think television is informative? What do we learn from television? 2. Does television improve your imagination?
Habituation	1. Do you watch television every day? 2. Would you feel sad if the television broke down?

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[58]   Gillham. **ibid**, p. 9-10 and Ulken, **ibid**, p. 86

The researcher has prepared interview questions in line with the purpose of this study. The interview questions, shaped by the reviewing the related literature and formed according to the semi-constructed interview technique, were pre-determined to increase the reliability and the validity of the study and the same questions were asked to every single child.

During the classification and evaluation of the data acquired from the test subjects who participated in this study to determine the satisfactions they gain from television and the reasons why they watch television, it was realized that 5 usage factor groups could be addressed. During the interviews made with the children, answers to the following questions were sought in consideration with these factors:

By using the semi-constructed interviewing technique, the researcher asked the interview questions in the same order. However, s/he allowed participants to answer the questions at any length. The researcher avoided directing the reactions during the interview.

At the same time, s/he didn't reflect to the participants his/her biases which s/he might have had regarding the research subject. When the researcher didn't find the answers given to the questions convincing, s/he asked the same questions in a different way or s/he tried to get more detailed information by asking further questions such as how? And why?

The interviews took approximately 10-30 minutes and they were recorded on a voice recorder. Afterwards, these recordings were decoded by the researcher to be evaluated. The information regarding the date, place and duration of the interviews are specified in Table 1.

FINDINGS AND INTERPRETATIONS

In this section, the findings regarding the data collected during the study and their interpretation will be given a place under separated topics. In this study, where the reasons why the children in the age group of 3-6 watch television are being questioned, the research findings derived from data collection tools were gathered from the interviews conducted with the children who were the subject of this research.

Television Watching Habits

Along with playing games, the most important pass time activity of the participants is watching television. According to the answer of a question asked to reveal the favorite pass time activity of the children, watching television is the most important pass time activity and the children spend an important part of their time in front of television - excluding the time they spend at school and playing games.

Television channels like TRT Kids, D Kids, Maxi TV and Cartoon TV are the channels which were articulated by the children the most. To identify the program types broadcast on television, the general preferences of the children regarding television were identified by asking questions like: "What do you like to watch most on television?". According to the answers given to this question by the children, their first preference amongst television programs are cartoons. 17 children answered this question as "*I watch cartoons*". Secondly, the children emphasized that they like watching television series. 3 of the children said that they watch cartoons. However, one of these children said that s/he watches cartoons, but s/he gave the name of a television series and his/her answer was considered as "this child watches television series".

Cartoons are the components that fit into the shared childhood image that they have in their minds. What this means is that the children themselves also perceive the genre of cartoons as related to themselves as one to one and they mention this genre right away. The television series mentioned by the children were the domestic TV series (Made in Turkey, Extended Family, etc.); mostly comedies which were about the conflict between tradition and modernity.

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The Reasons of Watching Television

Along with the questions prepared for determining the motivations behind children's television usage, as seen in the table 2, by using expressions aimed at determining the reasons for watching television, it was expected from the children to give the answers of "yes" and "no" to these expressions. According to the answers given by the children to the questions prepared for determining the motivation of entertainment/relaxation, the findings showed that children watch television for entertainment purposes. All of the children gave the answer of "*yes*" to the question of "*Do you have fun while watching television?*"

First and foremost, children watch television to have fun. While watching television, they have fun and they learn. They also record in their minds all the incidents that attract their attention. When they keep encountering occurrences that they have never seen and learned before, their rate of interest and - depending on this rate-the duration of watching television increases because their curiosity and expectations are insatiable.

The children who received a sufficient amount of training on the programs that are worth watching and for which they are well enough informed, they will also gain the selectivity competency[59].

Utku Arda replied to this question by saying "*I step up onto the couch and start jumping*" to emphasize that he has fun. To the question of "*What kind of a pleasure does watching television give?*" Gulendam gave an answer by saying that "*You feel good when you watch television, you laugh*" to try to emphasize that she feels happy. Batuhan and Korhan replied to this question by saying that "*I have fun but I forgot how it was*". Selin gave the answer that "*Television is very colorful and exciting*".

Children watch television due to its distinguishing features from other communication tools. The features that make television distinguishable from other tools are: the harmony of sound and images; a wide range of movements and rapid change; the attractiveness of the colors; the attention-grabbing usage of sound effects and music; and these features are being offered again and again in different ways.

The second factor which is labeled "*escape/friendship*" gathers all of the items, which are prone to perceive television as something for getting away from daily stress and as a friend, together. The questions denoting escape in the second factor were asked in the following order: "*Does watching television make you happy when you don't have anybody to talk to or play with?*", "*What do you do in your free time?*" and "*Do you still watch television if your friends come over?*" To the question of "*Does watching television make you happy when you don't have anybody to talk to or play with?*" was answered by all the children as "*yes*". Ayse Naz replied to this question by saying "*when my sister doesn't want to play with me I get bored and start watching television*".

To the question of "*what do you do in your free time?*" all of the children gave the answers "*I play games, I paint, I play with my toys*" and added "*I watch television*" to these. Children usually prefer watching television when they feel alone at home and when they can't find an appropriate activity. For the question of "*Do you still watch television if your friends come over?*" - which was aimed at learning if children would watch television even when they have better things to do - the general tendency of the children was towards: I would watch television with my friend.

The third motivation is named as "morale/support". To the question of "*Do you ask your friends what they watch?*" - which is one of the questions placed under this factor - children gave the answer "*yes, I do*". To the questions "*Do you discuss the programs you watch with your friends? What do you talk*

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[59]   http://www.istanbul.edu.tr/iletim/?page=template-news/detail&int_Id=315 retrieved on,01.05.2010

about them?" other than Deniz and Nil, all of the children gave the answer that they talk with their friends.

To the question of what they talk about, Ege gave the answer "*we sing together the theme song of the television show called Made in Turkey*". To the same question, Ata gave the answer "*I play Ben10* (an animated show character) *and he plays* (pointing his finger to his friend) *Superman and I defeat him with my four arms*". Hizal claims that the shapes and habits offered by television are imitated by children.

He also states that children stage what they see on television, and they play their preferred female and male characters[60]. Yagmur replied to this question by saying "*we start listening to music with my mother and I exercise with her*". To the question "*Would you feel sad if you hadn't watched the programs/movies that your friends are talking about amongst themselves?*" it becomes apparent from the answers given that female children place a greater importance on the morale/support motivation than the male children. To this question all of the female children gave the answer of "*yes, I would feel sad.*" To the same question, except Onur and Can, all of the other children expressed that they wouldn't feel sad if their friends talk about programs that they themselves hadn't watched. To the question of "*Do you feel happy when your friends watch the same program with you?*" all of the children gave the answer that they felt happy.

The fourth factor which is known as "information" gathers all the items that have a tendency in perceiving television as a tool for gathering information. To the question "*Do you think the television is informative?*" all of the children gave the answer "*yes*". When the question of "*How does it provide information? What do we learn from television?*" was asked, Selin, Dila, Cemre, Ata and Onur replied to this question by answering "*I learn what is currently happening from the news*". Here we can conclude that children understand that the news is prepared as an informative program compared to the others. Deniz replied to this question by saying "*Little Hazerfan* (an animated show character)*'s father was taking him to the bathroom, he was teaching him to how to bathe.*" To the question of "*Does television improve your imagination?*" all of the children replied to as "*yes*". Berkay replied to this question by saying "when *I watch television I feel like I am in the television*". Aslihan replied to the same question as "*we learn about the seas, mountains and animals*". Ayse Naz replied to this question as "*we learn from television how to paint*". Ipek gave the answer "*I would like to wear the dresses that I see on television*". The children participating in this study have shown a strong tendency in contributing to the expressions under the information factor. Hizal also asserts that the children are able to find information agents on television without even looking for them, and which also may not be important for them. Female children express that they teach which hairdressers, which sizes of dresses would be most suitable for them, and how to walk and talk. Male children mention that they see how to get dressed and they gain information on this subject. Hizal says that what children would say about the television is "they see what is happening in the world"[61].

The fifth and the last factor under the motivations for watching television is the habituation factor. One of the questions under this factor is "*Do you watch television every day?*" and all of the children answered this question as "*yes*". Batuhan replied to this question by saying that "*I watch TRT Kids every day, when my mom comes in I switch it to her channel*". The question aimed at determining whether children watching television is a habit was "*Would you feel sad if the television broke down?*" and Ipek replied to this question by saying "*Yes, our television broke down once, I felt sad, my father fixed it and then I felt happy*". Burak replied to this question by saying "*if the television breaks down I would feel really sad and start crying*". Korhan answered the same question as "*No I wouldn't because my father would have taken it to the repair shop and would have brought it back*

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60   Hizal, **ibid**, p.180.
61   **Ibid**, p.179.

after 2 weeks". Dila, Selin, Onur and Ata answered the question as "*I wouldn't because we have another television, I would watch that*".

In conclusion, this study attempted to reveal the reasons why children watch television within the framework of uses and satisfaction factors. The findings gathered from the interviews regarding the children's television viewing constitute a qualitative situational research study and they cannot be generalized.

CONCLUSION

This study tried to explain the reasons why children in the age group of 3-6 watch television by moving forward from the framework of uses and gratifications. In the theoretical dimension of the purposes of this study's scope, a place was given to the developmental characteristics of the children amongst the age group of 3-6, which encompasses the period called the pre-processing period. Following this the uses and gratifications theory was explained and touched on the relationship between children and television.

The study questioned and evaluated around the framework of the uses and gratifications approach's 5 factors. These factors reveal the motivations of the participating children regarding entertainment/relaxation, information, escape, morale/support and habituations. According to the results of the analysis conducted, the first and the foremost motivating factor is the information factor. The children who participated in the research have shown strong agreeing tendencies towards the expressions under the information factor. In the analysis of the escape factor, the result reached was that the children prefer television usually when they are alone at home and can't find an appropriate activity.

From the answers given to the morale/support question, it can be understood that female children place a greater importance on the motivation of morale/support provided by television than the male children. Findings concerning children watching television as a habit were reached. Also, similar to the results of the previously conducted uses and gratifications researches; according to the findings of this study, children watch television to have fun, and while they are having fun, they also learn.

Children in front of the television are living creatures who demonstrate the behaviors of seeking, selecting and organizing. In this context what television brings to them is equally important as what they bring to the television. From the standpoint of the uses and gratifications framework, this study attempted to reveal the reasons why children watch television.

It is accepted by all the researchers that television has a special place in the studies conducted within the scope of media-society relationships. According to the countless studies conducted on the television viewers, people watch television for different reasons. Researchers conducting studies on this topic revealed that viewers watch television mostly for the purposes of entertainment or spending leisure time, social benefit and individual relationships, information seeking and personal identity.

The questions of why people watch television or what kind of pleasures they get from television have attempted to be explained through several approaches up until today. According to the result of this study, it was revealed that there are five basic factors affecting children's television viewing.

The data obtained on television viewing habits and the reasons outlined in this study, have similar characteristics with the data derived from the previously conducted uses and gratifications researches.

The early childhood period is a period when development is in its fastest track. In this period television has a stimulating quality which appeals to more than one sense and grabs the attention of children in this age group. In the pre-school period, having such a type of stimulus is effective for children in learning new concepts and for the development of their attentive skills. By releasing

intensive stimuli, television ensures intellectual development and helps form intelligence. If it is used in a correct and controlled way, television can contribute positively by helping children learn new academic and social concepts and can benefit their intellectual development.

REFERENCES

Alan R. Dennis, R. D. & Valacich, S. J. (1999). "**Rethinking Media Richness: Towards a Theory of Media Synchronicity",** Hawaii International Conference on System Sciences; Brain Newberry, 'Media Richness, Social Presence and Technology Supported Communication Activities in Education",
http://www.computer.org/portal/web/csdl/doi/10.1109/HICSS.1998.653082
retrieved on 0.05.2010.

Alemdar, K. & Erdogan, I. (1990). **Iletisim ve Toplum [Communication and Society]**, Bilge Publishing, p. 40, Ankara, Turkey.

Anik, C. (2003). **Bilgi Fabrikaları ve Müsteriler [Information Factories and Customers].** Altin Kure, Ankara, Turkey.

Aral, N.; Kandir, A. & Yasar, M. C. (2000). **Okul Öncesi Eğitim ve Anasınıfı Programları [Pre-School Education and Nursery Class Programs]**, (Istanbul: Ya-Pa Publishing), p. 50, Istanbul, Turkey.

Aral, N. Baran, G.; Bulut, S. & Cimen, S. (2000). **Cocuk Gelişimi 2** [**Child Development 2]**, Ya-Pa Publishing, Istanbul, Turkey.

Bayram, F. (2007). Bireylerin Gazete okuma alışkanlıkları: Kullanımlar ve Doyumlar Yaklaşımına Göre Okuyucu Davranışları Tercihleri ve Nedenleri Üzerine Bir Uygulama [An Application On the Individual's Newspaper Reading Habits, Reader Behavior, Preferences and Reasons According to Uses and Gratifications Approach], unpublished PhD dissertation, Eskisehir, Turkey.

Berger, A. A. (1982). **Analysis Methods in Mass Communication**, Edited by Nazmi Ulutak and Aslı Tunc, (Eskisehir, 1993), Anadolu University Publications, Eskisehir, Turkey.

Bilgin, M. (2003). "Bedensel ve Devinsel Gelişim [Physical and Kinetic Development"], in **Gelişim ve Öğrenme Psikolojisi** [**Psychology of Development and Learning]**, Pegem Publishing, issue. 51-73, Ankara, Turkey.

Birsen, O. (2005). Çok Seçenekli Medya Ortamında Kitle İletişim Araçlarının Tüketim ve Seçim Biçimi, Eskişehir Örnekleminde Bir İzlerkitle Araştırması **[**Consumption and Selection Methods of Mass Communication Tools in a Multi-choice Media Environment], unpublished PhD dissertation, Eskisehir, Turkey.

Buluc, B. (2005). Televizyonlarda Yer Alan Şiddet İçeren Programların Okulda Şiddete Etkisi ve Şiddet Önleme Amacıyla Okul Yöneticilerinin Alabileceği Önlemler [The effect of the programs containing violence in television on the Violence and the Precautions that can be taken by school administrators to circumvent the Violence], Gazi University, Gazi Üniversitesi, **Mesleki Eğitim Dergisi**, 7 (14), 44-73, Ankara, Turkey.

Blumler, J. G. (1979). "The Role of Theory in Uses and Gratifications Studies", **Communication Research,** 6(1), USA.

Bogdan, C. R & Biklen, S. K. (1997). **Qualitative Research For Education: An Introduction To Theory And Methods**, Allyn and Bacon, Boston, USA.

Can, G.; I. Ozguven, E.; Senemoglu, N.; Ceyhan, A. A. & Turkum, S. (2004). **Çocuk Gelişimi ve Psikolojisi 4. Baskı [Child Development and its Psychology, Fourth Edition]**, Editor: Ceyhan, E., Anadolu University Publishing, Eskisehir, Turkey.

Cakir, V. (2005). Bir Sosyal Etkinlik Olarak Eğlence ve Televizyon [Entertainment and Television as a Social Activity], unpublished PhD dissertation, Selcuk University Social Sciences Graduate Institute, Konya, Turkey.

Capli, B. (2002). **Medya ve Etik [Media and Ethics],** Imge, Ankara, Turkey.

Dubos, J. (1992). "Gratification Models of Satisfaction and Choice of Communication Channels in Organization" **Communication Research**, USA.

Erdogan, I. & Alemdar, K. (2002). **Kitle İletişimine Yaklaşımların Tarihsel ve Eleştirel Bir Değerlendirilmesi [The Other Theorem: A Critical Approach to The Theorem and the Researches of Mass Communication],** Erk Publishing, Ankara, Turkey.

Expectancy Value Theory http://www.tcv.utwente.nl / theorieenoverzicht/micro/expectancy %20Value %2oTheory.doc retrieved on 01.05.2010

Fisek, G. O. & Yildirim, S. M. (1983). **Çocuk Gelişimi [Child Development,** Milli Egitim Publishing, Istanbul, Turkey.

Gillham, B. (2000). **Case Study Research Methods**, London: Continuum, UK.

Guler, D. (1989). "Çocuk, Televizyon ve Çizgi Film [Children, Television and Cartoons]", **Kurgu**, Open Education Faculty, Issue: 5., Eskisehir, Turkey.

Guler, D. (1997). **Çocuk Dediğin? [What You Call a Kid?],** Foundation of Education, Health and Scientific Researches, Eskisehir, Turkey.

Gray, E. D. (2004). **Doing Research in the Real World**, Sage Publishing, London, UK.

Hancerlioglu, O. (1977). **Felsefe Ansiklopedisi: Kavramlar ve Akımlar [Encyclopedia of Philosophy Concepts and Movements],** Remzi Bookstore Publishing, Istanbul, Turkey.

Hizal, A. (1977). "Televizyonun Çocuklar ve Ergenler Üzerindeki Etkisi [Television's Effect on Children and Adults"], **Journal of Education Faculty**, Issue: 1-4, Ankara, Turkey.

http://www.istanbul.edu.tr/iletim/?page=template-news/detail&int_Id=315 retrieved on, 01.05.2010

Iscibasi, Y. (2003). "Çocuğun Sosyalleşmesinde Aile-Televizyon İlişkisi [Family-Television Relationship in Children's Socialization"], **Kurgu**, Open Education Faculty, Issue: 20, Eskisehir, Turkey.

Jean, F. & Stephen Lacy, S. (2004). **The Media In Your Life.** Pearson Inc., USA.

John, F. (2003). **Introduction to the Communication Studies Second Edition**. Translated by: Suleyman Irvan. Bilim ve Sanat Publishing, Ankara, Turkey.

John., V. (2003). **The Media of Mass Communication.** Pearson Inc., USA.

Justin, L. (2005). "Audience", in **Mass Communication Theorems**. Translated by: Erol Mutlu, Utopya Publishing, Ankara, Turkey.

Kocak, A. (2001). Televizyon İzleyici Davranışları Televizyon İzleyicilerinin Tercihleri ve Doyumları Üzerine Teorik ve Uygulamalı Bir Çalışma [A Theoretical and Applied Study on Television Viewer Behaviors, Preferences and Satisfactions of Television Viewers] , unpublished PhD dissertation, Selcuk University, Konya, Turkey.

Lull, J. (2001). **Media Communication Culture**. Translated by: Nazife Gungor, Vadi Publishing, Ankara, Turkey.

McQuail, D. (1985). "With The Benefit of Hindsight: Reflection on Uses and Gratifications Research", **Mass Communication Review Yearbook,** Vol. 5: 125-141, USA.

McQuail, D. Windalh, S. (1982). **Kitle İletisim Çalışmları Icin Iletisim Modelleri [Communication modals for Mass Media],** Translated by: Banu Dagtaş-Ugur Demiray (Eskisehir, 1994), Anadolu Üniversitesi Egitim Saglık ve Bilimsel Arastrıma çalışmaları Vakfı Yayinları No: 92, Eskisehir, Turkey.

Morley, D. (2005). "Active Viewer Theorem: Pendulums and Traps", in **Media and the Viewer**, Translated by: Yigit Yavuz, Compiled by: Sahinde Yavuz, (Ankara, 2005), Vadi Publishing, pp. 98-105, Ankara, Turkey.

Ocel, N. (2002). **Iletişim ve Cocuk [Communication and Children],** Istanbul University Communication Faculty Publishing, Istanbul, Turkey.

Oktay, A. (2002). **Yaşamın Sihirli Yılları: Okul Öncesi Dönem, Üçüncü Baskı [Magical Years of Life: Pre-School Period Third Edition]**, Epsilon Publishing, Istanbul, Turkey.

Oter, G. **3 - 6 Yaş Arası Çocukların Gelişim Özellikleri [Characteristics Development of the Children in the Age Group of 3-6],** http://www.benimyuvam.com/yazilar.asp?id=5&y=217 retrieved on 01.05.2010

Postman, N. (1994). **Public Speech in the Television Killing Entertainment Shows Age**. Translated by: Osman Akinhay, Ayrinti Publishing, Istanbul, Turkey.

Rosengren, R. (1974). "Uses and Gratifications: A Paradigm Outlined" **The Uses of Mass Communication: Current Perspectives on Gratifications Research**, Sage Publications, London, UK.

Rubin, A. M. "The Uses-and- Gratifications Perspective of Media Effects", in **Media Effects: Advances in Theory and Research**, Editor: Jennings Bryant, NJ USA: Lawrence Erlbaum Associates, 2002.

Ruggiero, T. E. (2000). "Uses and Gratifications Theory in the 21st Century", **Mass Communication & Society**, Winter 2000, Vol.3. Database: Academic Search, primer, USA.

Ulken, F. B. (2009). Televizyon İzlemede Anne-Baba Aracılığı ile Çocukların Saldırgan Davranış- ları Arasındaki İlişki [Television Watching Via Mother-Father The Relationship Between Children's Violent Behavior], unpublished PhD dissertation, Anadolu University Social Sciences Graduate Institute, Eskisehir, Turkey.

USA Department of Defense. (2010). "**News Channel Selection Among Military Members: The Utility of Specific Military Information Sources**", retrieved on 08.12.2010
http://www.ou.edu/deptcomm/dodjcc/groups/01B1/literature.htm

Yavuzer, H. (2000). **Çocuk Psikolojisi [Child Psychology]**, Remzi Publishing, 2000), Istanbul, Turkey.

Yilmaz, G. (2007). **Basın Yayının Çocuk Sağlığına Etkileri [Press's Effects on Children's Health],** Impress Publishing Facilities, Ankara, Turkey.

Yorukoglu, A. (2004). **Çocuk Ruh Sağlığı [Child Mental Health]**, Ozgur Publishing, Istanbul, Turkey.

DIFFERENTIAL EFFECTS OF COVER, COPY, AND COMPARE IN SPELLING WITH FOUR HIGH SCHOOL STUDENTS WITH SEVERE BEHAVIOR DISORDERS[1]

Marco A. Carter
Gonzaga University, WA
USA
mcarter2@gonzaga.edu

T. F. McLaughlin
Gonzaga University, WA
USA
mclaughlin@gonzaga.edu

K. Mark Derby
Gonzaga University, WA
USA
derby@gonzaga.edu

Heidi Schuler
Spokane Public Schools
USA
HeidiS@spokaneschools.org

Jessica Everman
Spokane Public Schools
USA
JessicaE@spokaneschools.org

ABSTRACT

The purpose of this study was to evaluate the effects of cover, copy, and compare (CCC) for teaching spelling of commonly used words with four high school students with behavior disorders. CCC is a self-tutoring and managed practice procedure where known and unknown spelling words are taught using CCC worksheets, error correction, small individualized word lists, and frequent testing. Practice typically involves students copying a word from a list, and then copying the same word from memory. If the student makes an error, they are required to correctly spell the word again three times before moving to the next word. The effectiveness of CCC was evaluated with combination multiple baseline and reversal design. The results indicated that CCC was effective in increasing the spelling accuracy of 240 commonly used words. However, the reversal procedure generated differential effects between the participants. Specifically, the return to baseline was not replicated for two of the three participants. The CCC procedure required little teacher time or training and was an overall success in a special education high school classroom setting.

Keywords: cover, copy, and compare, high school students, spelling, behavior disorders, single case research designs, action research

INTRODUCTION

Being able to spell commonly used words is a prerequisite skill for academic success, especially in written communication as well as in reading. A student's ability to spell words correctly shows a sophisticated understanding of the letters, sounds, and syllable patterns that make up the English language; as well as other languages (Bear & Templeton, 1998). As a result, spelling is a very complicated and tasking subject to teach students in an efficient manner (Wanzek, Vaughn, Wexler, Swanson, Edmonds, & Kim, 2006). A serious deficit in spelling commonly used words suggests that a student is lacking the prerequisite language skills; which form the basis of nearly all academic disciplines. Skills associated with successful reading, such as phonological knowledge, also play a role in spelling (Abbot & Berninger, 1993).

For high school-aged students, spelling is an important skill across various curricula, grade levels, and

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subject-matter areas (Graham, Morphy, Harris, Fink-Chorzempa, Saddler, Moran, & Mason, 2008). High school students are required to spell words correctly whether they are in a biology, history, or English class. As a result, learning to spell words correctly can be a key component of a student's academic success (Graham, Harris, & Fink-Chorzempa, 2002). Additionally, students with learning and behavioral disabilities often come into classrooms with lower skill sets than the average student. It is extremely important that these students are provided with the skills they are lacking (Graham et al., 2008; McLaughlin, Weber, & Barretto, 2004; Nies & Belfiore, 2006; Templeton, 1986).

With the importance of spelling for academic success, it is particularly important that educators utilize teaching tools and methodologies which have been proven to empirically result in academic success (Graham, Harris, Fink-Chorzempa, & Adkins, 2004). In order to reach the highest level of success in the classroom, teachers need to utilize interventions which are both efficient and can be employed with a whole class. One intervention that reduces the necessity for one-on-one instruction, and has been shown to be effective in increasing spelling performance across a wide range of academic tasks, is cover, copy, and compare or copy, cover, and compare (CCC) (Cates, Dunne, Erkfritz, Kivisto, Lee, & Wierzbicki, 2006). CCC is an inexpensive self-managed and self-tutoring intervention which does not require extensive training to implement (McLaughlin & Skinner, 1996; Neis & Belfiore, 2006; Skinner, McLaughlin, & Logan, 1997). Cover, copy, and compare has been employed across a wide range of classroom settings ranging from resource rooms (McLaughlin, Mabee, Reiter, & Byram, 1991) to self-contained special education classrooms (Hubbert, Weber, & McLaughlin, 2000; Cieslar, McLaughlin, & Derby, 2008). In addition, CCC has been effective across a diverse range of students ranging from typically developing (Schermerhorn & McLaughlin, 1996) to students with a wide range of disability designations (Ceislar et al., 2008; McLaughlin et al., 1991; Pratt-Struthers, Bartalamay, Williams, & McLaughlin, 1989; Skinner, Belfiore, & Pierce, 1992; Skinner, Turco, Beatty, & Rasavage, 1989; Smith, Dittmer, & Skinner, 2002). Finally, cover, copy, and compare has been employed in elementary school (Hubbert et al., 2000), middle (McLaughlin et al., 1991), high school (Ceisler et al., 2008), and home settings (Stading, Williams, & McLaughlin, 1996).

The purpose of this study was to increase the correct spelling of commonly used words of four high school students enrolled in a special education self-contained classroom for students with behavioral disorders. Another purpose was to extend previous work with cover, copy, and compare (Hubbert et al., 2000; McAuley & McLaughlin, 1995; Pratt-Struthers et al., 1989; Struthers et al., 1994) and that of Skinner and his colleagues (Skinner et al., 1992; Smith et al., 2002) to high school students with severe behavior disorders.

METHOD

Participants and Setting

There were four participants in the investigation. Participant 1 was a 15-year-old-male student enrolled in the ninth grade at a high school in the Pacific Northwest. He was diagnosed as having both a learning disability and a behavior disorder by the school psychologist, and the school IEP team. At the time of the study, the participant was enrolled in a behavior intervention (BI) class for five out of his six classes per day. He had IEP goals in reading and writing, in addition to behavioral goals. Participants 2 through 4 were all 16 years of age and high school juniors. Each had been diagnosed with behavior disorders by the school IEP teach and were attending the behavior intervention classroom. Three of the four were below grade level (6 months to 3 years) in spelling from testing using the *Woodcock Johnson Psycho-educational Battery IV Form A* (Woodcock, McGrew, & Mather, 2001). When each participant was tested during baseline to determine how many commonly used words they could spell correctly, Participant 3 made the most errors followed by Participant 1 and then Participant 2. Participant 4 made only a few errors.

The setting for this study was a self-contained behavior intervention high school classroom. The classroom was housed in a large urban high school located in the Pacific Northwest. The high school was located in a low-income area of the city, and 89% of the students qualified for free or reduced

lunch students. The class provided educational services for ten 9th through 11th grade students, who ranged in age from 15 to 17 years. The classroom had three rows of desks all facing forward and a desk facing the wall that was designated as the "time out" area. The school office was across the hall from the classroom and students would sometimes be asked to wait in the office when their behavior became highly inappropriate. The classroom employed a modified token economy (McLaughlin & Williams, 1988). The token system utilized classroom points that were part of a school-wide discipline plan in the high school. These points could be exchanged from such items as free time, computer games, or improved daily classroom grades. Each of our participants usually exchanged their points for improved daily grades. The classroom personnel consisted of a lead teacher, two instructional assistants, and the first author.

Materials

The CCC work sheets and testing materials can be seen in Figures 1 and 2. The materials employed were a word list of 240 commonly used words, CCC worksheets and posttest and reversal test print-outs, and writing materials. Additional samples of CCC worksheets and materials can be found in McLaughlin and Skinner, (1996) or Schermerhorn and McLaughlin, (1997) for additional examples.

Dependent Variable and Measurement Procedures

The dependent variable was the percent correct for 240 of the commonly used words. A correctly spelled word was defined as a word that exactly matched the spelling of the word on the spelling list. The percent correct was obtained by dividing the number of correct words by the total words possible. During baseline this consisted of 240 words and for the CCC and reversal condition, a total of 10 words were scored each session

Data Collection

Data collection was part of the cover, copy, and compare intervention, including baseline and reversal. A permanent product was created each time a participant completed a baseline test, a CCC worksheet, each CCC posttest, or the tests used during the reversal. These data were gathered after lunch during all of the participant's study skills class. These scores were taken either in the first or last five minutes of the class, depending on the objectives the classroom teacher for that particular day. Participant 3 consistently took the longest to complete his CCC worksheets and tests, but would never take longer then 10 minutes. Data for all participants were taken over a ten-week period. One data point was marked on a scatter plot for each day of data collection.

Experimental Design and Conditions

A combination multiple baseline with a reversal design (Barlow, Nock, & Hersen, 2008) across participants was used. The second participant had two sessions of baseline while the other three participants only completed one session of baseline. The limited number of baseline data points was completed at the suggestion of the two certified master teachers (fourth and fifth authors)

Baseline. During baseline, the first author tallied the number of correctly spelled commonly used words for all four participants. The participants were not provided with any feedback on whether or not the words they wrote were correct or incorrect. Based on the recommendations of the classroom teachers, this condition was in effect for one to two sessions.

Cover, copy, and compare. This consisted of presenting CCC worksheet to the participants (see Figure 1) in which the participants: spelled the word, copied the word from a sample, wrote down the word from memory, compared the written word to the sample, and spelled the word again. If a participant misspelled a word during any portion of the worksheet they were asked to write the word three times in a space provided below. Each participant was given two previously missed words and

three previously correct words to review. For post testing (see Figure 2) and reversal tests, the participants were asked to spell the words given to them orally by the first author.

Reversal. For the reversal, the participants were asked to spell the words given to them orally by the researcher and the CCC worksheet was not employed. This condition was in effect for two sessions.

Reliability of Measurement and Fidelity of the Independent Variables

Inter-observer agreement was taken for each session. Reliability was completed by regarding the student spelling tests from baseline, CCC worksheets, CCC posttests, and the reversal. An independent observer (the regular classroom teacher) rescored the spelling tests. Inter observer agreement was calculated by dividing the number of agreements by agreements plus disagreements and multiplying by 100. An agreement was scored if both scored the word in the same manner. A deviation in scoring was noted as a disagreement. Inter observer agreement was 100% for all sessions. Fidelity as to the implementation of the various experimental conditions (Horner, Carr, Halle, McGee, Odom, & Wolery, 2005) was established by having the second and third authors observe the procedures and determine which experimental phase was in effect. These data were taken on 28 separate occasions. Fidelity for implementing the various experimental conditions was 100% across conditions and participants.

RESULTS

The results for each participant can be seen in Figure 3. During baseline, the percent correct in spelling for Participant 1 was 82% (range 80% to 84%). Participant 2 scored 87% in baseline. Participant 3 scored 67% for baseline while Participant 4's baseline score was high (96%). When CCC was employed, the spelling scores increased for each of our participants (range 80% to 100%). All participants decreased their overall spelling performance during the reversal period, when no CCC review worksheets were employed. Participant 3 had the lowest scores ($M = 60\%$) while Participant 2's performance declined the least during the reversal. Participant 1's performance decreased to 80% and then improved to 100%. The fourth student withdrew from the study before the second baseline could be implemented. All participants except Participant 4, who left the program early, had at least five consecutive sessions at 100% accuracy.

DISCUSSION

The use of CCC increased the percent of words spelled correctly for all participants in the study. Importantly, the words in this study were all high use words for each participant. The present outcomes extended previous research using cover, copy, and compare (Bolich, Kavon, McLaughlin, Williams, & Urlacher, 1995; Hubbert et al., 2000; McAuley & McLaughlin, 1992; McLaughlin et al., 1991; Murphy, Hern, Williams, & McLaughlin, 1990; Skinner et al., 1991, 1992) and high school students with behavioral disabilities (Cieslar et al., 2008). These outcomes further broaden and replicate the work of Skinner and his colleagues within a high school setting (Skinner et al., 1992; Smith et al., 2002).

There were several strengths in this study. First, was the short amount of time that was needed by the instructional staff to implement the procedures during each session. We found that it was never the case that a student would need more than 10 minutes to complete a CCC worksheet and posttest. This is a crucial element of any intervention because time is a precious commodity for any teacher, particularly a high school special education teacher. Moreover, because of the format of the intervention, the first author could have all four participants work at the same time. This made implementing the intervention very efficient. Finally, the outcomes supported the use of CCC with our participants.

There were limitations in the present investigation. First, while the CCC worksheets took relatively little time to implement, at times it was a challenge for the first author to make sure that every day

there was five new words to be reviewed for each participant. To do this the first author had to track previously used words for each participant and make sure no word was presented more than once. While tracking of student words was not a major ordeal in terms of complexity, it did demand a constant diligence in creating CCC worksheets on a daily basis. Second, the failure of the first participant to decrease his spelling accuracy during the reversal may indicate that something other than the CCC procedure interacted to maintain his spelling. Another explanation would be that since spelling is an academic behavior, it may have generalized from some of his other classes (Stokes & Baer, 1977, 2003). It has been suggested that employing an academic behavior is less likely to reverse when the intervention is withdrawn than a social behavior (Horner et al., 2005). A more appropriate design to employ when one suspect that the behavior may not revert to baseline levels would have an alternating treatments design (Barlow et al., 2008)

Taking into account the large amount of research supporting CCC in multiple settings, it appears clear that this intervention falls under the category of evidence based practices. With evidence based procedures mandated in the most recent IDEiA (U. S. Department of Education, 2004) legislation, it is critical that evidence based interventions such as CCC be utilized to the highest extent possible; in both general and special education settings. In addition, it appears that CCC could be employed as either a Tier 1 or Tier 2 intervention to document a response to intervention with selected students. Given the straight-forward nature of CCC, it should be possible to have entire classrooms complete CCC worksheets on a daily or weekly basis without the assistance of instructional aides.

REFERENCES

Abbott, R., & Berninger, V. (1993). Structural equation modeling of relations among developmental skills and writing skills in primary and intermediate grade writers. *Journal of Educational Psychology, 85,* 478–508.

Barlow, D. H., Nock, M., Hersen, M. (2008). *Single case research designs: Strategies for studying behavior change* (3rd ed.). New York: Allyn and Bacon.

Bear, D. R., & Templeton, S. (1998). Explorations in developmental spelling: Foundations for learning and teaching phonics, spelling, and vocabulary. *The Reading Teacher, 52,* 222–242.

Bolich, B., Kavon, N., McLaughlin, T. F., Williams, R. L., & Urlacher, S. (1995). Effects of a copy, cover, compare procedure and a token economy on the retention of basic multiplication facts by two middle school students with ADD/ADHD.

B. C. Journal of Special Education, 19, 1-10.

Cates, G.L., Dunne M., Erkfritz, K.N., Kivisto, A., Lee, N., & Wierzbicki, J. (2006). Differential effects of two spelling procedures on acquisition, maintenance and adaption to reading. *Journal of Behavioral Education, 16,* 71-82.

Cieslar, W., McLaughlin, T. F., & Derby, K. M. (2008). The effects of the copy, cover, and compare procedure on the math and spelling performance of a high school student with behavior disorder: A case report. *Preventing School Failure, 52*(4), 45-51.

Graham, S., Harris, K.R., Fink-Chorzempa, B., & Adkins, M. (2004). Extra spelling instruction promotes better spelling, writing, and reading performance right from the start. In A. Pincus (Ed.), *Tips from the experts: A compendium of advice on literacy instruction from educators and researchers*. Long Valley, NJ: NJIDA.

Graham, S., Harris, K. R., & Fink-Chorzempa, B. (2002). Contributions of spelling instruction to the spelling, writing, and reading of poor spellers. *Journal of Educational Psychology, 94*, 669-686.

Graham, S., Morphy, P., Harris, K., Fink-Chorzempa, B., Saddler, B., Moran, S., & Mason, L. (2008). Teaching spelling in the primary grades: A national survey of instructional practices and adaptations. *American Educational Research Journal, 45,* 796-825.

Horner, R., Carr, E., Halle, J., McGee, G., Odom, S., & Wolery, M. (2005). The use of single-subject research to identify evidence-based practice in special education. *Exceptional Children, 71*, 165–180.

Hubbert, E. R., Weber, K. P., & McLaughlin, T. F. (2000). A comparison of copy, cover, and compare, and a traditional spelling intervention for an adolescent with a conduct disorder. *Child & Family Behavior Therapy, 22*(3), 55-68.

McAuley, S. M., & McLaughlin, T. F. (1992). Comparison of add-a-word and compu-spell programs with low achieving students. *Journal of Educational Research, 85*, 362-369.

McLaughlin, T. F., & Skinner, C. H., (1996). Improving academic performance through self-management: Cover, copy, and compare. *Intervention in School and Clinic*, *32,* 113–119.

McLaughlin, T. F., Weber, K. P., & Barretto, A. (2004). Spelling: Academic interventions. In T. S. Watson & C. H. Skinner (Eds.), *Encyclopedia of school psychology* (pp. 317-320). New York: Kluwer Academic/Plenum Publishers.

McLaughlin, T. F., & Williams, R. L. (1988). The token economy in the classroom. In J. C. Witt S. N. Elliott, & F. M. Gresham (Eds.). *Handbook of behavior therapy in education* (pp. 469-487). New York: Plenum.

Murphy, J. F., Hern, C. L., Williams, R. L., & McLaughlin, T. F. (1990). The effects of the copy, cover, and compare approach in increasing spelling accuracy with learning disabled students. *Contemporary Educational Psychology, 15*, 378-386.

Nies, K. A. & Belfiore, P. J. (2006). Enhancing spelling performance in students with learning disabilities. *Journal of Behavioral Education, 15,* 162-170.

Poncy, B. C, Skinner, C. H, & Jaspers, K. E. (2006). Evaluating and comparing interventions designed to enhance math fact accuracy and fluency: Copy, cover, and compare versus taped problems. *Journal of Behavioral Education, 16, 27-37.*

Pratt-Struthers, J., Bartalamay, H., Williams, R. L. & McLaughlin, T. F. (1989). Effects of the add-a-word spelling accuracy during creative writing: A replication across two classrooms. *B. C. Journal of Special Education, 13*, 151-158.

Schermerhorn, P. K., & McLaughlin, T. F. (1997). Effects of the add-a-word spelling program on test accuracy, grades, and retention of spelling words with fifth and sixth grade regular education students. *Child & Family Behavior Therapy, 19*(1), 23-35.

Skinner, C. H., Belfiore, P. J., & Pierce, N. L. (1992). Cover, copy, and compare: Increasing geography accuracy in students with behavior disorders. *School Psychology Review*, *21,* 73-81.

Skinner, C. H., Ford, J. M., & Yunker, B. D. (1991). A comparison of instructional response requirements on the multiplication performance of behaviorally disordered students. *Behavioral Disorders, 17*, 56-65.

Skinner, C. H., McLaughlin, T. F., & Logan, P. (1997). Cover, copy, and compare: A self-managed academic intervention effective across skills, students, and settings. *Journal of Behavioral Education, 7*, 295-306.

Skinner, C. H., Turco, T. L., Beatty, K. L., & Rasavage, C. (1989). Cover, copy, and compare: A method for increasing multiplication performance. *School Psychology Review, 18,* 412-420.

Smith, T. J., Dittmer, K. I., & Skinner, C. H. (2002). Enhancing science performance in students with learning disabilities using copy, cover, and compare: A student shows the way. *Psychology in the Schools, 39*, 417-426.

Stading, M., Williams, R. L., McLaughlin, T. F. (1996). Effects of a copy, cover, and compare procedure on multiplication facts mastery with a third grade girl with learning disabilities in a home setting. *Education and Treatment of Children, 19,* 425-434.

Stokes, T. F., & Baer, D. M. (1977). An implicit technology of generalization. *Journal of Applied Behavior Analysis, 10,* 349-367.

Stokes, T., & Baer, D. M. (2003). Mediated generalization: An unfinished portrait. In K. S. Budd & T. Stokes (Eds). *A small matter of proof: The legacy of Donald M. Baer* (pp. 125-138). Reno, NV: Context Press.

Struthers, J. P., Bartalamay, H., Bell, S., & McLaughlin, T. F. (1994). An analysis of the add-a-word spelling program and public posting across three categories of children with special needs. *Reading Improvement, 31*, 28-36.

Templeton, S. (1986). Synthesis of research on the learning and teaching of spelling. *Educational Leadership, 46*(6), 73-78.

U. S. Department of Education (2004). *Individuals with Disabilities Improvement Act*. Washington DC: U. S. Printing Office.

Wanzek, J., Vaughn, S., Wexler, J., Swanson, E.A., Edmonds, E., & Kim, A. E. (2006). A synthesis of spelling and reading interventions and their effects on the spelling outcomes of students with LD. *Journal of Learning Disabilities, 39*, 528-543.

Woodcock, R. W., McGrew, K. S., & Mather, N. (2001). *Woodcock Johnson Psycho-educational Battery*. Reading Meadows, IL: Riverside Publishing.

Cover, Copy, and Compare Worksheet

Name: _____   Date: _____

1. Practice Words	2. Spelling Check	3. Copy Word	4. Cover/Copy And Compare	5. Spelling Check
1.				
2.				
3.				
4.				
5.				

Practice Sheet for Words Missed

1.			
2.			
3.			
4.			
5.			

Figure 1. Example of a cover, copy, and compare review worksheet.

Cover, Copy, and Compare Post test Form

Name: _____   Date: _____

1._____

2._____

3._____

4._____

5._____

Figure 2. Example of a cover, copy, and compare post test form.
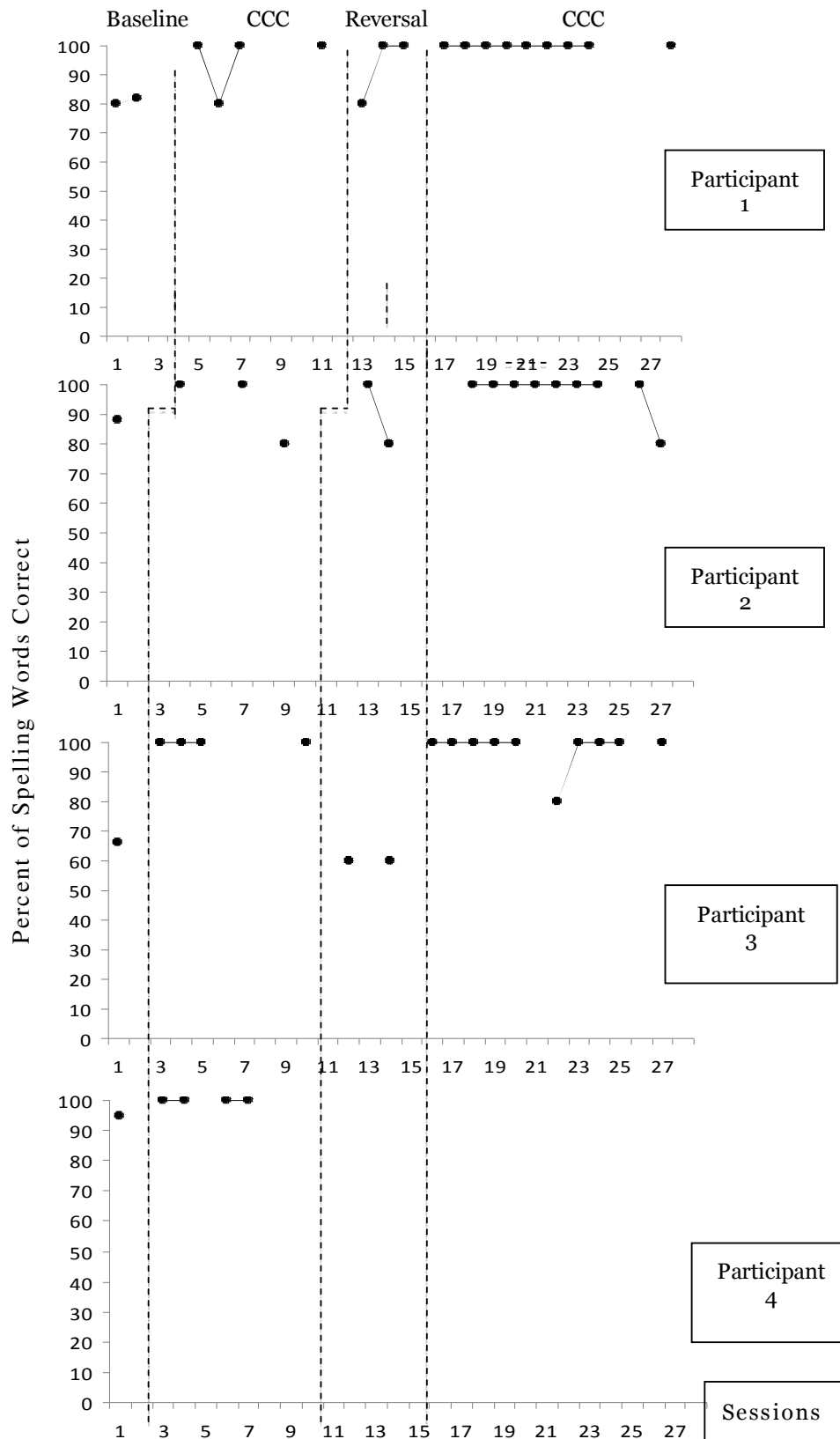
Figure 3. The percent correct for baseline using the 240 most commonly misspelled words, the first CCC procedure, a reversal without the CCC worksheet, and the last CCC condition for Participants 1 through 4. Omitted data points indicate student absences.

THE IMPACT(S) OF TEACHING WORD-FORMATION KNOWLEDGE IN INCREASING THE NURSING STUDENTS' READING COMPREHENSION SKILL

Masoud Hashemi
English Department, Toyserkan Branch, Islamic Azad University, Toyserkan, IRAN
masoudhashemi38@yahoo.com

Masoud Azizinezhad
English Department, Toyserkan Branch, Islamic Azad University, Toyserkan, IRAN

ABSTRACT

Nowadays there is an increasing attention to the teaching and learning of vocabulary in order to facilitate the learners' reading comprehension ability. For many years the programs that prepared the learners for their future reading tasks offered little or no attention to the effective teaching of the relevant lexicon by the instructors and the one hand and the learning and acquiring a sufficient bank of lexicon by the learners on the other hand . The ability to learn new words easily and effectively appears to have vanished. Word-formation knowledge which is one of the most systematic ways of enhancing word power will increase the learner's ability to read difficult texts without continual reference to unabridged sources. It will also offer the pure pleasure of adding to their store of useful knowledge. During the present research, the researcher has tried. To investigate, whether teaching word-formation knowledge would have any impact(s) on increasing the nursing students' reading comprehension skill or not. So, 50 nursing students in the form of two groups (each 25 students) were chosen from among many other students. Both groups (experimental and control) received a pre-test and a post-test. But the experimental group received a treatment on word-formation knowledge and the other did not. The results obtained through various statistical methods such as T-test and matched T-test confirmed high rate of progress in experimental group and the rejection of the null hypothesis. This study shows the effective role that word-formation knowledge played in increasing the nursing students' reading comprehension ability at Islamic Azad Toyserkan branch.

Keywords: English Language, word-formation, reading comprehension skill

INTRODUCTION

The attitude that foreign language teachers have had toward teaching vocabulary and the classroom techniques they employed have varied enormously during the past five six decades. Most of the experts and the teachers in the field believe that knowledge of morphological rules facilitate the process of guessing, recognizing, understanding, and remembering the meanings of words. Over time the guesses are refined and the meaning comes to be specific. According to Riverse and Temperley (1978), the teachers may develop certain skills to help students increase their power in English through focusing on form, meaning, expounding by association, and recalculating the vocabulary they have learned. Celce Murcia (1973) calls one such process " Incorporation " Varzegar et al (1994) says : knowing how to use the dictionary and knowledge of word analysis (sometimes called Derivational Morphology) is a key to success in reading and comprehending the text .

Pulston and Bruder (1976) stated that word formation is traditionally the heart of a word study. It is the study of roots, stems, prefixes, and suffixes and their combination into words, as in the relationship between amaze, amazing, and amazement.

According to Bowen , Madsen and Hiferty (1985) lexical study should include the pieces that make up word: PREFIXES, SUFFIXES, INFLECTIONAL PATTERNS, DERIVATIONAL PATTERNS, enough MORPHOPHONEMICS for the students to be able to associate the im- of impossible or the ir- of "irregular" and WORD FAMILIES (sign, design, signature, assign, designate , etc) to help identify common elements. Regarding the importance of word–formation knowledge, Shahbazy (1992) do believe that learning the ESP students is more significant that learning it without using the word – formation rules. But some believe that it is true that we teach decoding of words for effective reading; students should not necessarily be asked to produce words through the processes of word formation they are studying (Paulston and Bruder, 1976). In word formation, there are two separate teaching points: (1) the lexical meaning of roots and prefixes and (2) the syntactic signals for parts of speech, the teaching point is the lexical meaning of the forms (Pulston and Bruder, 1976). It should also be stated that word formation is not able to account for all ways of forming everything that can be called a "WORD. "

Teaching Word Formation

Teaching Word Formation, which is a necessary part of the ESP, is an ideal chance for students to acquire vocabulary knowledge necessary for effective reading of their own texts. It is intended to give learners an opportunity to gain first the fundamentals of words and to build from there in whatever design their needs call for (Birmingham, 1981). Since most of the language of ESP texts is based on Latin and Greek roots. The instructor of the course must know the needs of the students. The class time may be used to more fully develop the subject matter in a way that meets the needs of the students. Word power can also be thought as a complementary course along with ESP. The instructor should also use class time to explain the terms explicitly and encourage the use of the Nursing dictionary and other references needed to increase knowledge of nursing terms. Another important point according to Birmingham (1981) is that the students should be encouraged to use a combination of this course and other reference books to reinforce knowledge**.**

Teaching Reading Comprehension

It is out of question that reading is a basic and complementary skill in language learning. During college study, the students require to do some reading that they have never down before. They need this skill for their present and future use or career (Saif, 1995). In the past, language teacher have typically given students very little assistance with reading other than to teach them grammar and vocabulary. (Toosi, 1995) As Saif (1995) states: "… for university students knowing how to read critically is a must. " However, it has been observed that too often, students instead of reviewing – having a critical approach towards –a book or an article. Safarzadeh (1985), addressing the university instructors emphasizes the importance of teaching word formation knowledge as an integral part of ESP/ESM course.

Regarding teaching reading, Rivers and Temperley propose the skills which are: 1) Complete control in recognition of points of grammar which impede comprehension of the written language, 2) Knowledge of word formation which will help them to recognize the functions and nuances of meaning of words derived from the same radical, 3) Practice in recognizing English words which they already know, sometimes in a disguised form, 4) Recognition of knowledge of the most frequent "false friends. "

Statement of the Problem

Many university students find vocabulary particularly technical vocabulary technical vocabulary, a key element toward an effective reading comprehension of their own texts. But, unfortunately, it seems that teaching and learning the vocabulary in general and technical lexicon in particular is confined only to long lists of words with their native language equivalents to be memorized by the learners. Students usually tend to make lists of new words so that one day they could look them up

and learn them. The ability to learn new words easily and effectively appears to have vanished. As the students progress in their academic education they typically find that vocabulary building demands sustained efforts. According to methodologists having word formation knowledge, student can increase the ability to read difficult tests without continue reference to unabridged sources.

RESEARCH QUESTIONS

The aim behind the present study is to investigate whether the process of vocabulary learning (for the purpose of successful reading comprehension skill of nursing students) would be facilitated by familiarizing them with Word - formation Rules or not . Regarding the above mentioned points, the following research questions would arise:

1. Is there any significant relationship between teaching word – formation knowledge to nursing students and their lexical knowledge?

2. Does this approach facilitate the students' reading comprehension ability or not?

Significance of the Study

Due to the lack of sufficient time the students for acquiring and learning the new words on the part of the students (nursing students is no exception) , word – formation knowledge will relatively facilitate the process of right or nearly right guesses , recognizing , and finally remembering the meaning of words for a longer period of time .

Vocabulary learned through word-formation would be not only interesting but also more effective and motivating for less-motivated students. In this regard, Finocchiaro and Bonomo (19730) maintain that successful performance and a sense of achievement are powerful motivating forces in learning. It is helpful to use a systematic approach to learning new words. The time it takes to guess and recognize new words will be significant when measured against the bother of looking up the same words repeatedly.

Teaching Word Formation

The purpose of teaching Word Formation, which is a necessary part of the English for Specific Purposes (ESP), is to give the students the opportunity to acquire vocabulary knowledge necessary for effective reading of their own technical and semi-technical texts. It is intended to give learners an opportunity to gain first the fundamentals of words and to build from there in whatever design their needs call for (Birmingham, 1981). Since most of the language of ESP texts is based on Latin and Greek roots, the instructor of the course must know the needs of the students. The class time may be used to more fully develop the subject matter in a way that meets the needs of the students. Word power can also be thought as a complementary course along with ESP. The instructor should also use class time to explain the terms explicitly and encourage the use of the Computer dictionary and other references needed to increase knowledge of computer terms. Another important point according to Birmingham (1981) is that the students should be encouraged to use a combination of this course and other reference books to reinforce knowledge.

METHODOLOGY

Subjects of this study were 50 female, sophomore, nursing students of Toyserkan school of Nursing, Hamedan Province. First of all, they were divided into two groups (each 25 members) ; one as the control group and the other as experimental group .Both groups received a pre-test and a post-test . Then the experimental group was given a treatment on Word – Formation Rules (extracted from the book English for the students of Nursing , SAMT Press , 1988) during the interval period between the

pre-test and the post-test . The other group did not receive any treatment. They had their usual reading comprehension class.

In this study, the researcher has employed a quasi- experimental design. Two classes were selected and a pre-test was given in order to gain a measurement for matching the two groups. The internal validity was gained through controlling variables include students' sex, age, native language, and amount of materials taught.

The students were placed in two separate classes. Both (exp. group) and (cont. group) received a Pre-test. Furthermore, 15 treatment sessions were given to the experimental group. During the sessions a list of major Prefixes and Roots which were widely used in Technical texts was introduced and worked on. Later on, for both groups a post-test was given and necessary calculations and analytical procedures were followed and provided.

The reading material of both groups was the same during the normal class time. But an extra material containing some parts of (English for the students of Nursing, SAMT press, 1988) was administered and practiced on through some specific exercises given in the book. The major emphasis was placed on Prefixes and Roots. The students were encouraged to do, check, and recheck the given exercises and also some Paper and Pen and teacher – made tests and guessing games were introduced in order to enhance their learning of new prefixes and roots. The main criteria for selection of Prefixes and Roots were their productivity and frequency in their related textbooks.Taking Reliability and Validity of the test into consideration, both pre- and post-tests were chosen from ESP (English For The Students Of Computer Students, SAMT, 1995).

The selection of reading materials and words was done based on the following criteria:

a) The book ' English For The Students of Nursing ' (SAMT , 1988)
b) The words which could be analyzed to prefixes and roots based on the Word – Formation Knowledge.

DATA COLLECTION AND DATA ANALYSIS

In present research , based on the type of data , many techniques including t-test , Matched t – test , Correlation Coefficient , etc , were used .

Two groups of nursing students participated in the present research. Both groups (Exp. & Cont.) received a pre-test and a post-test. One group (Experimental) received a treatment while the other one had the normal class reading procedures. The results of subjects' scores in Pre-and Post-tests, were compared through different statistical methods.

The main statistical procedure used to compare the output of the two tests (Pre-and Post-tests) was t-Test. First of all, the two means of the two groups were compared. The mean, Standard Deviation and Variance of the two groups in pre- and post-tests are shown in Table 1.

Table 1. Mean, Variance, Standard Deviation

	No.of Subjects	Mean	Variance	SD
Pre-test Exp. G	25	12.0600	16.902	4.111
Post-test Exp. G	25	14.9200	9.764	3.125
Pre-test Cont. G	25	12.4200	14.139	3.760
Post-test Cont. G	25	11.7800	16.023	4.003

As we can see from the above table, both groups have gained an almost near score during the pre-test (12.0600 exp. & 12.4200 cont.) But the highest score in post-test belongs to experimental group. Therefore, the difference between the means of experimental group in pre-and post-tests is 2.8600 and that of control group is .6400. It shows that the experimental group. Therefore, the difference between the means of experimental group in pre-and post-tests is 2.8600 and that of control group is .6400. It shows that the experimental group has had more progress, as well as the effect of treatment. Comparing the means of pre-test in both groups , it clearly shows that control group has performed better in pre-test but not in post-test .

In summary, although the experimental group had a relatively lower mean in pre-test (12.0600) than that of control group (12.4200), the results in post-tests are the opposite (14.9200 for experimental group and 11.7800 for control group). This is a good proof for the positive effect of treatment.

During the present study, in order to calculate the mean, variance and standard deviation for both experimental and control groups , the ratio between post-and pre-test was calculated .It was due to the fact that the means obtained through raw scores cannot be applied in t-test (Table 2).

Table 2. Normalized Mean, Variance, Standard Deviation

	No. of subjects	Mean	Variance	SD
Exp. G	25	13.49	4.089	2.022
Cont. G	25	12.1	.204	.425

Using the above data, the value of observed t was calculated and C compared with value of t –critical at the level of .05. The critical t- with the degrees of freedom of 24 was 3.357 in t – distribution table. As the calculated t is 1.711 (table 3), it is large enough to reject the null hypothesis.

The rejection of the hypothesis clearly shows the effective role of   teaching and learning word _ formation knowledge in increasing the reading comprehension skill of the students. Furthermore, since the difference between these two figures is large, it shows that the effect is very considerable. So we can conclude that teaching word- formation knowledge can be quite helpful in enhancing the nursing students' reading comprehension skill .

Table 3. T-test between Exp. Group and Cont. Groups

t-Critical < t – Observed   1.711 < 3.357

 Matched t-Test

As mentioned before, Matched t-test is used when the scores on two variables are obtained from one group. For example, every person has taken two tests. The hypothesis to be tested is stated about the difference between the performances of the subjects on the two measures (Farhadi, 1995). The researcher used this type of test to compare each subjects' performance on the two tests (Pre-test and Post-test). Two Matched t-tests were done, one for Experimental group, and one or Control group. You can see the results of both groups in Tables 4 and 5 shown below.

Table 4. Pre & Post – test Data, Exp. Group

	No.of subjects	Mean	Variance	SD
Pre-test / Exp. G	25	12.060	16.902	4.111
Post-test/Exp . G	25	14.9200	9.764	3.125

Table 5. Pre &   Post-test Data, Cont. G

	No. of subjects	Mean	Variance	SD
Pre-test/Cont.G	25	12.4200	14.139	3.760
Post-test/Cont. G	25	11.7800	16.023	4.003

Table 6 shows the t-value calculated for each group and t-critical with 24 d.f. Once again the calculated t value of experimental group is large enough to reject the null hypothesis and the significant effect of the treatment.

Table 6. Matched t-test for Experimental and Control Groups

Exp .G Critical-t< Observed –t   *1.711 < 3.055*

Cont . G   Critical – t < Observed-t   *1.711 < 0.507*

Correlation   Coefficient

One of the most important statistical measurements in rejecting the null hypothesis is Correlation Coefficient. According to Hatch & Farhadi (1982) "it means the degree of relations between pairs of two or more variables. To calculate the Correlation Coefficient of two sets of scores, we usually use various methods and procedures. Here, the researcher has used the Pearson Product Moment Correlation formula to determine the correlation coefficient of the scores. The results are presented in Table 7.

Table 7. Correlation Coefficient between Tests

	pre-test/Exp.G	Post-test/Cont. G
Pre-test/ Cont.G	0.137	0.324
Post-test/Exp.G	0.194	0.034

The Coefficient Correlation demonstrates the strength of a relationship between two variables. Calculating the Coefficient Correlation, we will always have a value between –1 and +1. A value of +1 means perfect positive correlation. A value of –1 means perfect negative correlation. A correlation is considered high when it is close to +1 and low when it is close to 0 (Farhadi , Jafarpoof , and Birjandi , 1995). Regarding the above Table, there is little correlation between pre-test and post-test in control group and the degree of relationship between pre- and post-test in experimental group is high and positive. As the figures show, the relationship between the two tests in experimental group is quite high.

As the results of Toosi (1995), Shahbazy (1992), the present research and the relevant researches is this regard show. Learning and teaching the word- formation knowledge play a major role in learning the vocabulary of ESP and EMS texts and this procedure clearly facilitate the process of reading comprehension of the students.

Shahbazy in his MA these under the title of " The role of word- formation in learning the vocabulary of ESP textbooks " while providing a starting point for discussion of some of the theoretical and pedagogical implications , strongly recommends that the students of ESP courses take into account the basic concerning word –formation in teaching vocabulary seriously . So, as Safarzade (1995) believes,

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CONCLUSION

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Pedagogical Implications

For decades, the study of vocabulary has been the most neglected area of all in language teaching and learning. But, nowadays there is an increasing attention to systematic teaching and learning vocabulary in order to facilitate the learners' ability in reading comprehension of their own texts.

Today, the time of long lists of words with their native language equivalents to be memorized by the poor students is over. Teachers as well as the students are looking for more effective, more interesting, and in one word, better ways of enhancing the vocabulary they need for their task. Anderson and Freebody (1981) claim that the correlation between knowledge of word meanings and ability to comprehend passages containing those words are all high and well established in first language reading students. Bond et al (1984) believe: "Without satisfactory word meanings, comprehension of either spoken or printed language is impossible. " Therefore, the students should be familiar with sufficient vocabulary to read difficult texts without continual references to unabridged dictionaries.

Paulston (1976) emphasis that the one thing that most interferes with our students ' reading is poor vocabulary and that our students have been right all these years when they complained about not knowing and not being taught enough words . Twaddell sees the expansion of vocabulary as indispensable at advanced levels of teaching (1973). The teachers of English may use various techniques and strategies in order to increase the students' word power. Learning the lexicon systematically helps the language learner their knowledge of vocabulary and retain that amount of words for a longer period of time. It is true that the systematic way of increasing one's vocabulary is to assign some reading materials for him/her so that s/he learns and retains some words little by little and during a longer period of time. But it should also be remembered that university students (specially non- English students) generally lack the sufficient time for acquiring and learning the new words.

Word Formation Knowledge which is the most encouraging. Effective and systematic way of enhancing vocabulary is key element here. According to Toosi (1995) for advanced level a very helpful way of teaching vocabulary would be the teaching of Word Formation Rules As Varzegar et al (1994) states : knowing how to use the dictionary and knowledge of word analysis (sometimes called Derivational Morphology) is a key to success in reading and comprehending the text . Safarzadeh (1994) truly suggests the ESP/ESM instructors to teach word formation rules as a complementary part of the course.

Very many methodologists and teachers do believe that knowledge of morphological rules facilitates the guessing recognizing , understanding , and remembering the meanings of words and that this approach is the very heart of word study . Furthermore, the knowledge of word formation helps the learner to expand his/her vocabulary span, when s/he learns to associate noun, verb, adjective, and adverb of the same root together (Toosi, 1995). Mirhassani (1993) rightly stresses that words would be simple, if the learner knew what their parts meant. By learning word parts, English or borrowed parts, and recognizing these parts in unfamiliar words, the learner would be able to guess the meaning of the strange words.

Grellet (1981) discusses one of the useful reading practice techniques as to have students work their way through comprehension problems the meaning through word formation and context. Another important point is the, as Mirhassani (1993) mentions, since the learners learn most of their new words from reading and less from hearing them and since the main stress in Iranian Universities is on reading comprehension, the systematic teaching and learning of vocabulary in special less time-consuming "Word Formation Roles "would quite effective in making general language competency of the students.

REFRENCES

Adams , V. (1988). *An Introduction to Modern English Word-Formation*. (2nd Ed.). London: Longman

Allen , V . F. (1983). *Techniques in Teaching Vocabulary.* USA: Oxford University Press

Allerton , D. J., with French , M . A . (1975). *Morphology : the forms of English* ' . In Bolton (1975), 79-134

Bond G . L ., et al (1984). *Reading Difficulties, Their Diagnosis & Correction*. Printic – Hall Inc ., New Jersey

Eskey , D . (1970). A New Technique for the Teaching of Reading to Advanced Students. *TESOL Quarterly* 4 : 315- 321)

Funk , W . (1978). *Word Origins and Their Romantic Stories*. New York: Bell

Goodman , Y ., & Burk, C. (1972). *Reading Miscue Inventory* . New York : Macmillan .

Harris , A . J . (1961). *How to Increase Reading Ability* . 4th ed New York : David Mckay , Co .

Henning . Grant, (1973). *A Research study in Vocabulary Learning : literature , experimentation, and ESL lessons* . " Unpublished MA thesis in TESL. Los Angeles: University of California ,.

Langmuir , C . R. (1967). *English Language Reading Ability of Haile Sellassie 1 University Freshmen and Law Students. Technical Memorandum 1967-68* . Addis Ababa : University Testing Center . Mimeo

Macmillan , M . (1965). Efficiency in Reading. *ETIC Occasional Paper 6*. London

Macnamara, J. (1966). *Comparative Studies of reading and problem solving in two Languages.* Language Research Group, McGill University.

Mckinely, C. (1974). *A Study of ESL Reading Difficulties and their possible effects on Academic Achievement* . Unpublished MA thesis in TESL. Los Angles: University of California.

Methold . K . (1975). *Practice in Medical Terminology.* London: Longman

Mirhassani, A. (1993). Word- Formation and Practice. *The EFL Journal,* 4-35, pp. 52–57

Shahbazy, M. (1992). *The role of Word - Formation in learning the vocabulary of ESP textbooks.* Unpublished MA thesis, Tehran: University for Teachers Education

Skinner, H. (1970). *The Origin of Medical Terms* (2nd Ed). New York: Hafner

Smith, F. (1971). *Understanding Reading, A Psycholinguistic Analysis of Reading and Learning to read.* New York: Holt

Toosi, A. (1995). *The Impact of Word-Formation Knowledge on Reading Comprehension,* Unpublished MA thesis. Tehran: Faculty Post Graduate Studies, Islamic Azad University

Walsleben, M. C. (1975). *Improving Advanced ESL Students' Reading Comprehension: an analysis and evaluation of materials and procedures* . Unpublished MA thesis in TESL. Los Angles: University of California

Willis. M. A. (1975). *Affixation in English Word Formation and Applications for TESL.* Unpublished MA thesis in TESL. Los Angles: University of California

A META ANALYSIS ON ASSESSMENT OF STUDENTS ACHIEVEMENT AT PRIMARY LEVEL IN PAKISTAN

Dr. Muhammad Saeed
Institute of Education & Research (IER)
University of the Punjab, Lahore
PAKISTAN
drsaeed1961@hotmail.com

Uzma Perveen
Institute of Education & Research (IER)
University of the Punjab, Lahore
PAKISTAN
pu.uzma@gmail.com

ABSTRACT

The purpose of this study was to analyse the methodology and results of previous researches (1990-2010) on assessment of students' achievement at primary level in Pakistan. Literature review covered with 40 researches articles, abstracts, manuals, booklets, books accessed electronically or printed materials were collected for reading purpose. Of these 19 studies were finally selected for meta-analysis on the basis of key assessment of students' performance through literature review. These include 17 Qualitative and 2 Quantitative studies. Results revealed that in most of the objectives of the study of primary education were not fully achieved. There were a few studies in which methodology was found not congruent with the nature or type of the study. The poor performance of the students may be linked with environmental and resource situations. The procedure of implementation of the policies and plans for primary education remained weak in Pakistan.

Key Words: Primary grade students, Achievement, Assessment, Meta analysis, Pakistan.

INTRODUCTION

Pakistan is a developing country of South Asia. Like other developing countries one of the main reasons for its underdevelopment is the low quality of education, which has in turn great impact on the country's social economic and political system. Talking in the perspective of low quality of education, especially at primary level, a number of factors related to school, head teacher, teacher, parent and community have a more or less impact. (Saeed, 2003). Low quality at primary level has been a critical issue since the nation's inception. A number of initiatives have been taken to enhance the quality of education but comparing it with the output, it can be said that we have not been truly successful to provide a strong base of education at primary and secondary level. The formal schooling system in Pakistan is marked by its multiplicity. There are government schools, semi-government institutions, independent private schools and private schools system. More the than one third of the school-aged children are still not attending schools. On the world scale, Pakistan has one of the highest numbers of illiterates. The situation is especially alarming for women. In 1951, the overall literacy rate was 16.41%; after 50 years in 2001, it was 49.51 % (Govt of Pakistan, 2005). The male literacy rate is currently around 60% while the female literacy rate is only 36% which clearly shows the meta family gap.

Primary education is the most important sub sector of the entire educational system. It is considered to be a key investment in human capital as it builds human capability which is vital ingredient for national building. Primary education can help in alleviating poverty by increasing income, improving health and nutrition and reducing fertility. Education for an independent sovereign state is almost different from a dominated nation. Pakistan on coming to being inherited many problems. Just after independence, in

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1947, an All Pakistan Education Conference was convened. Need for the Universal Primary Education (UPE) was realized by the participants of the conference. The Education Policy (1972-80) reiterated free and its universal primary education and financial constraints were the major hindrances to its success. Benchmarks of National Education Policy and Implementation Programme 1979 about primary education were curious, novel and innovative. Mosque schools and community schools were the off-shoots of the policy but couldn't be a great success. The causes may be the ill-planning, financial limitations, growing imports, decreasing exports, challenged GNP and population explosion.

With an intention to implement objectives stated in the National Education Policy (1998-2010), the education sector action plan (2001-2005) of the Government of Pakistan envisages improving the quality of education through teacher training and use of innovative programs and public-private partnership (Shah, 2003). Most of the researches conducted within the last two decades investigated poor performance level of primary grader students.In a study carried out by the World Bank (1995), it was reported that students in all grades scored higher in knowledge/rote learning as compared to comprehension and application. Mirza and Hameed (1996) found that a real planning for the achievement of the cherished goals of providing equal opportunity to every child at primary level needs to be based upon establishing cost-effective good quality primary school for all children of the relevant age group. Under the Punjab Literacy Watch (1999) it was found that the students (of grade 3, 4 and 5) average percentage score was 22 in mathematics and 28 in Urdu. Boys scored higher in mathematic in all classes In other study conducted by the Ministry of Education AEPAM,(2002) it was found that students' achievement in all subjects was poor at primary level.

Assessment is the process of identifying gathering and interpation information about students' learning. The central purpose of assessment is to provide information on students achievement and progress and set the direction for ongoing teaching and learning. A policy could only be a success when; the existing shortfalls are made the footing, the match with the resources is sought and the viable methods of implementing the policies are suggested and followed. Policies normally encompass the targets to be reached, lime light the gray areas and the most tangible implementation strategies.

Assessment lies at the heart of the process of promoting children's learning. It provides a framework within which educational objectives may be set and children's process is expressed and monitored. Since independence, studies have been conducted on different aspects of primary education. But perhaps no comprehensive study has so far been conducted in the area of primary education, covering all the aspects i.e. curriculum, teacher training and examination system. Therefore, the study was undertaken to evaluate primary education in the context of analytical review of studies focusing students assessment.

METHODOLOGY FRAMEWORK OF STUDIES ON ASSESSMENTS

The study was to investigate, how far the methodology adopted in previous researches (1990-2010) on assessment of students achievement at primary level in Pakistan was congruent with the objectives and results. Literature review covered with the different types of studies around 40 researches articles, abstracts, manuals, booklets, books accessed electronically or printed materials were collected for reading purpose. Of these, 19 studies were finally selected for meta-analysis on the basis of key assessment of student's performance. These include 17 qualitative and 2 quantitative studies. These research was carried out in three steps. In the first step literature review was collected viae-access and hard form available in Journals reports and manuals. For electronic access and search and Advanced search on Google and PU online website,and www.ask.com were mainly used. In the second step, 40 researches articles published in journals between 1990-2010 and some other materials and manuals on primary education were photocopied or downloaded and printed for the reading purpose. The complete version of each article was read many times for a clear understanding in regard to the nature, methodology and results of the studies.

In the third step, the concept of assessment of students and key indicator which were more frequently addressed in most of these researches were identified with the view of analyzing the previous research on the basis of key indicators.

ANALYSIS OF ASSESSMENT STUDIES

The differential performance of various primary education delivery systems and their cost effectiveness were studied under PEP-III. Tests were developed to assess students achievement as well as behavior. These tests were administered to boys and girls studying in 472 schools of different type in Punjab, Sindh and KPK. The composite scores of students were correlated with the per student cost of different types of schools to determine the most costeffective delivery system. The report presented data to establish the cost effectiveness of different types of schools but did not mention the reasons for these differences.

The study on Basic Competencies of Children in Pakistan, conducted by Perves, (1995) identified four basic competencies; the 3R's and life skills knowledge. A model sampling design, recommended by the WHO, was adopted to select a representative sample of 11-12 year old children. The sample, thus, included children in school, children who had been to school and had completed different grades, and also children who had never been to school. The study did not determine learning achievement of primary school children.

The MSU for SAP study (1995) on "Determinants of Primary Students Achievement" focused on grade 5 students. An achievement test based on the curriculum and books taught in grades 3 and 4 was administered to grade 5 students. Thus the study sought to determine the extent to which grade 5 students learned the material taught in grades 3 and 4. The students were those who passed examination held at the end of grade 3 and later also passed the examination at the end of grade 4. Those who could not demonstrate learning at the end of grade 3 and later those who could not display learning at the end of grade 4 were excluded from the group tested. Only those who reached grade 5 were tested.

The AEPAM study (1999) entitled "Measuring Learning Achievement at Primary Level in Pakistan" sought to assess learning achievement of grade 4 students in Mathematics, Science and Language (Urdu). The tests achievement consisted of 33 multiple-choice items on Mathematics, 35 items on science, and 35 items on Urdu. The tests were administered to a sample of 1,411 students of 75 boys' schools and 1,383 students of 70 girls' schools in 28 districts of Pakistan. The number of schools and students included in the sample were not proportionate to the universe. Besides, the study reported differences in student performance without relating these differences to causative factors.

In another study conducted by IER, achievement tests in all subject for grades 1 to 5 were developed. It was the most comprehensive attempt at assessing the achievement level of primary students in the Punjab. These tests were administered to 8,792 students in 132 schools of four districts. Analysis showed that girls and urban students scored better in grades 1 to 4. Boys, in general, and rural students, in particular, improved their performance by the time they reach grade 5 so as to perform at par with others. This finding has implication for the age of entry into five, because of lack of stimulation at home. This results in their poor performance as compared to urban students. However, with maturity they catch up with their urban counterparts. The study also showed that students in all grades scored higher in rote learning as compared to comprehension and application questions (The World Bank, 1999)

The Punjab "Curriculum Development and Research Centre" (CRDC) analyzed the "contents of first 4 to 5 chapters of textbooks" to develop assessment objectives in the light of curricula relevant to these chapters (CRDC, 1999). The study reported that the test covered first three to four lessons in the text book of each subject to ensure that the test did not include material which was not taught to students by the time the tests were administered. The report does not specify whether the 'instructional objectives'

identified from analysis of textbook were got validated from classroom teachers. The instruments were reviewed by experts and pre-tested. Instruments were "modified in the light of review and observations of pre-testing"

The assessment data collected under the study shows that in all grades rural students performed better in Science and Mathematics and poor in Social Studies. Girls scored higher than boys in both Mathematics and Science in all grades while boys scored higher than girls in Social Studies, Girls scored better in Urdu in grade 3 but boys caught up in grade 4 and surpassed in grade 5. The average percent scores ranged between 21 and 51; the highest being in Science and the lowest in Social Studies. With minor fluctuations, the level of students performance in Punjab is maintained and improved from the grades 3 to all subjects except social studies. The study revealed that teaching of Social Studies needs to be strengthened in Punjab.

With support of UNESCO, the Punjab Literacy Watch (1999) conducted a survey of pupil achievement in six districts of Punjab, two in each of the Northern, Central and southern regions. The districts were: Attock, Chakwal, Lahore, Sialkot, Muzaffargarh and Layyah. Tests in mathematics and Urdu were administered to 1371 students of grades 3, 4 and 5 in 16 boys schools, 14 girls schools and one co-educational school. On an average, students were able to correctly answer only 25 percent questions. Students average percentage score was 22 in mathematics and 28 in Urdu. Girls scored higher than boys in Urdu in all classes, while boys scored higher than girls in Mathematics in all classes. Another significant finding was that the combined (Mathematics+Urdu) mean percentage scores were 26, 26.3 and 23.1 for grades 3,4 and 5 respectively. Thus, while students in grades 3 and 4 correctly answered 26 percent questions, students in grade 5 could answer only 23 percent questions correctly.

In Sindh, three learning achievement studies were conducted during the second half of the 90's. While two of the studies were conducted under the SPEDP, UNESCO sponsored the Bureau of Curriculum and Extension Wing. Provincial BCEW conducted the first study in 1996. For this study, teachers, LCs and Supervisors graded performance of students of grades 1 to 3 in all subjects on the scale A to D. Under the second study, conducted in 1998, achievement tests in Mathematics and Sindhi/Urdu were administered to students of grades 3 and 5 (The World Bank, 1999). In the third study by BCEW, Jamshoro, conducted in 2000 was sponsored by UNESCO. Students performance in Mathematics, Science, Sindhi, Social Studies and Islamiyat was assessed through tests. Achievement data for the study was collected from five boys' and five girls' schools, each from the rural areas of Hyderabad and Dadu districts. Tests were administered to 50 boys and 50 girls in each of the grades 3 to 5. The mean percentage scores ranged between 8 in mathematics and 46 in sindhi language. Rural students in the province obtained very high scores in Sindhi language but performed poorly in all other subjects (Govt of Sindh, 2000). Students performance in Mathematics, Science, and Social Studies should be a matter of concern for the school administration. Student performance in rural Sindh showed a downward trend as they progressed through primary grades; performance in Sindhi language being an exception. Achievement scores in the terminal years were alarmingly low in all subjects except Sindhi language.

Two learning assessment studies were carried out in(Khyber Pakhtoon Khwa) during the 90's. The Educational Assessment Unit established under the PEDP carried out an assessment study in 1995-96 while the Provincial BCDES, Abbott Abad, conducted the UNESCO sponsored study in 1999. Student achievement data was collected from 6,946 students of grade 3 and 4,627 of grade 5 in Mathematics, Science, Urdu and Pushtu, (The World Bank, 1999). Students scored highest in Pushto followed by Urdu. Students of grade 3 scored higher in Science but their achievement remained low in grade 5. The reverse is the trend in achievement in Mathematics. Teaching of Science and Mathematics should receive greater attention in primary schools of KPK.

The UNESCO commissioned the Provincial BCDES, Abbottabad, to conduct a learning assessment of rural primary school children in District Mansehra. The study revealed extremely low level of achievement by rural children in all subjects and at all grade levels. The mean percent scores of students in KPK varied from grade to grade and subject to subject. Rural students in KPK performed better in Science and Social Studies followed by Mathematics and Urdu. Students in rural KPK did not maintain the level of performance as they progressed through grades, except in social Studies. Rural students, who have so little exposure to Urdu, performed well in these subjects in grade 3. Their performance keeps falling every year. The sudden drop in level of performance from grade 3 to grade 4 in Urdu needs further probing. It should be a matter of concern that student achievement level also dropped in Mathematics and Science between grades 4 and 5.

As part of the Social Action Program, the Northern Areas Education Project, supported by the World Bank, government, and DFID, conducted an assessment study during 1999-2000. Based on the national curriculum, tests in Urdu and Mathematics were developed for students of grade 4. Urdu test had four components-listening, loud reading, reading with comprehension and writing. Mathematics test items covered problems in the areas of Number, Money, Measurement, Geometry, Information Handling and problem solving. The average performance of students was good in listening, loud reading, and reading with comprehension, but poor in writing a story. In case of Mathematics, the average performance of students was good in Number, Money and Measurement, but poor in geometry, information handling and problem solving. The findings again brought out the almost complete reliance on memorization at the expense of creativity and problem solving in primary schools. Girls performed better than boys in the language tests, while boys performed better than girls in the mathematics tests. The mean percentage score was 66 on the listening test, 79 on loud reading, 54 on reading with comprehension, and 37 on mathematics tests. Thus, students of the Northern Areas performed better on language tests than on mathematics tests.

The provincial BCEC conducted an assessment study in rural schools of Pishin district Baluchistan during 1999-2000 with UNESCO support. The results suggest that the achievement levels of rural and urban children were equally low.The study conducted by BPEDP, Quetta, collected achievement data from students of grades 3 and 5 in life Skills, Mathematics and Urdu. The study reported district-wise data. The range of district-wise achievement scores was analyzed by subjects and grades (The World Bank, 1999). Balochistan students scored lowest in Urdu. The range of scores tends to increased as the students moved from grade 3 to grade 5. The achievement in Urdu shows overall improvement as the students moved from grade 4 to grade 5. On the other hand, the performance in Mathematics and Science shows a downward trend.

In another study, data was collected through and achievement test of data from 447 male and 354 female students in mathematics, Science, Social Studies and Urdu. The study showed low achievement level of rural students in Pishin district. The mean percentage scores ranged between 55 in science to 28 in Urdu. The performance of rural students in Science an Mathematics tends to improve as they progressed from grade 3 to 4, but again slides back as they reached grade 5. The low in level of performance in Science and Mathematics after grade 4 was too steep to be ignored. The performance of rural students of Balochistan was consistently low in Urdu.

COMPARATIVE VIEW OF ASSESSMENT STUDIES

The assessment studies conducted in Pakistan between 1990 and 2010 had different objectives. While studies conducted by Pervez (1995) and MSU for SAP (1995) sought to assess competencies, IER (1995) and AEPAM (1999) concentrated on assessment of subject mastery. However, the number of test items used to assess each competency was too small. It is believed that other things being equal, the longer the test, the higher the reliability and validity.

A second feature related to the extent to which data was collected on factors affecting quality. While IER, Pervez, MSU for SAP, and BRIDGES studies by collected information on characteristics of students /schools, AEPAM and studies conducted by Provincial Bureau of Curriculum collected opinions of head teachers, teachers, learning coordinators, students and parents about factors affecting quality of education. BRIDGE's students and MSU for SAP administered the test meant for students to the teachers also. If assessment studies are to provide direction for policy initiatives for quality improvement, more substantive evidence on contributing factors/variables should be provided.

A third feature of these studies related to the coverage of subjects and grades for data collection. While some sought to assess the performance of children who were in the final year of primary education through tests covering material contained in textbooks for grades 3 and 4. Other researches tested students of grades 3 to 5 with tests based on curriculum objectives and textbook materials for their grade. The items were sometimes based on the first four to five chapters of textbooks. Thus the data did not provide evidence of level of achievement at the end of grade. Again, some studies collected student achievement data pertaining to Mathematics and Urdu, other included Science and / or Social Studies and also Islamiyat. The sampling techniques and population covered also varied from study to study. Pervez drew his subjects from the sampled clusters. The sample drawn for AEPAM study did not appear to be a representative sample as the sample size from different provinces was not proportionate to their population. When aggregated national averages are reported these are likely to be biased. Studies conducted by Provincial Bureau of Curriculum collected data from a purposive sample of rural schools only. The question of drawing a representative sample poses difficulties in view of wide variety of schools with markedly different learning environment. These features of the studies make any comparison of results difficult. However, the conclusion that primary school system is not working efficiently is obvious. This calls for urgent reform initiatives.

The results of assessment researches varied widely with time as well as with purpose, curricular dowmain, instrument, grade level, sampling procedure and instrument. MSU for SAP found in 1995 that grade 5 students could correctly answered 46 percent questions on the Mathematics test. AEPAM study of 1999 found that grade 4 students obtained average mean scores of 72 in Science and Urdu and 59 in Mathematics. On the basis of assessment an attempt was made to estimate the level of learning achievement of grade 5 students in Mathematics, Science and Urdu. The levels of learning assessment presented more impressionistic than based on any weight of scores from different studies. On the final analysis, it may perhaps be reasonable to conclude that, "on average, students do not achieve competency on more than half the material in the 5th grade curriculum"

All children have the potential to acquire competence in all the material taught in the class. All that is needed, according to educational theorists, is suitably designed curriculum, effective teaching methodology, proper learning material, well organized academic supervision and community support. In actual practice, however, student achievement varied widely. There is no universally agreed desired target that students in each country should attain. Taking the ground realities into account, each country should set the desired level of achievement for its students. To be able to monitor progress towards the target, it would be necessary to define the minimum learning level for each grade in each subject. Considering the current low level of achievement, the national target may be set at 80 per cent of the cognitive primary curricular objectives to be achieved by at least 80 per of students.

FINDINGS AND RECOMMENDATIONS

Evaluation and improvement in education suggest that each district, school or even class room is so complex and distinctive that only highly context-specific strategies are likely to modify and improve their central functions. In the view of the Meta analysis of 19 researches studies, it is evident clear that the

emphasis of the research is on improvement of the primary education in Pakistan. Among the factors affecting achievement are parental education, their occupation and guidance, social, status, transport facility, self study, book reading and home or all have a positive or negative correlation with students' achievement.

Meta analysis expressed that students' performance in Mathematics, Science and Social Studies is a matter of concern for the school administration. Students' performance in rural Sindh shows a downward trend as they progress through primary grades; performance in Sindhi language being an exception. Achievement scores in the terminal years are alarmingly low in all subjects except Sindhi language. The results again highlight the need for strengthening problem solving activities in schools. The achievement level reported in the study is higher than that reported in earlier studies. It may be due to inclusion of a large number of items with low difficulty level, particularly from the textbooks for grade 3. The performance of rural students in Science and Mathematics tends to improve as they progress from grade 3 to 4 but again slides back as they reach grade 5. The performance of rural students of Baluchistan is consistently low in Urdu. The survey revealed that, the low performance in arithmetic was attributed to low competence in solving narrative problems. This finding has implication for the age of entry into the primary school. Children in rural communities are not ready for school at age five, because of lack of stimulation at home. This results in their poor performance as compared to urban students. However, with maturity they catch up with their urban students.

The differential performance of various primary education delivery systems and their cost effectiveness were studied under PEP-III. Tests were developed to assess students achievement as well as behavior. These tests were administered to boys and girls studying in 472 schools of different type in Punjab. Sindh and KPK. The composite scores of students were correlated with the per student cost of different types of schools to determine the most cost- effective delivery system. The report presented data to establish the cost-effectiveness of different types of schools but did not mention the reasons for these differences.

The successful expansion of educational improvement can be brought to scale across many schools and children from varying contexts. At the same time, we do not suggest that schools and policy makers dismiss promising programs before knowing their potential effects. Instead, we challenge the developers and the educational research community to make a long term commitment to research proven educational reform and to establish a market place of scientifically based models capable of bringing comprehensive reform to the nation's schools. The findings of the study reveal that overall the achievement level of students of grade 3 and 5 is low in Punjab; the province which enjoy relatively better educational opportunities in the country. Gender-wise comparisons also match with the international studies that the performance of girls in language has been found relatively better than boys. In contrast boys performance was found to be better in mathematics than the girls. In the test of Life Skills again the girls performance has been investigated relatively better than the boys.

In Mathematics, the performance of boys was better than girls at both grade 3 and 5 level. This might be due to less educational opportunities like number of schools in comparison to their proportion in the country's population, prevailing physical facilities, lack of parental support especially in rural areas, lack of awareness, and lack of trained and highly qualified teachers. In Urdu, the performance of girls was found relatively better than their counterpart boys. These results seem to be in consonance with various other international and national studies which explore that boys are relatively better in mathematics than girls, who in turn perform relatively better in languages than boys. In the integrated test of life skills- science, social studies and Islamyat, the performance of students both in grade 3 and 5 was found relatively better than in mathematics and Urdu.

REFERENCES

Douglas, E. (2010). Valid assessment of English language ability of Baccalaureate honors students, *International Journal of Education modeling in Higher Education*.

Government of Sindh (2000). *Baseline Survey of learning achievement*. Bureau of Curriculum and Extension Wing.

Govt of Baluchistan, (1998). *BPEDP. Primary Education Directorate,* Quetta, Baluchistan.

Govt of Pakistan (2004). *Study on Comparing School performance to understand which schools are doing better by assessing and comparing quality of Education,* AEPAM Research Study No. 178, Islamabad: Ministry of Education.

Govt of Pakistan (2005). *Pakistan: Second Girls Primary Sector Project*. Islamabad Asian Development Bank

Govt of Pakistan UNESCO Office, (2003). *Quality of Primary Education in Pakistan,* Ministerial Meeting of South Asia FFA Forum 21-23 May, 2003 Islamabad.

Govt of Sindh. (1996). *SPEDP*. Jamshoro: *Bureau of Curriculum and Extension Wing.*

Govt. of Baluchistan (1999). *Learning achievement of grade 3 to 5 children in rural primary schools of district pishin*, Quetta: Bureau of Curriculum and Extension Center.

Govt. of Khyber Pakhthun Khawa (1999). *Learning achievement of grade 3 to 5 children in rural primary schools in districts Mansehra* Bureau of Curriculum and Extension Center.

Govt. of Pakistan (1999). *Comparative analysis of public, private and NGO school.* Action Aid Pakistan Islamabad.

Govt. of Pakistan (1999). *Measuring learning achievement at primary level in Pakistan.* Islamabad: Academy of Educational and Planning and Managem

Curriculum Reaearch Development Center (1999). *Learning achievement of grade 3 to 5 children of Kasur District.* The Curriculum Research Development Center (CRDC).

Mirza, M. & Hameed. A (1994). *Differential achievement of primary age students the cost and effectiveness by school type* primary education project Institute of Education and Research. University of The Punjab Lahore.

MSU-SAP (1995). *Determinants of Primary Students Advisements, National Survey Results. Multi – Donor support* Unit for the Social Action Progamme.

Pervez, M. (1995) *Basic competencies of children in Pakistan. Basic skills Assessment-A Pakistan Case Study.* Theme 3 at EDI seminar held at Bhulban (February 7-10-1999).

Punjab Literacy Watch (1999). *Level of Pupil achievement in rural primary school of Punjab.*Punjab Middle Schooling project.

Saeed,M.(2003). Assessing quality of students learning, *Journal of Educational Research,* 6(1-2), pp.4-9.

Saeed, M. (2009). A Meta – analysis on primary teachers Mentoring*, Journal of Educational Research* (Vol. 12 No. 2)

Saeed, M., Gondal, M. B, & Burhra (2005). Assessing achievement of primary grader students and factors affecting achievement in Pakistan*, International Journal of Educational Management,* Vol. 19 No. 6, pp. 486-499.

The World Bank and DFID (1999-2000). *Northern Area Assessment Study.*

University of the Punjab (1995). *The IER Assessment study under PEP*. Institute of Education and Research.

Websites

http://www.yahoo.com/

http://www.ask.com

http://www.pu.edu.pk

http://www.google.com.pk

Table 1. A List of studies included in meta-analysis

Sr #	Name of Article	Nature of the Study	Year	Authors	Sample	Instrument	Subjects	Conclusion/ Results
1	Valid assessment of English language ability of Baccalaureate honors students	Qualitative	2010	Douglas E.Trimble	Whole university	MCQs test	English	• According to the faculty survey, 90% of students were accurately placed in the appropriate level class. • Analysis of course grades showed that 90% of students earned a grade of C or higher in the course in which they were placed; 65% earned and A or B in the course.
2	Assessing achievement of primary grader students and factors affecting achievement in Pakistan	Qualitative	2005	M.Saeed, M.Bashir Gondal and Bushra	1,080 students	Achievement test	Math, Urdu and life skills (Isl, S.St and Sc.)	• Among the factors affecting achievement were parental education, their occupation and guidance, social, status, transport facility, self study, book reading and home or all have a positive or negative correlation with student's achievement.
3	A study on comparing school performance to understand which schools are doing better by assessing and comparing quality of education	Qualitative	2004	Ministry of Education, Islamabad	3442(1943 boys and 1499 girls), 1724 urban and 1718 rural. 172 head teachers and 300 teachers (133 167 female)	Standardized test	Math, Sc. Urdu	• Teacher's academic and professional qualification had a positive influence on their students achievement in general and particularly on the achievement of girls' and urban students.
4	Factors associated with learning achievement of grade-5 students in public schools	Qualitative	2002	AEPAM (MOE) Islamabad	Sample was consisting of 2,794 grade V pupils	Achievement test	Math, Urdu,Sc.	• The children of educated mothers had better scores. • Education for girls up to secondary schools appears to be of fundamental importance.
5	Baseline Survey of Learning Achievement	Qualitative	2000	Bureau of Curriculum and Extension Wing Government of Sindh	50 boys and 50 girls	Achievement test	Math, Sc. Sindhi, S.St, Isl.	• Students performance in rural Sindh showed a so downward trend as they progressed through primary grades; performance in Sindhi language being an exception. • Achievement scores in the terminal years were alarmingly low in all subjects except Sindh, language.

Sr #	Name of Article	Nature of the Study	Year	Authors	Sample	Instrument	Subjects	Conclusion/ Results
6	Comparative analysis of public, private and NGO school	Qualitative	1999	Action Aid Pakistan Islamabad	965 students of grade 4 students	Achievement test	Math, Urdu, GK	• A much higher proportion of students from private schools obtained 80% or more marks than students from public and NGO schools. • The proportion of students scoring 80% or more marks was 47 in private schools as against only 25% and 31% from public and NGO schools.
7	Measuring Learning Achievement at Primary Level in Pakistan	Qualitative	1999	AEPAM (MOE) Islamabad	2,794 students of grade 5	Achievement test	Sc, Math, Urdu	• The results again highlight the need for strengthening problem solving activities in schools. • The achievement level reported in the study is higher than that reported in earlier studies. It may be due to inclusion of a large number of items with low difficulty level.
8	Level of Pupil Achievement in Rural Primary school of Punjab	Survey	1999	Punjab Literacy Watch	1371 students of grade3,4 and 5 in 16 boys schools and 14 girls schools	Achievement test	Math, Urdu	• While students in grades 3 and 4 correctly answered 26 percent questions, students in grade 5 could answer only 23 percent question correctly.
9	Learning Achievement of Grade 3 to 5 children in Rural Primary schools	Qualitative	1999	Bureau of Curriculum and Extension Center Quetta, Balochistan	Rural primary school children in Districts Mansehra N.W.F.P.	Achievement test	Math, Sc. Urdu, S.St	• The sudden drop in level of performance from grade 3 to grade 4 in Urdu needs further probing. • It should be a matter of concern that student achievement level also dropped in Mathematics and Science between grades 4 and 5.

Sr #	Name of Article	Nature of the Study	Year	Authors	Sample	Instrument	Subjects	Conclusion/ Results
10	Northern Areas Assessment study	Qualitative	1999-2000	World Bank, Government and AFID	Students of grade 4	Achievement test	Urdu, Math	• The performance of rural students in Science and Mathematics tends to improve as they progress from grade 3 to 4 but again slides back as they reach grade 5. • The performance of rural students of Baluchistan is consistently low in Urdu.
11	Learning Achievement of Grade 3 to 5 children in Rural Primary schools of District Pishin, Balochistan	Qualitative	1999	Bureau of Curriculum and Extension Center Quetta, Balochistan	447 male and 354 female in District Pishin,	Achievement test	Math, Urdu, S.St	• Girls performed better than boys in the languages test, while boys performed better than girls in the mathematics tests. • The mean percentage score was 66 on the listening test, 79 on loud reading, 54 on reading with comprehension, and 37 on mathematics tests.
12	Learning achievement of Grader 3 to 5 children of Kasur district	Qualitative	1999	The Punjab Curriculum Research Development Center (CRDC)		Pre-tested experts	Math, Urdu, Sc, S.St	• The average percent scores range between 21 and 51, the highest being in science and the lowest in social studies. • With minor fluctuations, the level of student performance in Punjab is maintained and improved between grades 3 to 5 in all subjects except social studies.
13	BPEDP	Qualitative	1998	Primary education directorate, Quetta, Baluchistan	District wise	Achievement test	Math, Urdu life skills	• Baluchistan students scored lowest in Urdu. • The range of scores tends to increase as the students progress form grade 3 to grade 5.

Sr #	Name of Article	Nature of the Study	Year	Authors	Sample	Instrument	Subjects	Conclusion/ Results
14	SPEDP studies	Qualitative	1996	Bureaus of Curriculum and Extension Wing Jamshoro, Sindh	Teacher LCS and Supervisors	Achievement test	Math, Urdu Sindhi	• Students scored highest in Pushto followed by Urdu. • Students of grade 3 scored high in science but their achievement becomes low in grade 5, but trend is reverse in case of achievement in mathematics.
15	PEDP Assessment	Qualitative	1996	North West Educational Assessment programme	6,946 students of grade 3 and 4, 627 of grade 5	Achievement test	Math, Sc, Urdu, Pushto	• Students scored highest in Pushto followed by Urdu. • Students of grade 3 scored high in science but their achievement becomes low in grade 5, but trend is reverse in case achievement in mathematics.
16	Basic competencies of children in Pakistan	Qualitative	1995	Dr.Muhammad Pervez	11+ children	Achievement test	Math, Urdu	• The study reflects efficiency and effectiveness of primary education delivery system and revealed basic data required for developing school improvement initiatives.
17	Determinants of primary students achievement National survey results	Survey	1995	Multi-Donor support Unit for the social Action Programmed (MSU-SAP)	527 government, private commercial and NGO/Trust schools in Balochistan, Punjab and Sindh	Questionnaire	Math, Urdu, GK	• The overall performance of children was rather satisfactory in general knowledge and Urdu comprehension (69% questions correctly answered), performance in arithmetic was quite low. • The low performance in arithmetic was attributed to low competence in solving narrative problems (only 35% questions in this area could be correctly answered).

Sr #	Name of Article	Nature of the Study	Year	Authors	Sample	Instrument	Subjects	Conclusion/ Results
18	The IER assessment study under PEP	Qualitative	1995	IER	8,792 students	Achievement test	All subjects	• Children in rural communities are not ready for school at age five, because of lack of stimulation at home. This results in their poor performance as compared to urban students. However, with maturity they catch up with their urban students. • The study also showed that students in all grades scored higher in rote learning as compared to comprehension/application questions.
19	Differential activeness of primary age children and the effectiveness by school type	Qualitative	1994	Munawar Mirza ,Abdul Hameed	1883 students of grade 3 and 3, 108 Student of grade 5	Achievement test	Behaviour assessment	• The students of primary section of the middle schools and the five-teacher-primary-schools performed better than students of the primary sections of high schools. Furthermore, students of mosque schools had lowest scores.

ANALYZING THE PROFESSIONAL MORALS OF FACULTY MEMBERS IN SAUDI UNIVERSITIES

Dr. Huda Dulaijan Al-Dulaijan,
College of Education,
King Faisal University
SAUDI ARABIA.
haldeligan@k.f.u.edu.sa

Dr. Abdullatif Ibrahim Al-Hussein
College of Shari'a and Islamic Studies,
Al-Hasa, The Islamic University of
Imam Muhammad Bin Saud,
SAUDI ARABIA.

ABSTRACT

The moral part is considered one of the most prominent subjects the Islamic Shari'a has brought. The good morals are required from every individual. It is more required from the scientist and the teacher and it is more influential. Moreover, it is necessary for a call for the moralistic commitment by the planters of pure nature and good morals in all heavenly religions, in the human cultures and in all the practical and scientific specializations. Causes to chose the topic were: a) Activating the sublime moralistic Islamic message for the teaching staff member in the Saudi universities., b) Spreading the culture of the morals of profession of the teaching staff member in the Saudi universities according to the available scientific media and advancing the level of the moralistic treatment in university society, c) The treatment of some lacks of morals during the professional building of the teaching staff member under the shadow of the great development and the numerical width that the Saudi universities see., d) Realizing the moralistic and honorable competition in developing the personal constituents of the teaching staff members in the professional field. This is to make King Faisal University in Al-Hasa a pioneer in researching in this important field to strengthen the professional morals of the teaching staff member in the Kingdom of Saudi Arabia and in the whole world. Question of the study were: a) what are the important present practices of the profession of the teaching staff member in the Saudi universities?, and b) how can the suitable media for evaluating the moralistic practices of the teaching staff member be defined? The two questions are to be answered according to the qualifying and analyzing program through returning to the Shari'a and scientific sources. The medium of recording the notice and deduction should be used. Target group include those who are responsible for the higher education in the higher departments Research study in the professional morals of faculty members in Saudi universities, concluded with some recommendations to improve the situation.

Keywords: morals, faculty, university, teaching staff, professional

INTRODUCTION

The Islamic Message is considered moralistic in the content of its Godly instructions whether private or common, and the reward of it in our world and in the Hereafter. Imam Bin Al-Qayyim says, "Religion is wholly moralistic. He, who surpasses you in morals, surpasses you in religion." This great understanding of the law of religion and its instructions and its directing of the behavior manners indicate clearly the importance of morals in Islam.

Due to the great change in social patterns in the world international culture and its moral effect, the modern educational systems have made a prominent role in stabilizing the good values and the moralistic behaviors in society. Therefore, the Ministry of Higher Education, represented by universities, and the educational societies and the laboring committees play an initiative and great role in the structure of these values and behaviors through what is carried to it by those who are related to it and through the teaching staff. What is carried to it is the moralistic message that is spread by them in the moralistic structure of the personal constituents, the moralistic reaction during the professional performance and the moralistic commitment when performing the various possibilities.

Owing to this important part, many international universities have cared for calling to limit the personal and professional constituents of the university teachers. This is because of the numerous roles that are related to them, the importance of the teacher inside and out side the university and the power of his influence in society. Therefore, they put the moralistic pacts in the regular lists of the teaching staff member and appointed the regular councils to examine these morals. They have paid a great importance to this part on all levels.

As a result of the different views of the teaching staff about the required morals of the teaching staff member, it was very important to put a conception for a research in hand. The view of the morals of the profession of the teaching staff member should be built on a group of scientific criteria and the personal conventions of the teaching staff member together with the professional behaviors that are necessary for the advancing of the teaching method in higher education especially with the importance of the radical treatment of some patterns that lack behavioral manners concerning some of the teaching staff members.

RESEARCH QUESTIONS

The research offers two questions:

1. What are the important present practices of the profession of the teaching staff member in the Saudi universities?

2. How can the suitable media for evaluating the moralistic practices of the teaching staff member be defined?

RESEARCH METHDOLOGY

The two questions are to be answered according to the qualifying and analyzing program through returning to the Shari'a and scientific sources. The medium of recording the notice and deduction should be used.

Target group include those who are responsible for the higher education in the higher departments benefit in putting general policies and organizing tables for the teaching staff members and all the Saudi teaching staff members, males and females, to whom are added the lecturers, the demonstrators, the technicians, the laboratory technicians, the assistants and the contractors with the Saudi universities.

An inquiry sheet that serves the terminology of the research was developed. Saudi national faculty members Vice-President of a University, a Dean, a Vice-Dean, a Head of a Department, a Manager of a Center, a Head of a Committee working or worked in the Saudi universities were in the population of the study. Only 196 inquiry sheets out of one thousand sheets were completed. However, these sheets were distinguished by deep experience, comprehensive view and important notices.

ANALYSIS OF DATA

PART I. The Practices of the Faculty Members towards Professional Morals

The Personal Constituents

The present time inquiries impose numerous challenges on the universities, some of which are scientific, technical or professional. More of these stress the professional growth of the teaching staff member in them. This is what the two researchers Dr. Patrichia A. Lolar and Dr. Cathline B. King stressed about the professional growth of the teaching staff member. They mentioned, in the introduction of the study, "In the last decade of the twentieth century, we observed the increasing important range of the professional growth of the teaching staff member as he is considered the first support of the development of the university education." (1) The regulations and schedules of the higher education in all countries have asserted the moralistic constituents of the teaching staff members. I give an example from the Kingdom of Saudi Arabia where the regulations have mentioned, "The teaching staff member should be qualified with trust and right behavior, and he should commit himself to the applied systems, the instructions and rules of behavior and politeness. He must be always above every thing that is against the honor of the profession." (2)

The important constituent that is necessary in building the teaching staff member is the trust in the personal capabilities and witness that is built on straightforwardness. The studies that have included religion, philosophy, literature, psychology and the morals of commerce and ruling, defined the central behaviors of the straightforwardness of the teaching staff member and the correctness of his rulings. This includes the following: "Concern in the common benefit, the trust, fulfilling the commitments, justice, accepting to bear the responsibility, respecting others, congratulating others for their success, facing the unjust conducts and actions, forgiveness and helping others." (3)

Table 1. shows the comparison of the teaching staff members' ideas from the point of view of specialization concerning the personal constituents of the teaching staff members in the university attitude. The exam has been done by the use of the statistic exam (F) and the abstract denotation 0.05.

The comparison has shown the existence of abstract denotation concerning the emergence of trust in the personal capabilities on behalf of scientific specialization more than it is on the literary and Shari'a specializations.

There is abstract denotation concerning the capability in strategic planning and a capability in building good relations with others. It is discovered that the scientific and literary specializations are more abstract in this field than the Shari'a specialization.

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1. A summary of the book: *Towards Active Professional Development of the Teaching Staff i. Member;* p. 165.
2. The Regulations and Schedules of the Higher Education Counsel in the Kingdom of Saudi Arabia, i. Item 38, p. 292.
3. Richard L. Hughs, Cathrine Kola Rilly Bitty, *How to Become a Strategic Leader*, (little change), p. 193.

Table 1. Essential personal constituents of the teaching staff members in the university according to specialization

Expression	Sahri'a	Literature	Science	Exam of B	Absrtaction F
Care for performing religious obligations	4,32 ± 0.7	4.6 ± 0.55	4.37 ± 0.69	0.05	3.05
Concerning of smiling to to others	3.97 ± 0.66	4.09 ± 0.76	4.11 ± 0.84	0.78	0.39
Concern in good appearance	4.03 ± 0.71	4.38 ± 68	4.36 ± 0.58	0.03	3.7
Being optimistic	4.09 ± 0.65	3.86 ± 0.93	3.83 ±1.08	0.41	0.9
Emerging trust in personal abilities	3.23 ± 1.2	3.8 ± 1.06	3.03 ± 0.99	0.002 **	6.18
Capability of strategic planning for professional objectives	3.23 ± 1.2	3.8 ± 1.06	3.03 ± 0.99	0.02 *	4.19
Capability of taking decisions in studied manner	3.58 ± 0.99	3.83 ± 1.07	3.94 ± 0.94	0.21	1.56
Pleasure with the reactive harmony	3.71 ± 0.86	3.89 ± 1	3.97 ± 0.9	0.39	0.93
Capability of building good relations with others	3.71 ± 1.04	4.14 ± 0.79	4.16 ± 0.72	0.02 *	3.99
Capability of good listening to others	3.84 ± 0.86	4±0.92	4.01 ± 0.95	0.65	0.43
Concern in consultation in his work	3.74 ± 0.82	3.71 ± 1.16	3.76 ± 1.05	0.88	0.12
Capability of forgiving others	3.68 ± 0.98	3.82 ± 1.04	3.93 ± 0.92	0.31	1.17
Capability of adaptation with academic changes	3.68 ± 0.87	3.89 ± 1.06	3.98 ± 0.92	0.31	1.17
Encouraging co-operation in the working team	3.45 ± 1.06	3.8 ± 1.05	3.93 ± 1.1	0.1	2.33
Holding idea in the discussed issues	3.13 ± 1.02	3.26 ± 1.09	3.19 ± 1.14	0.85	0.17

* The number is of an abstract denotation** The number is of a high abstract denotation

Scientific Trust

One of the moral values on which Islamic Law (Shari'a) is built is trust. Trust is of great importance, and violating it, is a dangerous crime. Allah said, "We did indeed offer the Trust to the heavens and the earth and the mountains, but they refused to undertake it, being afraid thereof: but man undertook it:- He was indeed unjust and foolish." (1)

Sa'di said in his interpretation of this verse, "Allah glorified the matter of trust, which was entrusted to those responsible for it; it is to obey orders, to avoid the forbidden in the case of mystery and disappearance. Allah has offered it to the great creatures: the heavens, the earth and mountains as an offer of choice not as an offer of obligation." (2) The trust of the teaching staff member is to offer the science which Allah has honored him with and has raised his rank, and to apply this science in the field of the university education. The staff member should be careful for the scientific trust in all his scientific and practical work.

1: Al-Ahzab Sura, verse No. 72.
2: Sa'di, Tayseer Al-Karim Al-Mannan fi Tafseer Kalam Al-Rahman, p. 620.

Shaikh Muhammad Al-Khadir Hussain says, "The success of a nation is in the goodness of its work. The goodness of its work is in the goodness of its sciences. The goodness of its sciences is when its men are trustful in what they relate or describe. Trust is the ornament of science and its soul which the delicious fruit can make of delicious taste. If you review the biography of scientists, you will see a great difference between the trustful scientist and the un-trustful one. You will see that the first is in a rank which is enveloped with respect, and the benefit from him by people increases. But you will see that the second is in a little rank and the selves of the scientific students will be far from taking from him or they are slow in taking from him." (1)

Scientific trust is praised by writers and researchers with their different religions and ideas. Wise men agree about its importance in every place and time. (2)

Many researchers see that there is unanimity in saying that the main employments of the teaching staff member in university are limited in three main fields. These are:

Teaching to Prepare the Human Powers: The professional activity of the teaching staff member includes many duties, knowing that the building of the society is based on them. The most important of these duties is the process of teaching students. It is in this sense that Hambred and Itkins define the most important qualities of the modern sample of the teaching staff member. They say, "The criteria of establishing professional efficiency of the teaching staff members are centered on the range of the professional understanding of the teaching process and the widening of the circle of consciousness in them. This is achieved through a group of modern information and developing knowledge. The understanding of the process of teaching students is to have the priority in achieving the professional development of the teaching staff members despite their non-agreement on this." (3)

The Scientific Research: Muslims cared for scientific research, wishing it, writing in its fields and encouraging those who worked in it. The fields of the scientific research differed: interpretation, jurisprudence, behavior, astronomy, engineering, medicine, surgery and other sciences. Previous Muslims innovated in developing these sciences, the conditions of the research media (the sciences of media and machines) and the linguistic understanding and applications that a scientist should have in order to be able to work in the scientific research. Unfortunately, in general, the problem of scientific research in the Arab countries did not take a proper place that suits the need for research in the present situation. (4) The performance of scientific researches is an essential employment of the teaching staff member for advancing knowledge. It is necessary for acquiring new information and developing new applications that contribute in pushing the process of the international scientific research in all the fields of the human knowledge.

Serving the Society

There is no doubt that the teaching staff member plays a prominent and basic role in the material and valuable development of the whole society. This results in the limitation of the civilized level of the society through discovering and exposing the creative capabilities of the person who leads the processes of the comprehensive development. This strengthens therole of the teaching staff member in discovering the situation that he lives in and in working in serving the society in a cultivated manner and higher level from the human and social sides. (5) The new direction of tying the role of the universities with the private and national sectors represents a great support for scientific projects, the research chairs and the corporeal and material donations to strengthen the role of the universities. (6)

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1. Rassa'il Al-Islah, pp. 70-71.
2. See Al-Hussain's Al-Amana in Islam, p. 54 and the following pages.
3. Dr. Patricia a. Lolar, Dr. Cathline B. King *Towards Active Professional Development of the Teaching Staff Member,* p. 168.
4. See Malakawi *Islamization of Knowledge Magazine,* p. 106.
5. See Nu'aimi's article in the Internet entitled, "Towards a Strategy to Reform the Higher Education in Iraq".
6. The President of King Saud University declared an establishment of more than fifty six research chairs in various scientific fields in the last two years, 2007 – 2008. This is taken from the lecture of his highness, the President of King Saud University, Abdullah Al-Uthman, in the opening of the symposium of the Arab Universities about Higher Classification and Academic Adoption, Sunday 23 / 5 / 1429 H, Riyadh.

This strategy burdens the teaching staff member with a double responsibility to serve the society, to care for its development and to prepare the suitable plans to develop it, to meet its needs and to solve its suspended problems.

Table 2. Practices of the teaching staff members related to the scientific trust through the university situation, according to specialization

Expression	Shari'a	Literary	Scientific	Degree of B	Abstraction F
Preserving the knowledge development	3.91 ± 0.98	3.98 ± 0.84	3.92 ± 0.89	0.66	0.42
Capability of developing teaching methods in his scientific material	3.32 ± 1.08	3.46 ± 1.09	3.71 ± 1.05	0.13	2.03
Preparing lectures in a good way	3.61 ± 1.05	3.75 ± 0.94	3.99 ±0.83	0.08	2.62
Capability of developing creativity	3.19 ± 1.05	3.38 ± 1.07	3.46 ± 1.11	0.49	0.71
A care for transporting scientific experiments to enrich his material	3.48 ±1.15	3.55 ± 0.98	3.79 ± 0.99	0.19	1.63
Persistence on teaching specific materials	3,55 ± 1.33	3.8 ± 1.11	3.66 ± 1.08	0.56	0.59
Using technologies in performing his job	2.84 ±1.16	3.2 ± 1.12	3.77 ± 0.94	0.0 **	11. 97
Exploiting teaching to achieve personal aims	2.32 ± 1.05	2.17 ± 0.91	2.26 ± 0.95	0.73	0.32
Efficiency in supervising students' researches	3.26 ± 1.06	3.38 ± 1.09	3.78 ± 0.87	0.01 **	4.99
Efficiency in supervising scientific theses	3.55 ± 1.06	3.82 ± 0,88	3.88 ± 0.79	0.18	1.73
Concern in good participation in scientific researches	3.19 + 1.22	3.52 ± 0,95	3.75 ± 0.96	0.02	3.85
Exploiting the others' efforts relating them to himself	2.16 ±1.07	2.29 ± 1.01	2.3 ± 0.89	0.77	0.26
Credibility in publishing scientific results	3.93 ± 0.68	3.82 ± 0.79	3.94 ± 0.8	0.58	0.55
Being just in students' evaluation	3.81 ± 0.98	3.86 ± 0.89	4.17 ± 0.71	0.02 *	3.89
Interest in the exams systems	3.8 ± 1.11	3.89 ± 0.85	4.22 ± 0.64	0.01 *	4.93
Exams' comprehension of the curricula	3.77 ± 1.02	3.89 ± 0.71	4.08 ± 0.77	0.12	2.19
Goodness of debate control with others	3.39 ± 1.02	3.51±1.06	3.64 ± 1.02	0.45	0.81
Goodness in debate control with colleagues in profession	3.71 ± 0.86	3.83 ± 0.91	3.92 ± 0.81	0.47	0.76
Goodness of dialogue with his bosses	4.03 ± 0.75+	3..97 ± 0.79	4.04±0.78	0.84	0.17
Activating participation in scientific counsels	3.35 ± 1.14	3.55±1.05	3.79 ± 0.98	0.09	2.49

Table 2 shows a comparison of the ideas of different specializations (Shari'a, literature and science) which the teaching staff members practice concerning scientific trust in university situation. Statistic exam (F) was used together with abstract denotation (0.05)

The comparison has shown statistic abstract difference on behalf of scientific specialization in the use of technologies in performing a job, the goodness of supervising scientific theses, being just when evaluating students and the interest in the systems of exams. AS for the other elements, a statistic difference of abstract denotation has not appeared.

Practical Responsibilities

One of the qualities of the human self is that it is built on imperfection. Therefore, the reaching of perfection is dear. One should exert all his efforts to perform the responsibilities that he is responsible for. Allah said, "On no soul doth Allah place a burden greater than it can bear. It gets every good that it earns, and it suffers every ill that it earns. Our Lord! Condemn us not if we forget or fall into error." (1)

The Islamic Shari'a, which is the last heavenly message, makes every one responsible and trusted. One should be asked about the responsibilities which are assigned to him. The Prophet (pbuh) says, "You are all guardians and you are all responsible for those whom you guarantee." (2) Therefore, the summit of the required morals of the teaching staff member in his honored job is to realize sincerity in order to be able to perform the duties and responsibilities in doing his job. "Sincerity is a psychological operation that activates ideas, the sincere feelings in doing the job, the interest in doing the job and accepting the job. This operation pushes towards accuracy and excellence." (3)

The profession of the teaching staff member in a university is the most important of jobs. This is because this job bears the trust in science and work and the sincerity in them in addition to the preserved guardianship to build the society members and the development of the scientific, the practical and the human sources. The responsibility of the teaching staff member increases by the heaviness of the responsibilities that are assigned to him. "A job is a trust about which the person who is responsible for will be asked. From this beginning, the person, who is responsible for the burdens of a job and its responsibilities, should observe the accuracy in executing what the information orders and the systems that direct them. He has no right to protest against that. One of the duties of the job is that he who executes it should do nothing beside the duties of this job. He has no right to make it less by fixing his efforts in other actions that influence its work." (4)

The most important matters that should be looked at with an examining eye are the practical responsibilities that increase day after day in the Saudi universities, especially after the universal explosion of knowledge and the international classification of the Saudi universities. (5)

The advanced countries have worked on continuing the professional development of the teaching staff members in order to bear the successive burdens. "The British, the American and other European universities, in the middle of the last century, began considering the necessity of the professional development of the teaching staff member. Many under-developed countries also felt its need especially in our Arab country. This was in the stage of the 1970's. Some Arab universities: Egypt, the Gulf Countries, Iraq, Jordan and Algeria, adopted it. The professional development of the teaching staff members was not only a response of personal intentions, but it sprang from a group of elements. The international concern in developing the efficiency of the teaching staff members in universities is related to the following elements:

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1) Al-Baqara Sura, Verse 286.

2) Narrated by Al-Bukhari, Al-Jum'ah Book, 'Al-Jum'ah Chapter', p. (893). Narrated also by Muslim, Al-Imarah Book, 'Chapter of the Goodness of the Just Imam', p (1829), his utterance.

3) Musa, Kamal Ibrahim, Development of the Psychological Health, the Session about the Responsibility of the Individual in Islam and Psychology. Supervised by the Higher Institute of the Islamic Thought. Washington, p. (285)

4) Al-Mazyad, Saleh Bin Muhammad, Employees' Earning and Its Effect on Their Behavior, pp. 65 – 66.

5) King Saud University got the rank of 380 among the best international universities according to Spanish classification of the best international universities, Webomatrix. It occupied the first rank in the Muslim World and in the Middle East. Imam Muhammad Bin Saud Islamic University also passed the 50% rank of the classification of 2007. See "Following the News", an economic paper, No. 5406, Wednesday, 27 / 7 / 1429 H., p. (23), and "Algezira" paper No. 13089, Wednesday, 27 / 7 /1429 H., and July 30, 2008, p. 35

a) Employing the information technology, communication and the technologies of learning and teaching to increase the interest in the professional development of the teaching staff members in order to improve the activation of initiatives of teaching.

b) The change that happened in the roles of the teaching staff members. The development of the communication techniques, and the multiplicity of the learning sources, resulted in founding of essential changes in the requirements of the teaching situation from the point of view of the media of transporting of knowledge, and the roles of the teaching staff members that have been changed from the traditional roles that consider the teacher a mere transporter of knowledge to a simplifier, an explainer, a guide and director of his students. Studies have pointed out that most of the teaching staff members in the Western universities lack the training of practicing teaching. This situation also applies to the Arab universities. (1)

Through noticing the research sample, we assure that some of the main causes in the weakness of interest in the morals of profession of the teaching staff member in our universities and colleges in Saudi Arabia are represented in many causes out of which are the following: the large number of students, the weakness in the experience of the teaching staff members, the length of the university day, the burden of the teaching process, and the committees that accompany the university work. These are all important causes. The more important than these is that the main comprehensive (in our view) is that the teaching staff members are never prepared for the university teaching. They have not got a previous preparation in the labor system and its procedures in the university society and its generous morals. This may be the most important cause behind the inefficiency in university teaching and the destruction of the teaching efforts.

It is from here that, lately, the care in the subject of goodness has come. It represents a moralistic co-operative labor in which the laborers in it engage gradually and regularly. They move their talents, their abilities and their creativities continuously. The management of the comprehensive goodness is based on three basic foundations to be successful: the co-operative management, the use of the laboring teams, the continuous response to improve and develop in the university operations, the certification of the knowledge processes and the academic experiments in perfect transparency. These principles are the most important of the professional morals to achieve an integral and just responsibility towards society.

The comprehensive goodness of the establishments of higher education in the Kingdom of Saudi Arabia depends on the range of commitment to the good morals of the teaching staff member working in them. This is because the teaching staff members in the scientific departments suggest the developed programs that aim at graduating a distinguished and strong graduate. They open communication channels between him and his surrounding environment in order to make him an active partner in the programs of the national development and to contribute in the scientific research and investigation for making him contribute in offering scientific visions to solve the problems of development.

Table shows a comparison between different specializations: Shar'a, literature and science, from the point of view of the practices of the teaching staff members concerning the scientific responsibilities in the university situation. The comparison was achieved by the use of statistic test (F) and abstract denotation (0.05)

The comparison has shown the existence of statistic difference on behalf of the scientific specialization from the point of view of the balance between achieving the targets of the university and the service of the society, in addition to the care for self developing (attending sessions and other things), compared with the literary and Shari'a specializations.

1: See Shaheen, Muhammad Abdul Fattah The Professional Development of the Teaching Staff Members as an Entrance to Realizing Good Quality in University Teaching, Al-Quds Open University , (An Article in the Internet.)

Table 3. Practices of the teaching staff members concerning the practical responsibilities in the university situation according specialization

Expression	Shari'a	Literary	Scientific	Degree of Abstraction B	of F
Respect of the labor system and its procedures	3.68 ± 1.05	4.03 ± 0.79	3.9 ±0.83	0.17	1.79
Commitment to performing Duties	3.81 ±0.95	3.95 ± 0.86	4.03 ± 0.8	0.43	0.85
Accuracy in executing orders	3.32 ± 1.17	3.49 ± 1.15	3.55±0.95	0.58	0.55
Observing the daily promises	3.19 ± 1.2	3,58 ± 1.1	3.63 ± 1.05	0.15	1.95
Accepting criticism	3.06 ± 1.12	3.2 ± 1.15	3.25 ± 1.04	0.71	0.34
Participation in mutual international knowledge (symposiums, conferences)	3.1 ± 1.14	3.48 ± 1.11	3.75 ± 0.1	0.1	4.79
Participation in the university activities	3,03 ± 1.11	3.32 ±1.09	3.33 ± 1.06	0.38	0.97
Capacity of bearing more responsibilities	3.39 ± 1.09	3.68 ± 1.05	3.56 ± 0.1	0.43	0.85
Participating actively in serving society	3.1 ± 1.12	3.32 ± 1.16	3.46 ± 1.04	0.13	2.05
A balance between achieving the university aims and serving the society	2.84 ±1.21	3.34 ± 1.09	3.53 ± 0.9	0.01 *	5.43
Care of self development (attending sessions and other)	3.32 ±1.19	3.6 ±1.07	3.81 ± 0.98	0.07 *	2.74
Encouraging new scientific suggestions	3.61± 1.09	3.6 ± 1.03	3.85 ± 0.88	0.21	1.6
Contribution in offering scientific consultations	3.??±1.15	3.66 ± 1.05	3.76 ± 0.87	0.18	1.73

PART II. The Evaluation of the Morals of the Profession of the Teaching Staff Member

Allah has created the human self that has a double preparation to accept the right and the wrong and the tendency towards goodness and evil. Allah said, "By the Soul and the proportion and order given to it; and its inspiration as to its wrong and its right. Truly he succeeds that purifies it, and he fails that corrupts it." (1)

Souls appreciate the good morals and promote them. They promote the owner of good moral. Whatever the creeds and traditions of the human souls differ in their concepts, these souls agree, by instinct, on approving the good morals. (2)

Good morals are a social necessity on which the cultural, the educational, the social and the political aspects are built. No society can be imagined without morals. The role of the establishments of higher education is an initiator and very large to bear the moral responsibility in society. No knowledge can be imagined without morals and no education without evaluating these morals. The profession of the teaching staff member has a great role in evaluating the morals of society.

We assure that the university establishments have a great role in evaluating the morals of the teaching staff member and in supplying him with the moral provision which accompanies cognitive development in order to adopt a cognitive moralistic society through the suitable media of evaluating the profession of the teaching staff member.

1: Al-Shams Sura, Verses (7-10)
2: See Al-Hanafi, Bin Abi Al-iz, 'The Explanation of the Tahawee Creed', pp 34-35.

Spreading the Culture of the Professional Morals

The teaching staff member should be armed with personal efficiencies, cognitive efficiencies and performing efficiencies that enable him to perform this profession with activity. "The big importance lies on the modern university teacher. This importance has increased in this age. The university teacher is not only interested in the increase of knowledge, but also in the contribution in changing the educational system for realizing the suitable and professional education. The modern university teacher must be bound to make a society whose basis is justice and equality. Therefore, he should act to stabilize these values and to spread knowledge and skills in society." (1) "With the passing of time, a group of concepts, beliefs, stable values and creeds of denotation are created in the university establishment. It makes what can be called the culture of the profession. It expresses a style of common understanding of the aims and the policy of the profession and the suitable and unsuitable behavior in it. The culture of the profession performs many jobs out of which are: creating the feeling of identity in the laborers of what is more important and more lasting, supporting the stability of the establishment as a social system; it works as a reference frame for the laborers and a guide for the suitable conduct for the profession." (2)

Therefore, it is of great importance to spread the culture of the morals of the profession through an establishment work, and this will be by the agreement on the following matters: a)idering the teaching in the university a profession. It requires skills that are based on theoretical knowledge and it requires high training and education. b) obtaining a Ph.D. degree will not be a hindrance for continuous education, training, qualifying and the need for continuous evaluation. "Some American universities evaluate the service on the basis of sincerity in work, the individual initiative and the fruitful effort that the teaching staff member exerts. They also consider the regular activity of the member in the committees that are interested in the students' affairs and the fruitful range of participation in the establishments of the civil society." (3) c) Formulating a compact for the honor of the profession in which the necessary professional morals of the teaching staff member are defined. The teaching staff member is based on them. (4) In the present modern age, the modern establishments of the universities are to be warned to spread the culture of the morals of profession by reviewing and evaluating the yearly record of the teaching staff member. The importance of this was agreed upon by all the teaching staff members of the research sample. (5)

It is very important that the Saudi university establishments begin in preparing tables and rulings that show the morals of the teaching staff member in the Saudi universities in addition to the duties that are related to the profession. They should call for building a moral compact for this profession. The Ministry of Education preceded them when it declared the compact of the teaching profession which is composed of eight essential rules (6). There are also the compact of the information laborers that was issued by the Ministry of Information and the compact of the honor of the physicians in the Ministry of Health and others.

Activating the Scientific Participation of the Faculty Members

The Ministry of Higher Education in the Kingdom of Saudi Arabia has been interested in the frame of supporting the efforts of universities to make their curricula reach advanced levels. The Ministry has adopted a number of quality initiatives that aim at raising the level of goodness in universities. This is represented in three main projects. "First, is the project of developing creation and distinction for the teaching staff members. Second, is the support of establishing centers for scientific and research distinction in universities. As for the third project, it is for supporting the scientific committees." (7)

1) Abu Nuwar, Linah Wa Bo Btanah, Abdullah, "The Need for Professional Development of the Teaching Staff Members in the Arab Universities, New Education magazine No. 51, year 17, p. 121.
2) Nijim, Nijim Abbood, Management Morals in a Changing World, p. 90.
3) Kati A. Trawar, The Policies of Appointing the Teaching Staff Members, p. 257.
4) See The Compact of the Morals of the University Teacher in the Field of Teaching. This book was issued by Brandon University, in the U. S. A. It contains nine rules and many paragraphs. This was copied from Afifi, Muhammd Sadiq, The Teacher's Guide in the Morals of the Profession. pp. 124-143.
5) See Trawar, The Policies of Appointing the Teaching Staff Member, pp. 288-298.
6) See The Compact of the Morals of the Teaching Profession, The Ministry of Education, 1428 H.
7) Aba Al-Hassan, The Ministry of Higher Education, a Brief Report, 1428 H.

High management of the teaching staff members in higher education, needs strategic and organized plans in order to enable the university establishments to reach a moral, a scientific and practical role. Therefore, it is important to organize and activate the scientific participations whether it is through participation in conferences and forums or the scientific and research groups. This burdens the teaching staff member with high professional responsibility that his professional morals emerge in front of others.

"In many cases, the teaching staff member – the young teacher – lacks the scientific experience in addition that his research that he has done in the field of his specialization may not be complete when he has started his job as a teacher in a college or university. Therefore, he should be subject to a test period before fixing him in his post. It is supposed that the test period should give him a chance to prove his efficiency. At the same time it is to give his colleagues a chance to notice the way of performance of his labor irrespective of his scientific qualification or recommendations that he carries." (1)

Scientific participations that shows the morals of the profession of the teaching staff member is to stress on the achievements of the teaching staff member and his active participation in the scientific research in Saudi universities. This is considered an essential inquiry for distinction and exploration in the fields of different sciences. Faculty member there should be founded an active and suitable formula to ration the process of evaluating all the research efforts. There should be founded a means for actual distinction and exploration and a care for the continuation in the process of the continuous and united scientific research through the far range planning." (2)

The necessity to produce moral records for scientific arbitration, and the arbitrators who arbitrate and evaluate the research efforts. The existence of such morals contributes in supporting the scientific research and activates the researchers to exert fast efforts for exploration and prosperity. (3)

Adopting Transparency in the Organizing

Secrecy and mystery may be a cover that envelopes all the university actions whether on the level of the managements in a college or university. Any member cannot get a previous, written or recorded experience. He may obtain it orally without bearing any responsibility for that.

Tables and procedures have an executive specialty that differs from one university to another or from one management to another. This makes the Saudi teaching staff member seeks for the information by himself and to get it whether from right or wrong sources.

Transparency is a process that accompanies the process of learning and high professional commitment to transfer everything that has a relation with the scientific establishment from one member to another and from one generation to another. All have the right to know, to have the honor of relating and the right to reach the target. "Therefore, the records of morals and conduct in the teaching establishments, and much of transparency, will insure the holding on the conducts and the values of the profession in a larger form." (4)

The thing that supports the principle of transparency to reform the morals of profession is the application of the organizing tables and the disciplinary procedures on the neglectful and violating teaching staff members. Advertising the punishments is not for slander and revenge, but it is for activating the laborers, encouraging their efforts and discouraging and disciplining others who do not have high moralistic behavior in addition that violations and errors should not be common in the university society. (5)

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1)   Trawar, *Policies of Appointing the Teaching Staff Members,* p. 56.

2)   Al-Ghamidi, Sa'd Obood, The University Teacher and the Scientific Researches, p. 1, copied from www.bab.com.

3)   The Deanery of the Scientific Research in the Islamic University of Imam Muhammad Bin Saud, held a symposium on the scientific arbitration, from 28 to 29 / 11 / 1428 H., in Riyadh. In it, it called for the necessity of recording the morals of the scientific arbitration, and the morals of the arbitrator of the scientific labors in the universities. It is a scientific symptom and precedent for performing a compact of the morals of the job of the teaching staff member.

4)   Najim, *The Management Morals in a Changing World,* p. 105

5)   See the advertisement of the union of the American university teachers concerning this Article, Trawar, *The Policies of Appointing the Teaching Staff Members,* p. 344.

Table 4. media to reform the morals of the teaching staff member according to specialization? The answers were as follows:

Expression	Shari'a	Literary	Scientific	Abstract B	Degree F
Preparing a compact for themorals of profession	4.26 ± 1.09	4.31 ± 0.81	4.34 ± 0.79	0.89	0.11
Publishing the scientific researches in the field of the morals of profession	4.45 ± 0.77	4.34 ± 0.73	4.04 ± 0.88	0.01* *	4.34
Holding conferences in the field of the morals of profession	4.48 ± 0.81	4.4 ± 0.68	4.23± 0.76	0.16	1.85
Attending sessions specialized in the morals of profession	4.74 ± 0.44	4.37 ± 0.74	4.32 ± 0.65	0.01 **	5.04
Participation in the union of the international professional association among the teaching staff members	4.03 ± 0.96	4.31 ± 0.64	4.05 ± 0.81	0.12	2.15
Activating the participation in scientific exchange amonguniversities	4.52 ± 0.57	4.49 ± 0.56	4.41 ± 0.6	0.55	0.6
Activating the participation in the membership of scientific committees	4.26 ± 0.93	4.55 ± 0.5	4.37 ± 71	0.1	2.35
Activating the participation in the decisions of scientificcouncils	4.32 ± 1.11	4.49 ± 0.64	4.22 ± 0.76	0.1	2.35
Improving the financial cadre for the commitment in the morals of profession	4.55 ± 0.93	4.46 ± 0.79	4.48 ± 0.77	0.88	0.13
Increasing the financial initiatives to supervise the university theses	4.52 ± 1.12	4.66 ± 0.59	4.42 ± 0.89	0.21	1.6
Preparing scientific rewards to evaluate the creators and to reward	4.74 ± 0.77	4.72 ± 0.52	4.67 ± 0.55	0.77	0.27
Raising the level of knowing the professional tables	4.55 ± 0.93	4.49 ± 0.59	4.42 ±0.64	0.6	0.51
Caring for transparency in the organizing tables of profession	4.52 ± 0.93	4.49 ± 0.56	4.38 ± 0.71	0.94	0.72
Decreasing the regular period for the scientific promotion of the distinguished	4.26 ± 1.12	4.48 ± 071	4.06 ± 1.07	0.03 *	3.6
Considering the managing labors in the scientific promotions	4.32 ± 1.14	4.48 ± 0.9	4.11 ± 1.13	0.09	2.42
Activating the disciplinary procedures in the professional tables	3.9 ± 0.98	4.34 ± 0.67	4.08 ± 0.96	0.06	3.02
Writing a report on the professional performance	4.19 ± 0.83	4.26 ± 0.8	4.1 ± 0.9	0.94	0.71
Forcing the demonstrator to work one year before appointment	4.23 ± 1.36	4.26 ± 1.05	3.82 ± 1.34	0.06	2.9

An existence of statistical difference that has an abstract denotation has been noticed on behalf of the Shar'a specialization, concerning the publishing of scientific researches in the field of the morals of profession and the attendance of sessions specialized in the morals of profession. On behalf of the literary specialization, the difference concerned the decrease of the regular period for promoting the talented trainees.

CONCLUSION

After finishing the journey of research in the professional morals of faculty members in Saudi universities, we conclude the research by some recommendations:

1. Assuring the necessity of providing a place for the morals of profession within the system and tables of higher education in the Arab World.
2. The necessity of care in the strategic planning of higher education, pursuing the professional development of teaching staff member and providing him with all available entries for his commitment to the morals of the great profession.
3. Taking care of the scientific trust is an important moral basis that should be followed by the staff members of the university in their lives, and this will develop the scientific culture and the civilized status of the society.
4. Taking care of executing the practical responsibilities of the teaching staff member in addition to the necessity of accompaniment of the morals of profession of every role and work that the teaching staff member performs.
5. The necessity for a call to adopt a group of researchers to form a national compact for the profession of the teaching staff member under the supervision of the Ministry of Higher Education. This compact should be distributed to the employees of higher education and to punish the neglectors according to this compact.
6. Participation in the international direction to support the morals of the teaching staff member and to benefit from what the others have of scientific distinct efforts for raising the academic level of the profession, such as holding conferences, establishing units and holding specialized sessions.
7. Supplying true guarantees for evaluating the morals of profession of the teaching staff member whether by specialized scientific programs or by the application of the organizing tables and the necessary procedures.
8. Preparing scientific programs for training on the morals of the profession of the teaching staff member and co-operating with the research centers to prepare scientific studies concerning the professional training for the teaching staff member.
9. Co-operating between The Ministry of Higher Education and the Saudi information establishments to prepare cultural programs concerning the profession of the teaching staff member and spreading this culture among the society members.

BIBLIOGRAPHY

Afifi, Professor, Siddiq Muhammad, *The Teachers' Guide in the Morals of the Profession—Theoretical Concepts and Scientific Cases,(*The Arabic Organization of the Management Development, Cairo, 2006).

Al-Fawwaz, Khalifa Bin Abdullah, *The Principles of Managing Goodness in Islam,* (the Islamic Concept and the Modern Theories, first edition, Modern Al-Hasa Printing Establishment, Al-Hufof, 1427 H).

Al-Hulaibi, Professor, Ahmed Bin Abdul-Aziz, *The Moral Responsibility and Its Reward,(*Dar–Al-Rushd in Riyadh, first edition, 1417 H. – 1996.

Al-Hussein, Dr. Abdul Latif Ibrahim, *Trust in Islam and Its Effects on Society, (*Dar Bin Al-Jawzi in Dammam and Al-Hasa, first edition, 1426 H).

Al-Mazyad, Saleh Bin Muhammad Al-Fahd, *Earning of the Employees and Its Effect on Their Behavior,(*Ubaikan Company for Publishing and Distribution, Riyadh, 1404 H., - 1984).

Al-Midani, Abdul-Rahman Habannaka, *Islamic Morals and their Bases,(* DarAl-Kalam, Damascus).

Al-Sa'di, Shaikh Abdul-Rahman Bin Nassir, *Taiseer Al-Karim Al-Rahman fi Tafseer Kalam Al-Mannan,(* 8th edition, Risalah Establishment, Beirut, 1418 H., - 1997).

Al-Saud, Abdul-Aziz Bin Sattam Bin Abdul-Aziz, *The Non-Academic Effects for the University Stage —A Study of the Directions of the Student of Saudi Universities,* (Dar. Al-Ilm Lil-Malayeen, Beirut).

Al-Taweel, Dr. Tawfik, *The Moral Philosophy—Its Creation and Development,(*Al-Ma'arif Munsha'ah, Alexandria).

Dahir, Dr. Adel, Morals and Mind – *Criticism of the Western Philosophy,* (Dar Al-Shorook, Jordan, first edition, 1410 H. – 1990)

Doherti, Jifferi, *Developing the Systems of Goodness in Education,* translated by Al-Ahmed and others, Damascus, the Arabic Organization for Education,Culture and Sciences,Damascus).

Doris, Michel J., Kili, John M., Trainer, James F., *Successful Strategic Planning, New Directions in Establishments Research,* translated into Arabic by Sima Abd-Rabboh, reviewed by Dr. Abdul-Muttalib Yousif Jaber, first edition, (Ubaikan Library, Riyadh, 1427 H., - 2007).

Encyclopedia of the Six Books, supervised by Shaikh Saleh Al-Alshaikh, (Dar Assalam, Riyadh, 1420 H., - 2000).

Group of Authors, *Philosophical Problems,* (The Ministry of Education in Egypt, 1374 H., - 1954).

Group of Researchers, *Mawsooa'at Nadrat Al-Na'im fi Makarim Akhlaq Arrasool Al-Karim,* supervised by Dr. Saleh Bin Hamid and Abul-Rahman Bin Mallooh, Second edition, (Dar Al-Waseela, Jeddah, 1419 H. – 1999).

Hughs, Richard L., Biti, Cathrine Kola Reely, *How to Become a Strategic Leader,* transferred into Arabic by Mu'een Al-Imam, reviewed by Dr. Ma'in Abdul-Kadir Kusa, first Arabic Edition, (Ubaikan Library for Publishing and Distribution, Riyadh, 1427 H., - 2006).

Ibn Katheer, Abul-Fida' Ismael Bin Omar Al-Qurashi, Al-Dimashqi, *Interpretation of the Holy Qura'an,* Beirut,(Dar Al-Ma'rifa for Printing and Publishing, 1388 H).

Mahdi Bin Ibrahim Bin Muhammad,Mujber, *Trust in Management Performance,*Al-Khadamat (Al-Hadeetha Library, Jeddah, first edition, 1415 H., - 1994).

Najm, Dr. Abbood Najm, *the Morals of Management in a Changing World,* (The Arab Organization for Management Development, Cairo, Egypt, 2006).

Shaheen, Dr. Muhammad Abdul Fattah, *The Professional Development for the   Teaching Staff Members as an Entrance for Realizing the Good Quality in   University Teaching,* a scientific paper in the symposium for "Quality in the   Palestinian University Education", (the Program of Education and the Department Controlling the Quality, Al-Quds Open University, Ram-Allah, in the period of 3-5 / 7 / 2004).

Trawar, Cathy, and others *The Policies of Appointing the Teaching Staff Members,T*h*e Measuring Practices and Unusual Procedures,* translated into Arabic by Ayman Al-Armanazi, reviewed by Dr. Sulaiman Ridwan, the first Arabic edition, (Ubaikan Library, Riyadh, 1427 H – 2006).

Yaljin, Dr. Mikdad, *The Moral Direction in Islam,* (comparative Study) (Al-Khanji Library in Egypt, first edition, 1392 H., - 1972).

Researches, Magazines, Conferences and Tables

A short report, The Ministry of Higher Education, Kingdom of Saudi Arabia, 1428 H.

Islamizing of Knowledge, a magazine, No. 30, 8th year, autumn of 1423 H., 2002, Malakawi, Fathi Hassan, an educational report and its applications in the Islamic studies in universities, pp. 79-119.

Researches in the Morals of Profession in the Global Age—work papers for a Symposium in King Fahd Petroleum and Minerals University, Department of Islamic Studies, 7-8 / 4 / 1427 H., 24-25 / 4 / 2006.

Researches of the Symposium of Scientific Ruling, Deanery of Scientific Research, Islamic University of Imam Muhammad Bin Saud, Riyadh, 28-29 / 12 / 1428 H.

The Arab Gulf Message, No. 49,A magazine: the Arab Educational Office of the Gulf States, 1414 H.,1994,Abd Rabbuh, Dr. Ali Ali, Wa Adyi, Dr. Abbas, a research in the personal and professional constituents of the university teacher from the point of view of his students, pp. 97-138.

"The Compact of the Morals of the Profession of Teaching in the Kingdom of Saudi Arabia", The Ministry of Education.

The magazine of Educational College, Al-Mansoura University, (a published report), "Towards Active Professional Development for the Teaching Staff Member", Dr. Patritia A. Lolar, Dr. Cathline B. King, translated by Dr. Muhammad Hassanain Abdoh Al-Ajami, No. 55, Part Two, May 2004.

The System and Tables of the Council of Higher Education and Universities in the Kingdom of Saudi Arabia, 1427 H., 2006.

"Towards a Strategy to Reform the Higher Education in Iraq" by professor Jalal Mohammad Al-Nu'aimi, Sweden, 2006.

QUANTITATIVE AND QUALITATIVE VIEWS OF THAI EFL LEARNERS' LEARNING ORAL COMMUNICATION SKILLS

Attapol Khamkhien
Kasetsart University
THAILAND
tanky_attapol@yahoo.com

ABSTRACT

As an impact of globalization, English has become an international language and a means not only to obtain further information or knowledge but also to access and socialize in international professional or academic communities. It is also considered the most important and popular foreign language taught in school in every country, including Thailand. As a result, effective teaching and learning English is vital. However, amongst the four macro language skills, speaking skills seem to be difficult for Thai learners because of the lack of opportunities to be exposed to authentic English and thus failed to achieve the standards required. To be successful in improving English speaking skills, this study has the principle objective of investigating five variables affecting Thai learners' development of oral proficiency. To accomplish this goal, 327 Thai learners participated in this study. Based on an extensive review of literature, a systematically-designed questionnaire and semi-structured interviews were used. The findings indicated that most of Thai learners relatively had high extrinsic motivation in learning English. They also had positive attitudes towards the English language which helped them learn English. However, many of them had inhibitions, hindering their success in mastering their English speaking competence. The implications of the findings are useful in providing a basis for improving English speaking instruction in general, and classroom activities and environment, and textbook development in particular.

Keywords: Thai learners, oral communication, factors, speaking skills

INTRODUCTION

It is undeniable that English is increasingly used as the global lingua franca, and thus is used in almost every domain of communication world-wide. Consequently, the demand for English language skills and English language education, as English language professionals are most acutely aware, has exploded. As a result, learning English apart from first language or national language is substantially needed nowadays. English is, thus, the most widely taught foreign language at all stages of education system of several countries, including Thailand.

Concerning English education in Thailand, along with the Thai language, Science, Mathematics, and Social Studies, English is considered one of the core subjects and is regarded as a necessity in Thai society (Wongsothorn, 2003). In the view of most Thai institutes, it is regarded to be an important subject because English proficiency has become a requirement for both career and further studies. In this regard, amongst the four macro skills, English speaking ability is seen crucial and the most important in learning foreign language (Ur, 1996). Since speaking ability as an active skill can show how learners know or acquire a certain amount of grammar and vocabulary, they not only need to know how to assemble sentences in the abstract, but they also have to produce them and adapt them to the circumstances.

To help boost Thai learners' English speaking proficiency, communicative language teaching (CLT) has been used in the English classroom in Thailand for a number of years. However, it seems that CLT often fails to create sufficient opportunities for genuine interaction in the English classroom (Khamkhien, 2010). Often times, when it is time to speak, most Thai students cannot correctly produce the target language. This suggests that proficiency might not depend on linguistic knowledge.

In other words, language knowledge is secondary, compared to the functional ability of understanding and speaking. Therefore, while a structured syllabus can provide some language knowledge, it is only through the effort to communicate that complete communicative competence is acquired. According to Harmer (1992), the full process, from passive listening to understanding and from active thinking to speaking, needs to be thoroughly exercised. This can be achieved only through real human interactions.

As previous research studies have established, and despite the enormous number of speaking-based studies in second and foreign language teaching and learning, speaking ability has remained a key interest and has continued to attract a number of studies (e.g., Graham, 2004; Lightbown & Spada, 2002). However, the findings of these studies need to be verified in several aspects. For example, some studies involve a relatively specific context (Graham, 2004), leading to detrimental consequences of obtaining limited generalization. In addition, a large number of previous studies (e.g., Bernaus et al., 2004; Graham, 2004; Sakui & Gaies, 1999) focusing on factors affecting learners' speaking skills tend to investigate only one factor in a study. These reasons suggest a need for further studies in this research area.

Therefore, despite the fact that a constant effort put by involved parties has been made to the curriculum to improve Thai learners' English proficiency and English speaking, their English speaking skills are somewhat far from satisfaction. Since a number of factors were claimed to be impeding or contributing factors to learners' speaking skills, the principle objective of this study is to investigate the roles of five variables possibly contribute to Thai learners' development of English communicative competence. It is expected that the knowledge generated from this study will be particularly beneficial to Thai learners, enabling them to be aware of factors which have some influences on their learning English speaking, and teachers and educators, helping them create new initiatives that can successfully improve learners' English speaking ability.

REVIEW OF LITERATURE

This section provides a review of previous studies which have investigated factors related to the second language learning process and the roles of motivation, personality, attitudes towards English teachers, classroom environment and instructional media, and attitudes towards the English language on students' development of oral communication.

Motivation

During the past two decades, a large body of research on second language learning and motivation has been accumulated. A number of previous studies identify that motivation can be typically divided into two categories: intrinsic motivation and extrinsic motivation. Harmer (1992), for instance, notes that the former is concerned with what takes place inside the classroom, whereas the latter is concerned with factors outside the classroom. In this regard, extrinsic motivation can be divided into integrative motivation and instrumental motivation. To be precise, integrative motivation means those who would like to learn a language in order to join in the society as a whole of the culture of that target language society, while instrumental motivation refers to those who learn a language aiming to get a better job, position or status, or to pass an examination.

Previous research studies have been well documented the influences of motivation in second language acquisition. As Ellis (1997) contends, for example, both integrative and instrumental motivations are regarded as essential elements of learning success, particularly integrative motivation which has been found to sustain long-term success when learning a second language. Meanwhile, Gardner (1985) proposes that motivation and attitudes are the primary sources contributing to individual language learning. Gardner has also described the phenomenon of motivation as consisting of four components: a goal, effort, want, and attitudes towards the learning activity. In addition, congruent with Harmer (1992), the concept of motivation can be classified into two orientations of reasons: integrative and instrumental. The former refers to the individual's willingness and interest in having social interaction with members of the L2 (second language) group. This orientation occurs when students wish to truly become part of the culture of the language being learned. An instrumental orientation is more self-

oriented, described as when students have utilitarian reasons such as they want to pass an exam or they want to get a job. This statement was supported by Gardner and MacIntyre (1993), concluding that both instrumental and integrative orientations lead to more proficiency, but integrative orientation motivated students to learn more.

Personality

One of the important factors contributing to learning success is personality. As described by Wenden (1991), personality denotes to personal traits, such as extroversion and introversion, social skills, inhibition and the intrinsic side of factors influencing learners' behavior, such as self-esteem, inhibition, risk-taking, anxiety, and empathy.

A study focused on learners' personality conducted by Rubin and Thompson (1994) confirmed that extroversion seemed to be a prior personality characteristic which affects the learner's success in learning a language. They asserted that sociable learners who used every opportunity to talk with native speakers might be more successful because they had more chances to hear, use and expose to the new language. Onwuegbuziea et al. (2000) also investigated the ability of cognitive, affective, personality, and demographic variables to predict second-language acquisition among college students. The results revealed that variables from each of the four domains were important predictors of foreign-language achievement. Based on the foregoing research studies, it can be summarized that personality is one of factors affecting language performance and achievement.

Attitudes towards English Teachers

The roles of teachers cannot be overlooked in a learning situation as it is undeniable that teachers are sources of language acquisition in a language classroom. According to Kanoksilapatham (2007), teachers play a crucial role in English language teaching for two major reasons. Primarily, teachers are the persons who work most closely with learners. Additionally, as masters in their own classrooms, teachers can test small ideas or innovations. In short, teachers need to be able to apply an appropriate teaching method or combinations of methods which benefit their target learners most to help learners improve their language learning and performance.

In this light, a recent research study on attitudes towards English-language usage and teachers was conducted by Lindermann (2000), investigating how learners' attitudes about non-native accents might influence their comprehension of the speech of non-native speakers. The results showed that there existed the relationship between attitude and perceived success of interaction. Congruent with Lindermann's study, Hargraves' (2000) study provided a clear picture about the relationship between students' attitudes towards teachers. The study highlighted that posturing the use of daily notebooks to assist in short and long-term planning, persuading students to request assistance and clarification, advocating use of study skill development, and recommending involvement in extra curricular activities could build a positive learner's character and achievement. Thus, as can be seen from previous research, students' attitudes towards their English teachers can contribute to their language learning achievement in a certain extent.

Classroom environment and instructional media

It is known that learners learn a foreign language into two ways: formal learning and informal learning. Rubin and Thompson (1994) point out that formal learning refers learning environment that learners learn a foreign language inside a classroom. In this regard, a number of researchers (e.g., Brown, 1994; Onwuegbuziea et al., 2000) made some pertinent comments on formal learning that classroom do not offer strong motivation for communication or the opportunity for learners to understand the way language is used in real life. Meanwhile, informal setting or natural setting is described as a real-life environment, where learners can expose to the target language without being aware that they are learning (Wenden, 1991). This suggests a large number of insights into the nature of interaction and how to use a language appropriately. Therefore, compared to formal setting, informal setting seems to offer unlimited opportunities to learners for practicing speaking in the real situation.

Although it can be said that informal setting should be supported and implemented in a foreign language classroom, formal settings cannot be overlooked. To successfully achieve in teaching and learning a foreign language, both are crucial. This is because it cannot be said which environment can be more beneficial for learners.

Given the roles of instructional media, other evidences to effectively using a wide range of instructional technology and materials were borne out in studies of native and non-native speaking students, indicating the positive effects of instructional technology on learning. A large body of research studies (e.g., Diem, 2000; Lam, 2000; Lambert & Balderstone, 2000), reported the extent of the utilization and benefits of instructional media. For example, as observed by Lambert & Balderstone (2000), in terms of effectiveness, using televisions in the classroom could increase some significant contribution to the teaching and learning. Such media could help effectively develop students' knowledge, vocabulary, awareness and interpretation skill. Further, teachers can go far from just illustrating the content to exploring values, attitudes and beliefs from the media.

Attitudes towards the English language

As stated by Starks and Paltridge (1996), learning a language is closely related to the attitudes towards the languages. Rubin and Thompson (1994) assert that attitudes deal with the way learners feel about the foreign culture and its people. Since attitudes are defined as emotions and thoughts, learners may admire the culture and prefer to learn more about the target language by becoming fluent in the foreign language, or they may like the people speaking the language and wish to be accepted by them.

A great amount of studies focusing on the roles of attitudes towards the English language claim that there is a certain relationship between attitudes and success when English language learners have positive attitudes and an opportunity to know native speakers of English. For example, Chiba et al. (1995) reported that Japanese students seemed to resort to American English when it came to deciding the model for their English. Their study showed that Japanese students with more instrumental motivation had more positive opinion towards non-native English accents than those with less instrumental motivation. Moreover, their familiarity with accents had an influence on their acceptance of varieties of English. Congruent with their study, Smith's (1994) study suggests that affective variables such as inhibition attitudes towards language and anxiety are important factors in second language mastery and are aspects of intrapersonal intelligence, helping learners examine their strengths and weakness in language learning processes.

From the previous research studies established, the roles of these five variables are suggested to be factors apparently influencing language learning process. However, as mentioned earlier, most of the studies above tend to investigate only one factor in a study. Also, given the different learning context of learners in the literature, the results form the previous studies might not be generalizable to the Thai context. These reasons suggest a need to identify the roles of these variables on Thai learners' development of oral communication.

METHODOLOGY

Participants

Three hundred and twenty-seven Thai EFL learners (126 male and 201 female students) from Kasetsart University, Thailand participated in the present study. They were, at the time of the study, taking Foundation English courses for the academic year of 2009. They were from the Faculty of Liberal Arts and Science, Agriculture, Education, and Engineering. Their ages ranged from 18 to 20. It should be noted that these participants shared almost the same amount of English study before they enrolled in Foundation English courses. That is, they had experiences in studying English from grade 1 onwards. They constituted a representative sample of Thai learners in that they were admitted from all over the country. Further, they learned English as a university subject for mostly academic, not everyday communicative purposes.

Instruments

Two main instruments used in this study are self-created questionnaire, consisting 42 statements and semi-structured interviews. Based on an extensive review of the relevant studies, the questionnaire was specifically designed by the author, covering five variables to be investigated in the present study. It was checked for their accuracy and understanding by two experts in the field of second language acquisition and applied linguistics. All of the statements in the questionnaire were listed in English. This questionnaire was divided into two parts. Part one is the questionnaire eliciting personal information of the participants. Part two involves the five variables that might affect English speaking skills, which are the main focus of this study. The variables consist of: 1) motivation to study English speaking skills; 2) personality; 3) attitudes towards English teachers; 4) attitudes towards the classroom environment and instructional media; and 5) attitudes towards the English language. This questionnaire asked the participants to respond to each statement on a Likert scale, ranging from 'strongly agree,' to 'agree,' 'not sure,' 'disagree,' and 'strongly disagree.' Scoring purposes of 5 to 1 were assigned for these five positions.

In order to check the reliability and trustfulness of the results gained from the questionnaires, semi-structured interviews were conducted. To elicit the participants' attitudes towards these variables contributing to the development of their oral skills, 5 participants were randomly selected and individually interviewed by the author. The interviews were conducted in Thai, the mother tongue of the participants. Each interview lasted for about 15 minutes and was taped-recorded with the consent of participants.

Prior to the data collection, a pilot study was conducted with 30 students taking an English course at the context of the study. All of these students shared some common characteristics including their field of studies and backgrounds of studying English at the university. The pilot study was conducted in order to estimate the amount of time needed for the participants to complete the inventory and to find out whether there were any unclear statements for them. In so doing, it was found that 30 minutes was appropriate for the test administration. Also, the reliability analysis of the instrument was completed, showing that the Cronbach's alpha reliability coefficient was .826 which indicates that the instrument can be considered as a reliable tool to be used for the purposes of this present study.

Data Collection and Analysis

The questionnaires were distributed to students enrolling Foundation English courses, academic year 2009, Kasetsart University, Thailand. The researcher explained instruction as how to complete the questionnaire. To obtain the reliability of the data, this group of participants was informed that there was no right or wrong answer, and thus the questionnaire was only created for research purposes. The data obtained from the questionnaires were statistically analyzed to establish frequency distribution in the form of descriptive statistics. Separate t-tests and separate ANOVAs were performed to determine a main effect of the five variables. The data from the interviews were transcribed and translated, and qualitative data were also classified and analyzed.

RESULTS

Results of the items covered in the questionnaire and the interviews are presented in this section. In attempting to understand the students' variables impeding the development of their oral communication skills, the data gathered through the questionnaire were analyzed and categorized into five major themes in which motivation, personality, attitudes towards teachers, classroom environment and instructional media, and attitudes towards the English language.

As for the personal data elicited from the first part of the questionnaire, the details of the participants in this study are summarized in Table 1. Subsequently, the questionnaire data were quantitatively analyzed (minimum, maximum, mean, and SD values). The results from the questionnaire and interviews on the investigation of the influences of the five variables on learners' studying English speaking are individually reported as follows.

Table 1. Personal Data of the Participants

	No. of participants	Percent
Gender		
Male	126	38.53
Female	201	61.47
Faculty		
Arts and Science	93	28.44
Agriculture	87	26.61
Education	62	18.96
Engineering	85	25.99

Motivation

To examine how the participants' motivation affects their development of English oral communication skills, the data elicited by the statements related to motivation, both intrinsic and extrinsic motivation were analyzed. A number of intriguing points were found. The results of the analysis are presented in the following table.

Table 2. Participants' Motivation to Study English Speaking

	Min	Max	Mean	S.D.
I am learning English because it is a compulsory subject.	1	5	3.32	1.27
I like learning English because the lessons are interesting.	1	5	3.55	1.17
Learning speaking will enable me to further my education in other institutions of higher learning.	1	5	4.43	0.86
The ability to speak English fluently will help me get a job after education.	1	5	4.62	0.74
I am learning English in order to communicate with foreigners.	1	5	3.77	1.21
When I hear someone speaking English fluently, I wish I could speak like that.	2	5	4.61	0.80
I want to speak English because I want to communicate with foreign friends.	1	5	3.46	1.22
I learn English so that I can understand foreign cultures.	1	5	3.40	1.14
I want to be able to understand English movies and songs.	1	5	4.08	1.09
I want to speak English as beautifully as my teacher.	2	5	4.47	0.76

Focusing on motivation of the participants, Table 2 demonstrates that most of the participants reported high motivation (M = 3.97), regarding instrument motivation. Specifically, they strongly agreed that speaking English fluently would help them get a job after graduation (M = 4.62), followed by their preference of speaking English fluently (M = 4.61). Moreover, they wanted to speak English as beautifully as their teacher (M = 4.47). Likewise, in terms of integrative motivation, the analysis showed that the participants are mostly not sure whether they wanted to learn English because it is described as a compulsory subject (M =3.32). It is surprising that the t-test revealed a statistically significant different (t = 4.19, p = .00), indicating that motivation has a main effect for the development of oral communication.

The results from the semi-structured interviews confirm the participants' opinion about their motivation, specifically the instrumental reasons, to study English speaking. Two respondents expressed their opinion more openly as illustrated:

     (1)   *I want to learn English because I think it is a key subject that can help me get a good job after my graduation.*   *[S2]*

     (2)   *If I can speak English fluently, I will get a good job with high salary. This is because I can work for a foreign company or an*

> *international organization.*   *[S4]*

(3)   *Learning English can help me a lot because I have to read
English textbooks. Moreover, it can help me get a good job in
the future.*   *[S5]*

However, it is interesting to note that two participants mentioned that they learned English as it is a compulsory subject. Also, they would not like to learn English because it is not their major subject.

(4)   *Actually, I don't want to learn English because I don't like it at all.
It is a very difficult subject. If I can choose the subjects to learn,
I won't take any English courses.*   *[S1]*

(5)   *I'm not good at English. I don't want to speak English because
I always feel embarrassed when I mispronounce English words.*   *[S3]*

In short, two observations can be made from the above findings. First, English is vital as it is a necessary instrument for finding a good job after graduation. This reflects the influence of on the significant of English in Thailand. Another observation is that English is useful for students, however they would not like to learn it as they found themselves have some difficulties in learning English.

Personality

The second variable investigated in this study is the participants' personality. The following table presents the results of the analysis regarding how the participants' personality affects the development of English speaking ability.

Table 3. Participants' Personality and English Speaking

	Min	*Max*	*Mean*	*S.D.*
When I speak English, I worry a lot about making mistakes.	1	5	4.19	1.04
I am afraid people will laugh at me if I do not say things right.	1	5	3.96	1.07
I am nervous when I have to speak English in front of other people.	2	5	4.09	0.97
I feel embarrassed when I speak English incorrectly.	1	5	3.88	1.13
What ideas I have or what I think, I am not brave enough to tell other people in English.	1	5	2.86	1.26
In the classroom, if I am not certain about the answer in English, I'll never speak up.	1	5	3.25	1.28
I find it hard to start a conversation in English.	1	5	2.99	1.34

Of 327 participants, it can be concluded from the table that the majority of the participants expressed that, when they spoke English, they were worried about making mistakes (M = 4.19), followed by the fact that they would feel embarrassed when speaking English in front of other people (M = 4.09), and thus were afraid that people would laugh at them if they did not say things or pronounce words correctly (M = 3.96). Also, as analyzed by ANOVA, the mean scores were significantly different, F = 4.85, p = .00, suggesting that similar to motivation, a significant interaction was obtained between the mean scores and their personality. These findings are somehow expected in the Thai context because it is common that most of the Thai learners were nervous when they had to speak English in front of other people and felt shy and embarrassed when they spoke English incorrectly. As of the inhibited personality, most of the participants did not have a lot of inhibitions when in a social situation and speaking in their own language.

With regard to risk-taking, the results from the interviews showed that most of the participants were not sure whether they wanted to take any risk in answering questions if they did not know the correct answer. In this respect, lack of confidence also played a vital part in their speaking ability as they were not confident about sharing their ideas over topics with other people.

(6)   *I don't like to speak English in front of my classmate or when
the teacher asks me to read out loud because I don't want*

> *him to correct me.* *[S1]*
> (7) *When I'm not sure about the answer, most of the times I will*
> *keep quiet and wait for my friends' answer. But I will try to*
> *answer the questions.* *[S2]*

The responses from two students also indicated that while learning English, if they did not understand English words or did not feel at ease to speak English, they would use Thai as their mother tongue to help them learn English. In other words, L1 has an important role when learning a foreign language.

> (8) *I always have difficulty in communicating with my teacher and*
> *my friends in English. I sometimes ask my teacher to explain*
> *the lesson in Thai, but sometimes I try to answer some simple*
> *questions.* *[S4]*
> (9) *Speaking English for me is fun. However, if I can't think of*
> *English words, it will use Thai instead.* *[S5]*

The following interview also illustrates that taking risk plays a prominent role in learning English as one of the respondents expressed:

> (10) *I think I should be ashamed of myself. Even though my teacher*
> *says my speaking is unclear or cannot be understandable to her,*
> *I don't really care. I know it really is, but I tell myself that*
> *English is not my mother tongue.* *[S3]*

Attitudes towards English teachers

Further analysis was conducted to explore the participants' attitudes towards their English teachers. The analysis indicates that English teachers deem to be an important factor determining how much students maximize their English learning. The results of the analysis are presented in Table 4.

Table 4. Participants' Attitudes towards English Teachers and Studying English

	Min	*Max*	*Mean*	*S.D.*
My teacher has good teaching techniques.	2	5	4.65	0.65
My teacher is kind and helpful.	1	5	4.64	0.65
My teacher is qualified to teach English.	2	5	4.76	0.56
My teacher makes me like to study English.	1	5	4.47	0.79
My teacher is experienced and confident in his / her teaching.	3	5	4.83	0.43
My teacher's characteristics are satisfactory.	1	5	4.57	0.74
My teacher makes me feel bored with studying English.	1	5	1.84	1.22
My teacher speaks English very well, so I want to be like him / her.	1	5	4.53	0.83

As shown in Table 4, of these items, the majority of the participants reported positive responses to their English teachers (M = 4.29). Specifically, they agreed that their teachers were experienced and confident in their teaching (M = 4.83). In this regard, they stated that their teachers were qualified to teach English (M = 4.76), and had good teaching techniques (M = 4.65). ANOVA results on the mean scores of the attitudes towards English teachers yielded significant contrasts, F = 4.64, p = .00, demonstrating that the participants were mostly satisfied with their teachers' characteristics and kindness in teaching English. Moreover, it can be considered that many of the participants indicated that their teachers are regarded as key persons who make them enjoy studying English, and don't make them bored with studying English.

When the author asked the informants the question, "Why do you like to learn or speak English with your teachers?, it might be said that the responses from the questionnaire was confirmed by the responses from the interviews as the following responses illustrate:

(11)   *I really know that most of teachers try to explain the lessons intentionally. They also use a lot of teaching techniques to help us enjoy learning English in the classroom.*   *[S1]*

(12)   *I think that teachers here have strategies to encourage students to want to learn. The informal nature of the student-teacher relationship help me to learn and speak English, as it means I'm not scared to ask teacher when I have a problem.*   *[S2]*

(13)   *I like to study English because my teacher is very kind and helpful.*   *[S3]*

(14)   *In English classes, actually, I will ask the teacher the questions when I don't understand because my teacher is so kind.*   *[S4]*

(15)   *I love learning and speaking English with my teacher because I think, I can learn a lot of things such as new vocabulary and the way to speak correctly. I try to imitate them so that I will speak English better. That will make me more confident as well.*   *[S5]*

Interestingly, all of the respondents agreed that their English teachers serve as model, helper or facilitator in a classroom, reflecting that the role of English teachers is even more distinct, potentially influencing learners' English learning. This means that the teachers should initially be aware of the expertise expected of teachers and be able to perform a role as a resource person in a classroom.

Classroom environment and instructional media

Another factor needed to be scrutinized in this paper is the roles of classroom environment and instructional media. Table 5 demonstrates the results of the analysis concerning the participants' opinion over classroom environment and instructional media.

Table 5. Attitudes towards Classroom Environment and Instructional Media

	Min	Max	Mean	S.D.
Classroom activities do not encourage students to speak English.	1	5	2.50	1.23
The contents of the textbooks are too difficult.	1	5	2.10	1.07
The contents of the textbooks are not interesting.	1	5	2.25	0.95
There are too few instructional media.	1	5	2.49	1.09
The instructional media are ineffective and uninteresting.	1	5	2.23	1.06
There is not enough time to learn speaking English.	1	5	3.18	1.12
There is not enough time to learn reading.	1	5	3.09	1.08
Class hours / schedules for speaking English are not appropriate.	1	5	2.93	1.13
Class hours / schedules for reading English are not appropriate.	1	5	2.87	1.06
Classroom environment is not appropriate, e.g. There is disturbing noise, the temperature is too high / low, etc.	1	5	2.33	1.31

When the investigation was focused on the classroom environment and instructional media, as can be observed, Table 5 shows that the majority of the participants suggested that the class hours were not enough to learn speaking and reading English (M = 3.18 and 3.09, respectively). In addition, it can be understood from the table that these students did not generally think that the contents of the textbook were too difficult (M = 2.10). Again, t-test was performed, and revealed that the mean scores of the attitudes towards the classroom environment and instructional media had a statistically significant difference (t = 5.37, p = .00). The result indicates that with making full use of instructional media and classroom facilities, the participants were able to learn English speaking effectively.

Meanwhile, some of the participants gave the comment on topics selected form the textbooks used, stating that some topics were not realistic and authentic. The other topics were too easy to follow for them, not challenging and sometimes boring. They would not be able to use and adapt them in their real life.

(16)   *Some topics presented in the textbook are not interesting.*
         Sometimes I think I cannot use knowledge gained in my
         everyday life because it is too far from me, I mean in the
         Thai context.   *[S2]*

(17)   *Using textbooks is fine, but some of the topics are far*
         from my understanding because I have no experience in
         an English speaking country.   *[S4]*

Moreover, as observed from the interviews, two participants agreed that most of the contents of the textbooks used in English courses focused too much on grammar, which did not help them to practice English speaking.

(18)   *The contents of the textbook used focused on grammar.*
         The explanation is also provided in English which I think
         it's hard to understand when I review the lesson before the exam.   *[S1]*

(19)   *The textbook focused too much on grammar rules. I can't*
         apply them to my English speaking and practices as I don't
         know appropriate English words in each context.   *[S3]*

With regards to speaking practices, one participant stated that English practice in class was insufficient since in most cases, the class schedule lasted only 90 minutes, and there were only two periods a week. Thus, it seems that this time allocation is not sufficient for every student to get a chance to practice speaking English.

(18)   *I think it would be better if every one in the classroom has*
         enough time to practice English speaking. That is because
         in some activities, our teacher does not have time to speak with
         us or listen to what we're saying or talking about.   *[S5]*

The result of the interview above suggests that everyone in the classroom should have an opportunity to speak, and both teachers and their peers should use English as a medium during class. Moreover, this rule should be made to require everyone in class to use only English in class.

Attitudes towards the English Language

Finally, the last variable explored in this study is the attitudes of the participants towards the English language. Generally, the result demonstrates positive responses towards English as they believed that the knowledge of English was important for their daily life. The following table summarizes the result of the analysis.

Table 6. Participants' Attitudes towards the English Language

	Min	*Max*	*Mean*	*S.D.*
The knowledge of English is important for daily life.	2	5	4.54	0.78
I think all Thai people should be able to speak English.	1	5	4.40	0.79
The knowledge of English enables me to be well-informed.	2	5	4.48	0.75
A person who has good knowledge of English is superior to others in terms of job opportunities such as getting a better job and higher salary.	1	5	4.63	0.72
Thai people who can speak good English are smarter than those who cannot.	2	5	4.25	0.86
A person with good English knowledge is regarded as highly educated.	1	5	4.14	0.89
The knowledge of English enables me to further my higher education easily.	2	5	4.42	0.80

When the participants' attitudes towards the English language were examined, as is clear from Table 6, it was found that they believed that in the Thai society, a person who has good knowledge of English seemed to be superior to others in terms of job opportunities such as getting a better job and higher salary (M = 4.63). Moreover, they thought that the knowledge of English is crucial (M = 4.54) since being proficient in English can enable them to be well-informed (M = 4.48). ANOVA was performed on the mean scores and showed that there is a significantly difference, F = 2.10, p = .006, demonstrating a main effect for the attitudes towards the English language. This result highlights that, in the Thai context, the more knowledgeable the students are the easier it is for them to find a job and get a high salary after graduation.

In this regard, from the findings of the interviews, it is interesting to note that most of the informants considered that English is necessary and important for daily life as the statistical result shows that the mean score is relatively high (4.41), and the SD value is 0.48. This result is also reflected in the interviews as all of the respondents expressed that:

(18) *I know that English is important nowadays as you can see from job advertisements. I will have more chance to choose jobs if my English is better than this.*   [S1]

(19) *I think nowadays English is very necessary in the Thai society. We can see that, when applying for a job after graduation, English proficiency is also generally required as one of the qualifications.*   [S2]

(20) *I think English is important. It is good if I can speak English fluently. Of course, I can get a good job in the future.*   [S3]

(21) *When I hear someone speak English fluently, I think that he or she is very smart, especially when he or she is talking to a foreigner.*   [S4]

(22) *To be honest, I want to speak English correctly and fluently, like a native speaker. Thai people mostly view that a person who speaks native-like English is richer and smarter than others because they think that he or she must hold a degree from a university in an English speaking country or study in an international program.*   [S5]

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In conclusion, from the above analysis, the findings provide the details of how the five variables influence the participants' development of oral communication. Overall the statistical results revealed the five variables have main effects on Thai learners' learning English speaking. To further determine which of these five variables are significantly different, statistical procedures like t-tests or ANOVAs were performed. The statistical results revealed significant differences among the five variables. In other words, the five variables are significant predictors of students' development in learning English speaking.

DISCUSSION

This study has the goal of investigating the possible variable affecting the speaking ability of Thai learners. The findings indicated that most of the Thai learners in this study reported high extrinsic motivation in studying English. In general, they had positive attitudes towards the English language, teachers and English instructions, enabling them learn English speaking and improve their English speaking proficiency.

The results of this study yielded pedagogical implications for English teachers among which is the importance of factors affecting Thai students' development of oral proficiency. First, the analysis showed that some of the participants had inhibitions, which could hinder their pathway to success in mastering English speaking skills. It was also found that they were very worried about making mistakes in pronunciation. One possible factor is that they are afraid that people would laugh at them if they pronounce English words incorrectly. This is probably because their teachers place too much emphasis on speaking grammatically correct English and correct them in front of others, which makes them embarrassed during studying or speaking English. Based on these findings, it is suggested that teachers can help Thai learners to acquire the target language skills in a number of ways, such as encouraging them to overcome their inhibitions, designing tasks and activities in an innovative way, and supporting them to use more English inside and outside classroom. Moreover, Thai learners should be provided with classroom activities in which they have an opportunity to practice speaking skills. Taking risk is another dimension that teachers should encourage students to employ in teaching English speaking.

Focusing on improving teaching speaking skills, it should be noted that every student should have a chance to speak in an English class since the results of this study demonstrated that classroom activities might not encourage them to speak English. Moreover, most of them agreed that class hours for speaking English were not appropriate. To solve these problems, innovation and initiatives that can encourage the whole class to have an opportunity to create the real language, both by speaking to the teacher individually and by speaking to their peers, using learning activities such as group work, jigsaws, role plays and group discussion. Given the class size of a language classroom in Thailand which is normally about 45 students, this critical issue is an important factor that should be also taken into account. Ideally, students should have plenty of opportunity to personalize the topic and share their own ideas and experiences.

In addition, the results from the interviews indicated that most of the participants were not sure whether the instructional media used in the classroom were enough and efficient. It is possibly due to the fact that some teachers employ inadequate instructional media in class, which students could not evaluate the use of such instructional media. Thus, it is suggested that using instructional media in class should be more substantiated. For instance, in a speaking and listening class, teachers should encourage students to expose to authentic English as much as possible by using tape recordings, video tapes, listening via the internet, video clips and role plays.

Likewise, some of the participants revealed that textbooks used in English speaking courses might not be good and interesting. At this juncture, it was found that some topics were not realistic, and students could not use them in real life. One possible reason is that some contents in the textbooks were too easy, while others might be too difficult for them to tackle. Thus, to increase students' interests,

although textbooks have been made available, the contents or the topics covered in the textbooks need to be carefully selected. Teachers should connect the topics in the materials to what students have already known in terms of their language skills, personal lives, and real world situations. As suggested by Kanoksilapatham (2007), decisions need to be made on which commercial textbooks are to be adopted and which aspects of the textbooks are to be adapted, explored, and expanded in response to the teachers' needs and the learners' interests.

As for the attitudes toward English teachers, it was found that the majority of the participants were satisfied with their English teachers' teaching techniques and characteristics. Taken together, most of the participants reported high motivation in learning English and good attitudes towards the English language. It is possible that their teachers really encouraged them, knowing how to increase motivation. Also, they might have a good relationship with their students, and their help created positive attitudes and motivation in student, which is crucial for effective and successful teaching English speaking. Bearing this in mind, English teachers should develop themselves in order to provide a model of speaking and learning English for their students. Taken together, the teachers should take responsibilities for devising strategies to help them speak English effectively to meet the international demands.

CONCLUSION

This study demonstrates the effect of the five variables on Thai learners' development of oral proficiency. Although researchers and teacher educators have made great efforts and have called for more attention to the importance of English speaking instruction in English classes in Thailand, based on the mean score of each factor explored in this study, Thai students had some inhibitions and classroom management particularly textbook and class hours for speaking English should be taken into account to improve English speaking instruction. The results clearly shed lights onto some insightful pedagogical significance, contributing to a better understanding of the roles of variables and barriers which have influences in mastering English speaking of Thai learners. However, given the scope of this study, this study remains to be addressed and investigated by further studies. The data elicited from the questionnaire are somewhat limited, focusing on the small number of variables. Future research should also include many more salient individual difference factors such as learning anxiety and length of time being studied. Moreover, future research should be replicated with more participants, and the data should be elicited from thinking aloud protocal, diaries and interviews. This will provide additional insights and justifications with regard to other factors that hinder their oral proficiency and how to improve students' speaking skills.

REFERENCES

Bernaus, M., Masgoret, A.M., Gardner, R.C., & Reyes, E. (2004). Motivation and attitudes towards learning languages in multicultural classrooms. *The International Journal of Multilingualism*, 1, 2: 75-89.

Brown, H.D. (1994). *Principles of language learning and teaching*. Englewood Cliffs, NJ: Prentice Hall Regents.

Chiba, R., Matsuura, H. & Yamamoto, A. (1995). Japanese attitudes toward English accents. *World Englishes*, 14: 77–86.

Diem, R. (2000). Can it make a difference? Technology and the social studies. *Theory and Research in Social Education*, 28, 4: 493-501.

Ellis, R. (1997). *The study of second language acquisition*. Oxford University Press.

Gardner, R.C. (1985). *Social psychological aspects of language learning: The role of attitudes and motivation*. London: Edward Arnold.

Gardner, R.C., & MacIntyre, P.D. (1993). A student's contributions to second language learning. Part II: Affective variables. *Language Teaching*, 26: 218–233.

Graham, S.J. (2004). Giving up on modern foreign languages? Students' perceptions of learning French. *Modern Language Journal*, 88: 171-191.

Hargraves, A. (2000). Four stages of professionalism and professional learning. Teachers and Teaching: *History and Practice*, 6, 2: 811-826.

Harmer, J. (1992). *The practice of English language teaching*. Oxford: Oxford University Press.

Kanoksilapatham, B. (2007). Navigating pathways to success in ELT. *Journal of English Studies*, 3: 6-25.

Khamkhien, A. (2010). Teaching English speaking and English speaking test in Thai context. *English Language Teaching*, 3, 1: 184-190.

Lam, Y. (2000). Technophilia vs. technophobia: A preliminary look at why second-language teachers do or do not use technology in their classrooms. *Canadian Modern Language Review*, 56, 3: 390-420.

Lambert, D & Balderstone, D. (2000). *Learning to teach Geography in the secondary school*. London and New York: Routledge Falmer.

Lightbown, P.M. & Spada, N. (2002). *How language are learned*. Oxford: Oxford University Press.

Lindermann, S. (2000). Listening with an attitude: A model of native-speaker comprehension of non-native speakers in the United States. *Language in Society*, 31, 3: 419-441.

Onwuegbuziea, A.J., Baileyb, P. & Daleyc C.E. (2000). Cognitive, affective, personality, and demographic predictors of foreign-language achievement. *The Journal of Educational Research*, 94, 1: 3-15.

Rubin, J. & Thompson, I. (1994). *How to be a more successful language learner*. USA: Heinle and Heinle Publishers.

Sakui, K. & Gaies, S.J. (1999). Investigating Japanese learners' beliefs about language learning. *System*, 27, 4: 473-492.

Smith, E. (2001). Implications of multiple intelligences theory for second language learning. *Post-Script*, 2, 1: 32-52.

Starks, D. & Paltridge, B. (1996). A note on using sociolinguistic methods to study non-native attitudes towards English. *World Englishes*, 15, 2: 217-224.

Ur, P. (1996). *A course in language teaching, practice and theory*. Cambridge: Cambridge University Press.

Wenden, A. (1991). *Learner strategies for learner autonomy*. Cambridge: Cambridge University Press.

Wongsothorn, A., Hiranburana, K., & Chinnawongs, S. (2003). English language teaching in Thailand today. In Ho Wah Kam & R.L. Wong (eds.), *English language teaching in East Asia today: Changing policies and practices* (pp. 441-453). Singapore: Eastern University Press.

QUALITY ASSURANCE AND ACCREDITATION IN HIGHER EDUCATION IN INDIA

Dr. Niradhar Dey,
Assistant Professor, Department of Education,
Guru Ghasidas Vishwavidyalaya
(A Central University), Bipaspur, C.G,
INDIA.
ndeyeduggv@gmail.com

ABSTRACT

Quality assurance and accreditation in higher education is defined as systematic management and assessment of procedures adopted by higher education institution or system to monitor performance and to ensure achievement of quality improvement. Quality assurance aims to give stakeholders confidence about the management of quality and the outcome achieved. The provision for education is mainly the responsibility of the government, which is interested in educational quality assessment because (i) the govt. has constitutional obligation to assure quality of education (ii) accountability in use of public resources is to be assured and (iii) provision of quality education for all the eligible aspirants is a political decision, which enjoys a strong social support. It is imperative therefore to identify the characteristics of quality, evolve strategies for fostering it, identify the factors affecting it, examine the relationship between quality and resources, and explore the measures of monitoring changes over time. To do this, a common framework is needed for gathering qualitative and quantitative data and for analyzing them, to assess quality and to assure the stakeholders of their quality. As the responsibility of maintenance of standards of higher education is vested with UGC, the UGC has established NAAC for assessment and accreditation of universities and colleges. A three stage procedure is followed, which involves (i) preparation of the self-study report by the institutions based on the defined parameters (ii) validation of the self-study report by a team of peers through on-sight visit and interaction with the functionaries of the institutions and (iii) the final decision on assessment and accreditation by the NAAC. The outcome of accreditation exercises undertaken by the agencies like NAAC and NBA have significant impact on improvement of quality of higher education, the strengths and shortcomings of the institutions are detected for initiating appropriate action. The stakeholders- the government, students and employers- duly benefit from information and analysis of institutional performance. In the globalised environment, the emergence of trans-national institutions and use of electronic media for delivery of programmes through distance mode, pose a greater challenge to quality assurance agencies for (i) clarifying issues pertaining to the procedures for quality assurance (ii) evolving acceptable criteria for assessment of learning attainments. A joint effort between the institutions and the accreditation bodies would be needed to ensure good coordination and communication, so that they can adhere to an ethical code of good practice and be objective, fair and rigorous in the task of accomplishing quality assessment and accreditation.

Key words used: NAAC, UGC, NBA, QAA, AICTE

INTRODUCTION

The need for quality assurance and accreditation has been established especially in the context of globalization and financial constraints impinging on higher education. This article provides an introduction to the twin and the integrated issues of quality assurance and accreditation in higher education. There are over 300 university level institutions and over 15000 colleges, which offer various types and levels of programmes. These institutions widely differ in terms of the mandate to offer programmes and courses, student enrolment, infrastructure, delivery systems, sources of funds and governance. They are established by the centre and state governments and therefore, the power to

award degrees/diplomas/certificates id vested in them by the respective governments. The higher learning institutions have its own internal and external procedures for assuring and enhancing quality of its programmes and maintain standards. In the recent times, several developments have taken place which has changed the perceived requirements for quality assurance in higher education.

What is quality assurance and accreditation?

Quality assurance refers to the policies, attitudes, actions and procedures necessary to ensure that quality is being maintained and enhanced. Accreditation refers to an evaluation of whether an institution qualifies for a certificate status. The status may have implications for the institution itself and/or its students qualified for certain employment. In fact the underlying purpose of accreditation is to determine the extent to which institutions are discharging their responsibilities for realising their goals and for the quality of education provided to enable the students to attain standards. Thus accreditation is the process of examining institutional procedure for assuring quality and assessing the arrangements for effective implementation of strategies for achieving stated objectives.

There are two major purposes which accreditation serves:

- Quality assurance, which determining standards of quality and performance for minimum acceptability in the interest of public.
- Quality improvement, which provides the service that is designed to improve institutions and programmes through an external review process.

Current criteria and procedures for QAA (Quality Assurance and Accreditation)

Universities are established by the state under legislation with authority to accredit their own programmes and are primarily responsible for their quality assurance. The centre and state governments are responsible for establishment of institutions or for approving new applications from institutions wishing to operate as universities within a well defined jurisdiction. The govt. bodies like University Grants Commission (UGC), and All India Council for Technical Education (AICTE) have evolved norms and guidelines for establishment and operationalization of higher education institutions. Universities have internal process to assess new course proposals and promote staff development, and most have entered into relationship with other universities to facilitate staff exchange, collaboration in research, and benchmarking of standards of course delivery. For various reasons, it has become a common practice to arrange programme reviews carried out by external assessors to compare the quality of academic activities with other leading institutions. The quality assurance mechanism as evolved by external reviewers, depend on one or a combination of a number of methodologies, the most important of which are self studies or self-evaluation, peer review by panels of experts, use of relevant statistical information and performance indicators and service of key groups, such as students, graduates and employers.

National Assessment and Accreditation Council (NAAC) and issues of QAA

NAAC is an autonomous institution, established by the UGC in 1994. The primary objective of NAAC is to assess and accredit institutions of higher learning with an objective of helping them to work continuously to improve the quality of education. The process of accreditation is as under:

NAAC has formulated a three stage process for assessment and accreditation as given below:

- ❖ Preparation of the self study report by the institution to be submitted to NAAC.
- ❖ Validation of the self study report by peers visiting the institution and
- ❖ The final decision of NAAC based on the self study report and the recommendations of the team of peers.

STAGE-I, Preparation of the self-study report

The first and the most important step in the process of assessment and accreditation is the preparation of the self-study report by the institution along the guidelines formulated by NAAC. The institution has to prepare the self-study reports in two parts, where part-I is the organization of data and part-II is the self analysis based on part-I. Its aim at providing an opportunity for the institution to measure its effectiveness and efficiency, and to identify areas of its strengths and weaknesses. Self-study is thus envisaged as the backbone of the process of assessment and accreditation. It is through the self-study report that NAAC understands the institution. In fact, the self-study informs and orients the peer team to assess the institution during the visit.

STAGE-II, Visit to the institution

On receiving the self study report from the institution, NAAC will decide on the panel of peers and inform the institution. If the institution has any reservation against any of the members, it can record its objection, without suggesting alternatives. Choosing from among the other panel members, NAAC will constitute the peer team. The team will visit the institution and look for patterns of evidences to validate the self study reports. The peer will interact with the various constituents of the institution and also check documentary evidence to understand the functioning of the institutions. At the end the visit the chairperson of the team will present a detail report on the quality of education offered by the institution to the head of the institution and a copy of the report with the acceptance of the head of the institutions will be forwarded to NAAC.

STAGE-III, Final decision of NAAC

The executive committee of NAAC will review the report and take a decision about the grade of the institution. The grade will be valid for a period of five years.

Units of assessment

There are two types of accreditation – Institutional and Departmental. In the institutional accreditation both the Universities and the Colleges are included. In the Universities, University Central Governance structure along with all the undergraduate and post graduate departments. In the colleges, any college- affiliated, autonomous or constituent – with all its departments of studies.

In the Departmental Accreditation, any department/school/centre of the university (e.g. Department of Education, Physics etc). Separate instruments (manuals) have been developed to suit units of higher education such as the universities, autonomous colleges, medical institutions, distance education institutions, Department accreditation and self-appraisal of Teacher Education Institutions.

Criteria for Assessment

NAAC has identified the following seven criteria to serve as the basis of its assessment procedures:

- ❖ Curricular aspect
- ❖ Teaching-learning and evaluation
- ❖ Research, consultancy and extension
- ❖ Infrastructure and learning resources
- ❖ Student support and progression
- ❖ Organization and management
- ❖ Healthy practices

Curricular Aspect

This aspect deals with the mission of the institution, its relevance and translation to the programmes offered. It requires information on how the curriculum design of the institutions offers diversity and flexibility to learners. It also seeks information on the practices of the institution in initiating and redesigning courses that are relevant to the regional and national needs.

Teaching-Learning and Evaluation

This criteria deals with the efforts of the institution in providing appropriate teaching-learning experiences to learners. It also looks at the adequacy and competency of the faculty who handle the various programmes of study as well as the efficiency of the evaluation methodology of the institution.

Research, Consultancy and Extension

This part of the format deals with the activities of the institution with reference to research, consultancy and extension. It also deals with the facilitating aspects of the institutions to promote the same and their outcome.

Infrastructure and Learning Resources

This aspect requires data on the adequacy and optimal use of the facilities available in the institution to maintain the quality of the academic and other aspects of the campus life. It also seeks information on how every constituent of the institution – students, teachers and staff, benefit from these facilities.

Student Support and Progress:

The highlights of this criterion are the efforts of the institution to provide the necessary assistance for good student experiences in the campus and facilitate their progress. It also seeks information on the student and alumni profiles.

Organization and Management

This criterion requires data on the policies and practices of the institution in the matter of planning, human power requirement, recruitment, training, performance appraisal and finance management.

Healthy Practices

This criterion should focus on the Innovative and unique practices of the institution that add to its academic ambience. It varies institutions to institutions like-

- ❖ Educational innovations
- ❖ Working with specific mission and goals
- ❖ Master plan for the institutional growth
- ❖ Feedback from the stakeholders for improvement of the institutional functions.
- ❖ Innovations in management and communication.
- ❖ Quality enhancement strategies.

The Grading System

The weightages attached to different parameters for different types of the institutions are as under:

Table 1. Parameters and weightages adopted by NAAC

S.N.	Criteria	University	Affiliated/Continuing Colleges	Autonomous Colleges
1	Curricular aspects	15	10	15
2	Teaching-learning and evaluation	25	35	30
3	Research consultancy and extension	15	05	10
4	Infrastructure and learning resources	15	15	15
5	Student support and progress	10	15	10
6	Organization and Management	10	10	10
7	Healthy practices	10	10	10

On the basis of these weightage, if the overall score is more than 55 per cent, the institution gets the Accreditation status" and any score less than that will lead to Not Accredited status. The accredited institutions are graded on a nine point scale with the following rate values.

Table 2. NAAC grade with correspondence score

Grade	Institutional Score (Upper limit exclusive)
A++	95-100
A+	90-95
A	85-90
B++	80-85
B+	75-80
B	70-75
C++	65-70
C+	60-65
C	55-60

The grade is also supplemented by a qualitative report by the team that would highlight the strength and weakness of the institution under various criteria. Institution which do not attain the minimum 55% point for accreditation are also intimated and notified indicating that the institution is "ASSESSED AND FOUND NOT QUALIFIED FOR ACCREDITATION." The range of marks of each letter grade, and actual total marks obtained as well as criteria wise marks are intimated to the institutions and notified.

The Approach of NBA (AICTE)

The approach adopted by National Board of Accreditation (AICTE) for accreditation of technical, professional, and management institutions is similar to that NAAC, discussed above. The criteria for assessing institutional performance and the weightages attached to the undergraduate and post graduate programmes are as under.

Table 3. Parameters and weightages adopted by NBA

Criteria	Weightage	
	Under-graduate	Post-graduate
Human Resources Faculty	200	200
Students	100	100
Finance and Physical Resource	100	100
Mission & Goals	100	70
Research and Development	30	150
Industry-Institute Interaction	70	100
Supplementary Process	50	50
Teaching Learning Process	350	250

The extent to which an institution meets the infrastructure requirements as stipulated by NBA for different types of institutions and levels of programmes, and qualitative assessment by the peer groups determine the grade awarded by the NBA.

Recent Progress and Benefits of QAA

There has been a dramatic progress in establishment of HEIs both under the public and private sectors. Higher Education Institutions offer a variety of programmes through on and off-campuses, adopt different strategies of teaching and learning, enrol heterogeneous group of learners in diverse discipline and engage themselves in multifarious activities of teaching, research and extension services. NPE-1986 and the Programme of Action-1986 suggested and encouraged the colleges and the universities to make a voluntary self-assessment of their performance.

The following major benefits, as identified by NAAC are derived from the process of quality assessment and accreditation:

❖ Helps the institution to know its strengths, weaknesses, opportunities through an informed review.
❖ Helps in identifying internal areas of planning and resource allocation
❖ Enhances collegiality on the campus
❖ The outcome of the process provides the funding agencies with objective and systematic database for performance funding.
❖ Initiate institution into innovative and modern methods of pedagogy
❖ Gives the institution a new sense of direction and identity.
❖ Provides the society with reliable information on the quality of education offered by the institution.
❖ Employers have access to information on standards inn recruitment
❖ Promote intra institutional and inter institutional interactions

Challenges ahead

The recent developments mainly globalisation of education and the extensive use of educational technology have made the issue of quality measurement even more complex. The quality assurance systems have to constantly modify their procedure to address a growing variety of open and distance learning opportunities, which is stimulated by the use of information technologies. The review procedures developed for conventional system are hardly sufficient for electronic delivery methods, which has a wider reach.

A large number of institutions are offering distance education programmes. They use multimedia strategies, enrol higher number of students of heterogeneous backgrounds and differ considerably in their capacities to use electronic media and delivery infrastructure. The development has serious implications for quality assurance agencies.

A similar concern arises in the context of international students' mobility due to globalization of education. When student enrol in other countries of foreign universities offering programmes in the students home country, the study plans must be evaluated to establish equivalence of their degree programmes. While there may be a mutual understanding between some countries and institutions for student transfer and credit recognition, there is much to be desired in so far as acceptable methods of maintains and determination of standards are concerned.

The emergence of private higher education institution is also a greater concern to maintain quality and standard. Privatisation creates little problem but the commercialization of self financing institutions create lot of problems for maintaining quality as making profit is their main concern. They run the institution without well qualified staff, needed infrastructure, student facilities, research etc. In such type of institutions, the relationship between the capacity to offer quality programmes and the scale of

delivery of services is hard to establish. Because of the internationalization of education, the solution to the major issues and problems concerning quality assurance should be sought through co-operation among institutions and countries. Therefore, global effort is needed to deal with the challenge to quality assurance.

REFERENCES

Antony, S. (2001). Impact of Assessment and Accreditation on Institutions of Higher Learning. *University News, Vol.39*

Distance Education Council (2001). *Assessment and Accreditation on Institutions of Open Universities and Distance Education Institutions.* New Delhi: IGNOU

Elaine EI-Khawas (1998). *Quality Assurance in Higher Education: Recent progress, Changes Ahead.* The World Bank.

IGNOU(n.d). *Higher Education: Its Context and Linkage. Study material, Indira Gandhi National Open University*. New Delhi: IGNOU

MHRD (1992). *Programme of Action*. New Delhi: Government of India.

NAAC (2003). *Institutions Accredited by NAAC, Bangalore*. Bangalore: NAAC

National Board of Accreditation (1999). *Information at your Finger Tips.* New Delhi: AICTE,

NUEPA (2001). *Higher Education during 10th. Five Year Plan- A Proposal.* New Delhi: NUEPA

POLITICS OF THUGGERY AND PATRONAGE IN THE NORTH-EASTERN NIGERIA

Ayuba Haruna
Department of Political Science
University of Maiduguri, Borno State
NIGERIA
timta09@gmail.com

Ahmadu Hamman Jumba
Division of General Studies,
University of Maiduguri, Borno State,
NIGERIA
hammanja@yahoo.com

ABSTRACT

The activities of thugs in the north-east geo-political region of Nigeria have become worrisome since the return to democratic rule in 1999. It has become a fashion for politicians to sponsor these thugs financially and morally in order to achieve their personal political interest. Most a times they mobilize these thugs from beginning to the end of electioneering campaign/election period. This has hindered free and fair election and consolidation of democratic governance in Nigeria's political space. To overcome this political malady which shrouded the Nigerian polity as a whole, both the state and political stakeholders must synthesize the electoral system; imbibe dialogue instead of confrontation; canvass for people's mandate instead of patronizing thugs; accept election defeat instead of violence; discourage money politics; adherence to rule of law; massive education and empowerment of these youths among other things. The study seeks to situate the scenario within the perspectives of competitive-authoritarian theorists and Marxian political economy approach. Thuggery though existed long time ago but thrives much more and became prominent in recent years in a competitive-authoritarian regime. The paper relied on content analysis from the secondary sourced data.

Keywords: Thugs, Patron, Democracy and violence

INTRODUCTION

The use of political thugs, *Yan kallare, Ecomog, Sara-suka, Banu-Isra'il* and *Yan shinko* and its attendant consequence in the North-East geo political region have been a source of worry in the recent years. Though, thuggery is not peculiar to North-Eastern geo-political region alone but also Nigeria as a whole. The activities of militia gangs in other parts of the country such as the *'Bakasi Boys'* in Eastern Nigeria, the *'Niger-Delta Defense Force'* in the Niger-Delta region, the *Yan Gumurzu* in Kano, the Odua Youth Movement among others have cumulatively impacted negatively on credible electoral process and development of the country. However, despite guarantees and assurances from the Nigerian Police Force on security, opposition candidates are harassed or arrested; voters were turn away from polling places by gang of young thugs (Bratton, 2008). It is commonly reported that long military rule in Nigeria is responsible for high level of political violence orchestrated by political thugs in the form of election rigging, falsification of electoral register, assassination of political rivals among other things. The inability to conduct free and fair election has continued to undermine smooth transition and good governance, and in the words of Omotosho, (2008) '… has made the country the butt of bad jokes in the international community'.

To clearly understand the activities of these identifiable groups, we ask these questions; first, why do politicians patronize these political thugs? Secondly, what are the implications of thuggery on free and fair electoral process? Thirdly what role do the state and political parties play in these processes? To answer these questions, the paper seeks to offer interpretations within the context of theoretical explanations.

The paper attributes the problem of political thuggery to the institutional failure of the state with its feeble agencies (security and media) and general decay in the electoral process. This situation provided theoretical postulations of competitive authoritarianism and Marxian political economy explanations. The paper is divided into seven sub-topics; introduction, competitive authoritarianism and the Nigerian state, contextualizing political thuggery and electoral process, the menace of political thuggery in the North-East geo-political zone, causes, the way forward and finally conclusion.

Competitive-authoritarianism and the Nigerian state

The paper seeks to explain the activities of thugs in Nigeria's democratic dispensation within a framework of competitive-authoritarianism; Marxian political economy approach and elite power theory. The Nigerian state is a product of imperialism. It was authoritarian by nature and by the character of colonial domination which left power in the hands of indigenous elite in the last part of 19th century. After the collapse of the former Union of Soviet Socialist Republic in 1989, African states have been transformed from series of military and authoritarian regimes to the internationalization of liberal democracy. Some hurriedly, others much slowly but must certainly democratize. Nigerian federating states were similarly caught up in this quagmire of authoritarian tendencies put upon it to democratize in the recent years. This scenario was theorized by Steven Levitsky and Lucas A. Way, the proponents of competitive authoritarianism, about the predicament of most African countries in 2002 and 2006. They defined it thus:

> *"Competitive authoritarian regimes are civilian regimes in which formal democratic institutions exist and are widely viewed as the primary means of gaining power, but in which incumbents' abuse of the state places them at a significant advantage vis-à-vis their opponents. Such regimes are competitive, in that opposition parties use democratic institutions to contest seriously for power, but they are not democratic, as the playing field is highly skewed in favor of incumbents. Competition is thus real but unfair"* (Levitsky and Way, 2006:2)

The above assertion characterizes Nigeria's democratic processes where some presidential aspirants, governors and local government chairmen (mis) use influences at their disposal or take advantage of their positions against their counterparts competing for same positions. In short, Nigeria is a competitive authoritarian state. As described by Levitky and Way (2005), in many civilian regimes where formal democratic institutions are widely accepted as the principal means of gaining political power, there are usually fraud, civil liberties violations and the abuse of state and media resources, client-patron relations; and such cannot be said to be democratic. In this manner it is democratic because democratic institutions are sufficiently respected to permit real competition, but authoritarian because the democratic institutions are violated to such a degree that renders competition unfair and opposition parties are seriously handicapped their effort to challenge incumbent in election. This scenario is further expatiated in the words of Levistky, and Way, (2002b:58-59) thus:

> *"Authoritarian governments may co-exist independently with meaningful democratic institutions. As long as incumbents avoid egregious (and well publicized) rights abuses and do not cancel or openly steal elections, the contradictions inherent in competitive authoritarianism may be manageable. Using bribery, co-option, and various forms of "legal" persecution, government may limit opposition challenges without provoking protest or international repudiation"*

This framework precisely captures the activities of parties and the electorate in the electoral process in Nigeria where free and fair election is mostly emasculated through falsification of election result, attack of opposition party membership or individual during election and after election period through the instrumentality of *Sara-Suka, Ecomog, Yan-Daba, Yan-Kallare* among others. In a competitive authoritarian state according to Dashee, (2008) civil liberties are formally guaranteed but in some instances violated. Accessibility to state resources in this state is uneven where the incumbent use the

state which undermines the opposition's ability to compete favorably. This is typified by many cases of complaints after the 1999 and 2003 general election in the zone; some resorted to court/tribunals while some took the law into their hands by engaging the services of thugs. He further added that this can be done through direct partisan use of state resources or through the systematic use of state infrastructure, such as building, vehicles, communication equipment and personnel for electoral campaigns. In some instances public employees such as permanent secretaries, commissioners are mobilized in large numbers to work for the party usually termed- *deliver your ward, constituency or local government* as the case may be.

Similarly, Collier, P and Vincente, (2008) in the 2007 general elections revealed that the uneven playing ground makes opposition or rival group within a ruling party more likely to use violence during political contest. Election materials are stifled and snatched in some instances where thugs play vital role in that direction.

From the Marxian political economy perspective, thuggery escalates because of the material benefit they derive from such practice i.e the service they render to their patrons, while the political godfathers or big wigs use them to achieve their ascendency to the corridor of power or political end. Marx sees political economy as the science for understanding society in its entirety. The theory is based on historical materialism as put forward by Karl Marx in Anifowose, and Enemuo, (2008:44) that individual's consciousness is determined by the ideas on his mind, and the material existence of an individual that determines his consciousness. It is along this line that hundreds of youths indulge in the nefarious act of thuggery as they would be compensated in cash or kind. For instance, WeeklyTrust, May 10th 2008 reported that a group of militants youth purported to be loyal to the executive governor of Borno state at the time of this study found it enterprising to offer their services as political thugs. It further states that this was because *Ecomog* members loyal to Ali Modu Sheriff have began to ride cars and build houses which they got from political leaders for their militant services.

The Marxian political economist saw economic processes and structure, which are occupied by bourgeoisie as the key material factor in shaping social structure and class relations, and also the state and the distribution of political power. In this perspective taking part in governance of the day at different levels means granting opportunity to the spoils of the economy because politicians believed, that will grant them excess to loot of public fund where accountability and good governance have been jettison in the zone.

Elite theory of power on the other hand can be traced back to the 19th century and was popularized by Gaetano Mosca, Vilfiredo Pareto, and Roberto Michels. The elite theory accepts a broad division of society into dominant and dependant groups. To this school the people are necessarily divided into two groups; the rulers and the ruled. The ruling class controls most of the wealth, power and prestige in society and exercises all power, whatever form of government might be adopted. Michels for instance insisted that majority of human beings are apathetic, indolent and slavish and they are permanently incapable of self-government. Leaders take advantage of these qualities to perpetuate themselves in power. They employ all kinds of methods- oratory, persuasions, playing upon sentiment in order to fool them, (Gauba, 2006:440; Varma, 2004:149) It is impossible to discuss the democratic project in Nigeria without considering the role of the Nigerian political elite. For in the final analysis it is from the political elite that the recruitment of the political leadership – the operators of democratic institutions is made. One may ask this question-What is the nature of these elite, is it coherent and driven by a national vision? The Nigerian political elite are a product of Nigeria's turbulent politics. It has its roots in the colonial educational and socio-political system. As such it is a child of history. The elite have been described as a hybrid of sorts reflecting Western values against a Nigerian background. When it became clear that independence was imminent this elite mobilized ethnicity to canvass for support for its ascension to power. This laid the foundation for the politicization of ethnicity and religion, and the intense rivalry (and division) between ethnic groups and geo-political regions (later states) in Nigeria. In the early days, these elites had some education. Its leaders had travelled and seen the world, and were inspired by the ideals of democracy and

freedom, Pan Africanism, the ideas of Mahatma Ghandi and the debates within the Students' movement in addition to dictates of the western powers, (Obi, 2004:8).

But at first they lacked a political and material base; politically it became more expedient for them to have their ethnic groups as a base, and access to business and government as source of material resources. They therefore presented themselves as the representatives of Nigerians and the future leaders of the country. This influenced the nature of the elite and its politics. It was elite that defined itself in, and through access to state power and resources. The opportunism of the political elite and the ways it has often manipulated political structures through the use of thugs and processes to promote selfish and narrow ends is well known. Two issues are however fundamental, the deep divisions within the elite along personal, ethnic, religious, and factional lines, and the lack of a clear vision or common ideology for a broad social project. The first suggests an incoherence of the elite leading it to engage in acrimonious internal rivalry and conflict, and the second promotes political opportunism, lack of principles and poor leadership. These explain why certain elements and forces within the political elite colluded with the military faction to subvert the democratic ethos for selfish gain, and why the political class cannot reach a consensus on how it will define a national basis for Nigeria's democratic project along party ideology but rather personality of powerful figures.

Many African countries such as Nigeria are ruled by small, personalized oligarchies which control the state and most of its resources. In Nigeria most of the oil revenue accruing to the country is squandered by the ruling class (elite). In the recent democratic regime's aspirations for material wealth replaces the military as characterized by elite competition through a multi-party electoral system mediated by rotation of offices, ethno-regional balancing among others. Holding the levers of power, elite rule over very poor populations with few tools at their disposal with which to hold leaders account- other than voting with their feet, (Fritz, and Menocal, 2006). The common features of conflicts in some parts of the country can be attributed to ruling elite continued grab of nation's resources and affairs against the ruled. This has made the state ineffective in the recent years even though with liberal democracy put in place. Ineffective state means that people have to rely on clientelistic social structure in order to find an income and to ensure themselves against adverse events. These structure tend to reinforce poor leadership pattern weaken the state legitimacy.

Contextualizing Political Thuggery and Electoral Process: The Nexus

The word thug refers to a person inclined or hired to treat another person roughly, brutally or murderously (beaten or robbed) (The Merriam Webster Thesaurus 1995). In this sense a thug is a person or group of persons employed to perpetrate violence on another person or group of persons. Similarly, Encarta Microsoft 2008, Dictionary referred to it as "*brutal person or somebody especially a criminal who is brutal or violent*". Example of thug is a former secret organization of robbers in India, worshipers of the goddess Kali who strangle their victims. Howell, R. (2004) on the other hand observed that political thug can be seen as the tireless repetition of misleading 'facts' designed to depict an opponent as personally despicable and with regard to governance and it is dangerous to the physical and political life of the nation.

Political violence on the other hand refers to act of the processes of execution of the activities of political thugs enticed by politicians. In other word Banwo, (2003:100) posits that:

> It is the processes of the use of extra-judicial means in the course of the contest for or in exercising political power. These include intimidation, harassment, assassination, blackmail, arson, looting, physical and psychological attack……among others.

To Mehler, (2007:209) political violence has become a prominent part of the culture of Africa. Indeed he emphasized that governance and violence have become common mode of political competition in African societies more than consensus or co-operation. Political violence is usually part of the machinery employed by the political class in most underdeveloped economies to attain and sustain power or protest its deprivation. Reno, (2002) made a remark in his analysis of politics in failed states

he cited Bazenguissa-Ganga, (1999) who observed that, '… faction leaders in collapsed or collapsing states are often politicians or officers who jockeyed for position in an elite hierarchy and benefited from 'official' political violence, the goals of violence turn toward battling local rivals and appropriating as much of the wealth of this political network for themselves' Therefore political thuggery and political violence are intertwined. This had in many ways truncated political process in Nigeria.

Electoral process consist of more than methods of counting votes cast by the voters but embraces within all institutional procedures, arrangement and actions involved in elections. It include the suffrage, the registration of voters, delimitation of constituencies, the right to contest election, electoral competition between rival parties, body charged with the conduct and supervision of election, the method of selection of candidates, method of voting, conduct of election, determination of results, election disputes, electoral malpractice, (Jega, and Ibeanu, 2007; Ball, 1979:92; Harris, 1982:157; Appadorai, 1978:523)

There are two types of electoral process-constitutional and non-constitutional. The constitutional aspect includes issues prescribed in the constitution such as the body responsible for the electoral process and independence of such body. The non-constitutional aspects such as voters' register, procedure of election, election offences that are covered by the Acts of the National Assembly are Electoral Law. However, electoral processes have been suffocated by the activities of political thugs in many parts of Nigeria in the form of consensus candidates among others.

In theory, power resides with the people and in ideal situation it is transferred to the leaders by the process of election which means leaders exercise power in the interest of the state. It is on the premises of this transfer that thugs subvert and distort smooth transfer of power in electoral process. According to Ejituwu, (1997:37) each ballot paper represent an individual sovereignty and the totality of the votes signifies the popular sovereignty and can vote an unpopular government out of office. This is hardly attained in the North-Eastern zone arising from fraudulent acts, ignorance of people's rights and with the increasing menace of political thugs which makes it difficult for electoral process to flourish. What happen is that politicians, conscious of the values of the spoils of office, adopt various means to capture power by any means, they buy votes, rig elections, and commit other infelicities designed to subvert people's will to choose leaders capable of leading the state toward growth and development.

Electoral malpractice and violence have been burning issues in both the developed and developing societies; it involves riots, thuggery, looting, kidnapping, arson and political association. These occur before, during and after election with the view of altering, influencing or changing by force the voting pattern or manipulating the electoral decision in favour of a particular individual or political party, (Ejitiwu, 1997:38; Ugoh, 2004:164; Dinneya, 2007:59) Election rigging is the worst form of electoral fraud since it leads directly to the falsification of the will of the people and empowerment of the wrong leaders. Election rigging through the activities of thugs or otherwise is a function of some weaknesses in the electoral system as well as its successful exploitation of such by leaders/politicians; hence the mutual relation between thuggery and electoral processes.

The Menace of Political Thuggery on Electoral Processes in the North-Eastern Region

The popularity of political thugs in the region could be traced to the politics of the first republic when youth were mobilized to refute the claims of the leading party NPC by NEPU as it were in Kano and other minorities in the then middle belt and other regions. Thugs were referred to as *Yan-daba*, or tout; resurfaced in the second and third republics but became eminent and unhealthy for democratic process in the fourth republics.

They bear different names such as *Ecomog* in Borno and Yobe state, *Sara-Suka* in Gombe state, *Yan-Kallare* in Bauchi state, *Banu-Isra'il* in Taraba state and *Yan-Shinko* in Adamawa state. There activities commences from the early stage of politicking and becomes intense at election periods.

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Most of these groups of unemployed youths are sponsored by desperate politicians who lure them with extravagant promises of employment and other government patronage. Since 1999 to date, some of these youthful thugs have been sponsored by desperate politicians to protect their political interest. After elections, these boys trained to maim and kill political opponents are left helpless without any tangible means of sustenance (WeeklyTrust, May 10th 2008). Dashee, (2008) asserts that in other instances, even their sponsors are not spared from their acts of violence as they equally attack them in public functions like wedding, political rallies and so on, when they fail to meet their expectations or demand. Two major reasons why politicians employ violence could be attributed to their quest for power and drive toward primitive accumulation of wealth and competitive authoritarian nature of the Nigerian state. This gave rise to the high level and sophistication of political thuggery in the region. For instance, WeeklyTrust reported worrisome atrocities of *Sara-Suka* titled "*How Sara-Suka held Bauchi state hostage*" revealed that hooligans tagged *Sara-Suka* from both opposing parties ANPP and PDP and others fought, left some dead and many casualties with injuries. Similar incidents abound in Borno state when Ali Modu Sheriff won the 2003 election. Many youths across Borno state found it enterprising to engage in political thuggery. As a result other groups emerged with seeming divisions amongst them and persistent clashes between the different camps mostly associated with sharing of largesse. On 26th April 2008, there were intra group clashes between political thugs loyal to the ruling ANPP and inter group with PDP an opposition party. The scenario is not different from *Banu-Isra'il* and *Yan-shinko* in Taraba and Adamawa states respectively. These activities however do not occur without the input of the two players the politicians and the youths (thugs) themselves and the youths depend on the politicians to perpetrate their nefarious activities without impunity.

Politicians

Politicians from different parties play a vital role in the rise of political thuggery in the North-East geo-political zone. In the words of Umar, (2003:210):

> "*Politicians in the North-East as in the other parts of the country are the critical elements that orchestrate and employ violence in the pursuit of personal interest. The most worrisome behavior of our politicians is the manner they have employed, the use of thugs to perpetrate violence. They are not only ready to recruit and work with political thugs but have come to accept thugs and violence as a legitimate part of political process*"

He asserts that there is hardly any political party in the zone that does not have thugs at least one person who has ties to attack, maim or assassinate a political rival or destroys political offices in furtherance of political interest. To further justify this claim, Albert,(2005) while analyzing the political feud between Governor Mala Kachalla and Senator Ali Sheriff all of Borno state, reported that, '…supporters of Governor Kachalla had to fight back using political thugs known as 'Ecomog' … turning Borno into a violent state'.

Youths (thugs)

There has been alarming rate of burst in number of youth's participation in thuggery in the zone. This is not unconnected with weaknesses in the state apparatus and unfair processes of the electoral process in Nigeria matched with the material benefits they drive from such exercise. Politicians recruit them to serve as body guards and militias for the parties. They bear names such as Ecomog, *Sara-Suka*, *Yan-Daba*, *Yan-Kallare*, *Banu-Isra'il*, *Yan-Shinko*, *Egbetsu Boys*, *Area Boys*, *Bakkassi Boys* among others. They are mainly constituted by petrol hawkers, motor park touts and to some extent as Umar (ibid) will put liberated *almajirai*.

The case of thuggery in North Eastern region can best be equated with the case in Jamaica where the gun and the gangs were harness by politicians since 1960s to date, continually perpetrate violence in order to enforce Jamaican political turfs at election times. Clarke, (2006) reported that: 'Nine competitive elections have been held in Jamaica since 1962 … But violence and fraud have accompanied most campaigns. Politicians have also use their patronage to buy votes in key constituencies, and have formed links to gangs to terrorize opposition electors at constituency level or to combat other gangs engaged by their political opponents'.

CAUSES

Several factors abound to explain the cause of political thugs as well as political violence. Prominent amongst these are two principal factors these are - competitive authoritarian nature of the Nigerian state and economic factor. The rest can be tied to either two of the above. These include illiteracy and poverty, weaknesses in the institutions, checks and balance.

Nature of Nigerian state: - The competitive authoritarian nature of the Nigerian state after long punctuations of military regimes accepted civilian government in 1999 that permits democratic competition but bedeviled by fraud and abuse of state apparatus which enables those with machinery of the state to suppress opposition group or party. This groupings result more often than not into clashes of interest between different groups which end up in violence or skirmishes.

Illiteracy: - This is another cause of political violence. Some studies revealed that most of those that engage or used by politicians in their shoddy deal are either illiterate or received low level of education as such they become prey to overzealous politicians as they are vulnerable to resort to violence.

Poverty: - High level of unemployment have accounted for high level of poverty in the zone. As most of youths come from humble families which cannot fulfill their obligation. It goes with the common saying *"a hungry man is an angry man"* hence need little effort to join any group of militia/thugs.

Weaknesses in the political system: - There are prevalent weaknesses in the institutions responsible for carrying out electoral processes in Nigeria. The inability of institutions of government such as Independent National Electoral Commission (INEC), the police, judiciary and the executive resulting from abuse of office and fraud often emasculate electoral process. This includes undue favor to some group or individuals and power of incumbency.

Checks and balances: - Lack of checks and balances on part of the three arms of government to ensure smooth electoral process often leads to fraudulent acts and behaviors, rigging, cheating among others.

THE WAY FORWARD

Political thuggery and violence are means to an end and not the means to an end. It is an illegitimate manipulation to have access to control of resources by politicians. This infelicitous method is inimical to democratic tenets and it is unhealthy to democracy in Nigeria hence the need to get rid of these malaise.

The youth should be economically empowered. Engaging the youth in gainful employment would reduce their activities or participation in thuggery.

The executive arm of government should do much better by putting security measures by ensuring insurgent group do not endanger the safety of lives and properties in the society, (Nganji,2003:238) In light of the above the Independent Corrupt Practices Commission (ICPC) should be empowered to cover electoral related offences and be given absolute power to dispense its activities.

Advocacy by both government and private organizations should be pursued vigorously. Government should involve Community Based Organizations (CBOs), Civil Society Organizations (CSOs) and traditional rulers in dealing with activities of thugs. This can be done through deemphasizing the relevance of political thuggery in the electoral processes. Overzealous politicians who engage in such activities should not go unpunished so as to serve as deterrent to others. The institutions involved in the electoral process should be checked and strengthened through provision of adequate fund and resources for such exercise and personnel trained and made available when called upon. There should be sustained public enlightenment against the evils of political thuggery and violence. Both print and electronic media should engage in massive campaign against the effects of political thuggery and violence. Education should be given paramount attention in the zone. Scholarship fund should be made available for less privileged so as to minimize the cases of political thuggery by, local, state, federal and private organizations and individuals.

CONCLUSION

The wanton destruction of lives and properties in the zone resulting from the activities of political thuggery have had far reaching effects for the practice and sustenance of democracy in the zone and Nigeria as a whole. Democracy is synonymous with development as such should not be mistaken for instrument of underdevelopment by few unpatriotic politicians (elites) and unlucky youth in the area.

The seemingly inability of the Nigerian state to shift from competitive authoritarianism to democratic state where irregularities have no place is not attained yet. Hence fairness, equity and justice should be the guiding principle at public, individual and political levels. The Nigerian state has fallen short of true democracy; a play ground where frivolous factors such as poverty, greed and inequality continue to linger in our societies. The paper seeks to assert that unless and until the aforementioned factors are taken care of so will the sustenance of democratic processes unattainable and the people in the zone continue to suffer in the hands of these miscreants.

REFERENCES

Albert, I. O. (2005). Explaining godfatherism in Nigerian politics. *African Sociological Review* 9(2) 79 – 105.

Anifowose, R & Enemuo, F (2008). *Elements of Politics*, (Ed), Lagos: Sam Iroanusi Publications

Appadorai, A. (1978). *The Substance of Politics*, Madras, Oxford University Press

Ball, A.R (1979). *Modern Politics and Government*, (2nd Ed), London: Macmillan Press Ltd

Banwo, A.O. (2003). "Political violence and Democratization in Nigeria: An overview" in *Electoral Violence in Nigeria: Issues and Perspective*, (Ed), Lagos: Freidrich Ebert Stiftung.

Bratton, M. (2008). Vote Buying and Violence in Nigerian Election Campaigns. *Electoral Studies* (27) 621 – 632.

Collier, P. & Vincente, P. (2008). *Do or Die Affair: Experimental evidence on Electoral violence in Nigeria.* NP: Institutions for pro-poor growth,

Chukwu, P. (2007). "The 1999 Constitution and the Independent National Electoral Commission (INEC): Prospects for impartial supervision and conduct of Elections" in Jega, A. & Ibeanu, O. *Elections and the future of Democracy in Nigeria,* (Ed), A Publication of the Nigerian Political Science Association.

Clarke, C. (2006). Politics, Violence and Drugs in Kingston, Jamaica. *Bulletin of Latin American Research. 25(3) 420 – 40.*

Dinneya, G. (2007). 'Democratic Election, Functional Legislature and the Judiciary', In *Political economy of Democratization in Nigeria: Issues and Perspectives*, Lagos: Feidrich Ebert Stiftung

Ejituwu, C.N (1997). "Election Processes and Governance: Election Rigging in the USA and Nigeria" in Ogunba, O. *Governance and the Electoral process: Nigeria and United States of America*, (Ed), Lagos: American Studies Association of Nigeria, (A.S.A.N)

The Encarta Microsoft Dictionary, 2008.

Fritz, V.A. & Menocal, R. (2006). Building Developmental states: From theory to practice, Working Paper 274, September 2006, London, Overseas Development Institute.

Gauba,O.P.(2006). Introduction to political Theory, New Delhi,(NP).

Harris,P.B. (1979). *Foundations of political science*, London, Hutchinson & co.

Howell, R. (2004). *Political thuggery in vogue*, http//www.sptimes.com

Kushee, J.D. (2008). "Political thuggery in the North-East and North-West geo-Political Zonesof Nigeria: Implication for Electoral Democracy", A paper presented at special consultant for National Association fo Peaceful Election in Nigeria (NAFPEN).

Levistky,S. & Way, L.A (2002). *Competitive authoritarianism the emergence and Dynamics of hybrid regimes in post cold war era*, Being a paper Presented at the Annual Meeting of the American Political Science Association, Boston, M.A. August28-31, 2002.

Levistky,S. & Way, L.A (2002b.). "Election without Democracy: The rise of Competitive Authoritarianism" *Journal of Democracy*, Vol.13, No. 2. John Hopkins University Press

Levistky,S. & Way, L.A (2006).*Competitive Authoritarianism: International linkage, Organizational power and the fate of Hybrid Regimes*, A paper presented at the Annual Meeting of the American Political Science Association, August ,30th –September, 2nd ,2006, Chicago, IL.

Mehler, A. (2007). Political Parties and violence in Africa: systematic reflections against Empirical background, (ed) in Basedau, M; Erdmann, G &Mchler, *Votes, Money and Violence: Political parties and elections in Sub-Saharan Africa*, South Africa, University of Kwazulu-Natal Press

Ngaji, M.E. (2003). Managing political violence in Nigeria: Role of Democratic Institutions in *Political Economy of Democratization in Nigeria: Issues and Perspectives*, Lagos: Feidrich Ebert Stiftung

Obi, C.I. (2004). Nigeria: Democracy on Trial, Text of Lecture organized by the Swedish Development Forum, Stockholm, Tuesday, September 14, 2004.

Olusupo, B. (2003). Managing Political violence in Nigeria: Role of institutions Agencies of the state" in Electoral *Violence in Nigeria: Issues and Perspective*, (Ed), Lagos, Freidrich Ebert Stiftung

Omotosho, M. (2008). Electoral Violence and Conflict in Nigeria. The 2007 election and the Challenges of democratization. A paper presented at the 27th Annual Nigerian Political Science Conference (NPSA) 16th – 19th September. Unpublished.

Reno, W. (2002). The Politics of Insurgency in Failed States. *Development and Change*. 33(5) 837-58.

The Merriam-Webster Thesaurus (1995). Merriam-Webster Incorporated Publishers

Ugoh, S.C. (2004). Electoral violence in the 2003 General Elections in Nigeria. *Unilag Journal of Politics*, Vol.1, No.1

Umar, M.M.(2003). "The role of Youths and Politicians in Electoral violence in North-East Nigeria" in Olasupo, B. *Electoral Violence in Nigeria: Issues and Perspective*, (Ed), Lagos, Freidrich Ebert Stiftung.

Varma, S.P. (2004). *Modern Political Theory,* New Delhi, Vikas Publishing House ltd.Weekly Trust, Newspaper; Saturday May, 2008.

STREETS OF THE CHILDREN: STREET-WORKING CHILDREN PHENOMENON IN TURKEY

Dr. Bekir Kocadas
Assistant Professor
Adiyaman University
TURKEY.
bkocadas@gmail.com

Dr. Özge Özgür
Assistant Professor
Adiyaman University
TURKEY.
ozgeozgur80@gmail.com

ABSTRACT

This study is a descriptive one that tries to describe and understand the socio-demographic characteristics and solidarity networks of the street-working children, and meaning they attribute to their working on the street. The research was conducted as an exhaustive one between 2006- 2009 on 931 street working children in eight cities of Turkey. This study claims to be a unique contribution to the literature on street-working children focusing on the strengths of the children such as the solidarity networks they establish and exploring the meaning they attribute to the place they turn into a space. These two are also the factors that make Turkey distinctive in terms of street-working children.

Keywords: Street Working Children, Solidarity Networks, Urbanization, Migration, Turkey

INTRODUCTION

As the "little men" of many centuries, children have only become the focus of research as an agent/subject in the last quarter of the last century. However, the discovery of childhood has only meant either a new inquiry of social sciences or a field of social problems. Research on street children also have framed the issue only from a "problem-based" perspective focusing on the causes and results of the phenomenon disregarding the child as an agent in society. Such an outlook seems so much in line with the "little men" of the history closing the eyes to the subjectivity and rational choice of the child. Rational choice of the child does not mean the rational choice of the child for living or working on the street, but her/his subjective existence of the realm of any kind. It is obvious that the street-living or street-working children do not participate in either the definition of the phenomenon or the solutions to their problems. Taking the participation of the child into consideration would lead us to a "strengths-based" perspective which locates the child as an actor/subject in decisions pertaining to their life. This study aims at understanding the street experiences of the street-working children in Turkey via their own strengths such as their relations with the family, their solidarity networks, and their attribution of meaning to working on the street while considering abusive and destructive nature of these experiences. Therefore, this study tries to point out first what makes Turkey distinct in terms of the phenomenon of street-working children, and second the subjectivity of the children the research was conducted on.

Despite the fact that literature on the street life of children may somehow make a clear-cut distinction between street-living and street-working children, these two categories are indeed interrelated. The two often are intertwined and may be experienced interchangeably. A street-living child may have a home, but prefer living on the streets, or a s/he may both work and live on the streets. The two categories are also divided into varying sub-categories. For example, Philips (1994: 7) describes street-living children under three sub-categories: children on the street keeping regular relations with their families; children of the street lacking regular and continuous relations with the family; and

children without family having been left alone to the street. This proves that street-living or street-working children cannot be homogenized as a social group and it in fact what constitutes their being on the streets is a combination of different social, cultural and economic factors (Pare, 2003: 2).

During recent years, several studies have focused on the diverse experiences of children around the world. However, it has been increasingly recognized that the experience of childhood cannot be separated from the criteria as class, gender, ethnicity (James and Prout, 1990), migration and development.

Aptekar (1994) explains the causes of being street-working children as urban poverty, neglect and abuse within the family, urbanization, and migration. Nevertheless, literature (Standing and Tokman, 1991; Atauz, 1997; Işık ve Pınarcıoğlu, 2001) discuss that causes of the phenomenon may vary according to different cultural, socio-economical and political structures. This study discusses the phenomenon of street-working children from the angles of culture, economy and migration.

In Turkey the process that began after the 1950s and with 1970s became a transformation like "industrial revolution" altered the structure of centuries of Anatolian Turkish society. The traditional society of an agricultural empire began to be broken; traditional institutions, values, relations, briefly, everything began to change (Türkiye Aile Yıllığı, 1991).

In this period the efforts for industrialization, mechanization of agriculture, education, health, transportation services, and mass media accelerated (Merter, 1990); division of labor and the sectors and the relations of production changed. Since 1950 the development of industry extended, the population increased, and transportation developed and villages began to spread outside. In this period the proportion of mechanization in agriculture increased. Besides, the interest of humans in environment increased, job opportunities emerged in cities, and immigration from rural areas to cities emerged (Merter, 1990). The picture of the intertwining of urbanization and migration between the 1950s and the 1970s was more dramatized by the emergence of a new phenomenon, namely, forced migration after the 1980s originating from the PKK terrorism in the South-Eastern Turkey. Between 1985 and 2005 nearly a million people were either displaced or migrated from insecure rural areas to metropolitan cities (H.Ü. Nüfus Etütleri Enstitüsü, 2006).

Having all their riches and memories left behind, people, desperately, set off a journey towards the lands of hope. It is interesting for example that Istanbul, as a popular culture image, was described as "the city whose stones and soil are made of gold". Without anywhere to stay or any social assistance including housing, these immigrants built their own houses overnight. These houses are called "gecekondu" (slam areas, chantey towns) which means "settled at night". "Gecekondus" are one-floor, illegal, unhealthy and private houses that are so weakly constructed. The slam areas in the peripheries of the big cities gradually established a kind of "twilight culture" (see Lewis, 1975). In this mixture of traditional and urban values, reflections of this culture, especially on the childhood practices in Turkey, caused confusion compared to the practices in more industrialized Western countries. For example, children are traditionally assumed as potential labor power in the agricultural areas. In the agricultural, rural areas the child was perceived as an "assistant" of the parents and other family members. The child was familiar with the working experience so that the child's working experience was perceived as a "normal" process in the child's socialization and education process. Another distinctive characteristic of this period was that the child was not forced to work emotionally or physically or the parents did not expect the children to be an economical source of income. In that period the child mostly worked on their own rational choice and the working experience was seen as a way of maturation. By considering the historical and sociological characteristics of the period, it is possible to state that these characteristics were transferred to the urban life through the transition process.

Urbanization has brought about the inclusion of the traditional values into the new urban life. It should be noted that because Turkey has not yet completed her modernization project the "urban" or

"metropolitan" in Turkish case connotes something different from highly urbanized Western centers. Therefore, the perception of street-working children did not necessarily imply risk or marginalization. Instead, it was perceived as something immanent in the culture legitimating the existence of the children on the street. As opposed to the many examples in the Western centers, street-working children in Turkey were found sympathetic by society at large. As a very good example of this, in one of his speeches, Prime Minister Recep Tayyip Erdoğan said that

> … I also sold simit (a kind of bagel with sesame) on the streets when I was a child. Some people may see this as a loss of honor, but I don't. On the contrary, I take this as knowing and understanding the life. I also sold simit, water and sugar. I bought my books with that money… (Milliyet Newspaper, 2009)

Thus, this is a proof of the fact that the phenomenon of street-working children was seen as normal in that period of transition. This is so intrinsic into the culture that not only the children of the poor or gecekondu areas, but also of the middle-class in Turkey including the authors of these lines who experienced that kind of a learning of life.

It should be emphasized that inclusion of the phenomenon of street-working children by the culture serves the legitimization of it causing much more troubles for these children now. Nowadays, the streets are not safe as it was in the past. The primary relationships in small neighborhoods are replaced with secondary relations in the big neighborhoods in tower blocks. The protective natures of primary relationships are not available any more. So that the work experiences of the children are not perceived as the maturation of the child but they are perceived as a destructive and risky process. Another distinctive characteristic is that now the children are seen as a means of earning money and discarding of poverty. The children are convinced that the family is living in poverty and they are the only family members who can earn the needed money. So, the children, feeling all the responsibility of the survival of the family, are emotionally abused by their parents. However, an understanding of the cultural dimension of the phenomenon would open the door for a strengths-based perspective taking strengths of the children –and culture– into consideration. Therefore, the purpose of this study is to explore these strengths for better policies and social work intervention, and to show the differences of Turkey in terms of the street-working practices.

METHOD

This research is a descriptive one that tries to describe and understand the socio-demographic characteristics and solidarity networks of the street-working children, and meaning they attribute to their working on the street. In doing so, the research was conducted as an exhaustive one lasted from May 2006 to 2009 on 931 street-working children in Diyarbakır (32,7%), Elazığ (5%), Mersin (7,6%), İzmir (7,3%), Malatya (13,9%), Siirt (0,5%), Van (11,9%), and Batman (21,1%) in Turkey. These children receive social services from the Children and Youth Centers (ÇOGEM) in these cities under the General Directorate for Social Services and Child Protection Institution. ÇOGEMs are not like the children and youth centers in the West, but specifically target street-living and street-working children.

These eight cities were chosen due to the fact that they have been the cities of origin for both immigration and forced migration in Turkey for since the 1950s and the 1980s respectively. Furthermore, a pilot study was conducted by the authors in Malatya on 30 street-working children to enable an appreciation of some of the issues involved.

The authors employed two main methods in this study. First they prepared and applied a questionnaire comprised of 197 questions, whereas only 51 of them were analyzed for this study. Data were collected by eight social workers who work in these ÇOGEMs with these children attending the centers between 2006 and 2009 under the supervision of researchers. The social workers applied the

questionnaires with the children face to face, and each took approximately one hour. Secondly, the authors made use of their own and social workers' observations at the research sites.

Finally, the questionnaires were collected in preparation for data processing. The questionnaires were edited to check for those that were not properly filled and those that were full of unanswered questions. At the end of this exercise, 931 questionnaires passed the editing stage. Data were analyzed via the SPSS (Statistics Package for Social Sciences 15.00) software program.

RESULTS

Socio-demographic characteristics

91,9% of the children in this study is comprised of male. Black (1993) lists different countries in terms of the gender distribution as the following: Brazil (90%), Uruguay (84,4%), El Salvador (85,9%), Sao Paulo (80,7%), and Cordoba (79,1%) all these ratios indicating the male intensity.

93,8% of the children in this study is between 7-16 years of age. This finding is in accordance with previous research (Altıntaş, 2003; Institute of Social Research and Development, 1990; UNICEF, 1998; Philips, 1994; Atauz, 1997; İlik ve Türkmen, 1994).

Great majority of the children (73%) were students in the primary school during the data collection. School attendance differs from country to country (Philips, 1994).

Approximate total income of the family including the money the child brings on average is concentrated between 150 TL (70 Euro) and 550 TL (250 Euro) per month.

Almost half of the fathers (47%) were graduated from the primary school. 17,2% of the fathers are illiterate, and 21,2% of them are literate, but never attended school. 60,9% of the mothers are illiterate. Only 17,8% of them were graduated from the primary school. Educational status of the parents was found very low in general. These findings are in line with Altıntaş's research (2003).

As to the social security of the families, 73,1% of the families hold green card which is given to the poor people by the government and covers only part of their health expenditures. Besides their right to the green card, these families receive no social assistance. Distribution of the fathers' jobs shows that 42,4% of all are workers working for the minimum wage. A significant number of all (24,8%) are unemployed. Great majority of the mothers (87,1%) are housewives.

It seems that 63,2% of the families immigrated to the metropolitan cities mostly from the South-eastern Turkey between 1990-2000 (72,6%).

Type of housing shows that these families have their own *gecekondu*s (63,4%). The ones who are tenants (35,1%) pay 100 TL (45 Euro) per month. These houses are so inadequate that 41,8% of them lack at least one room inside (toilet 26,4; bathroom 7,9; kitchen 1,9; all the three 6,2%). This means that the three rooms are constructed as a separate part in the garden. These houses generally have 2-3 rooms (76,2%). Children do not have any separate rooms (88,8%).

Solidarity networks

Solidarity networks in this study are comprised of family, relatives, and peers.

The results indicate that there is no breakdown in the family as a problem. 89,9% of all the parents are alive, and interestingly, all of them live together keeping their unity. For 96,2% their marriage is the first. The results show that the average age of the fathers is so young (40). Mothers are even younger (37). And 70,7% of the parents have 4-7 children. As we know from our observations in the field and

according to the Turkey's Shadow Report, the marriage age of the women starts from the age of 13 and the men's from 17. The 30.6% of women in Turkey are "child brides" (Turkey's Shadow Report, 2004).

As to the relationship of the children with the parents, their relations with the fathers are mostly stated as good or very good (74%). Relations with the mothers are even higher (90,6%).

Almost half of the families have at least two children working on the street (49,7%) in order to contribute to the family income.

As to the route they follow in settling in a neighborhood in the city of migration, 73,9% follow the relative network constituted by the ones who had already immigrated.

The results indicate that the half of the children choose their friends on the street within their solidarity networks (relatives, peers who work with them, and peers from their neighborhood).

Even if the children escape home in order to work on the streets of another city, all of them again find themselves within relative networks. And only 12,1% of all the children escape home.

Their security needs also prove the strong solidarity networks. 77% of all state that they are protected on the street by friends (39,7%), relatives (29,6%), neighbors (10,7%), and the police (10,5%). The children trust their solidarity networks in case of a threat or danger on the street (64,3%). The ratio of the ones who trust the police is only 14,6%.

Meaning attached to working on the street

The children in this study mostly began working on the street when they were between 6-12 years of age (89%). And as to how long they have been working on the street, it appears that 74,2% of them have been on the street for 2-8 years.

Distribution of the type of work they are involved in is shown in the following table:

Table 1. Type of Work

Type of Work	Number	%
Street vendor (fire, nuts, chocolate, razor blade, pencil, match, handkerchief, mussel, accessories, toys, battery, chewing gum, bagel, cigarette, pocket knife, scissors, belt, lemonade, socks, water, vegetables, etc.)	453	48.6
Shoe shining	299	32.1
Weighing	35	3.8
Hand truck	27	2.9
Apprenticeship	17	1.8
Garbage collecting	12	1.3
Agricultural work	6	0.6
Not working	67	7.2
Others	15	1.6
Total	931	100

The children primarily work in the squares of the city (67,1%) in order to earn more because these are the most crowded places of the city (81,5%). Nevertheless, they do not find these places secure (77,8%). These places are not secure because there are youth gangs (32,9%) and some adults maltreat them (the police, 23,9%; the people around, 16,9%).

The children state that the most common negative attitudes they face are seizure of their money (35,2%), and verbal violence (32,2%).

The results on the cause of their working on the street indicate that almost all (91,9%) work in order to contribute to their family income. Surprisingly the children indicated that they decided to work on the street by their own will with the ratio of 49,8%. The other factors (will of the family, 34,2%; influence of peers, 11,3%; and influence of relatives, 4,6%) that affected their decision do not mean that the children found themselves on the street without their will. The following table shows how the children use the money they earn.

Table 2. How the Children Use the Money They Earn

How they use the money they earn	Number	%
They give all or almost all the money to their families	757	81.3
They give half of the money to their families	59	6.3
They give a little amount of the money to their families	35	3.8
They use the money for themselves	27	2.9
No answer	53	5.7
Total	931	100

The ratio of the ones who give all or some of the money they earn to their families by their own will is 83,9%. And the ones who keep their money for themselves spend it mostly for their school expenditures (34,3%) and food (25,1%).

As we indicated before, the children are emotionally convinced to take the responsibility of survival of the family and because they are children and they are in need of believing their parents or other adults, they gradually believe and accept their new roles in the family.

After all the children are not happy with working on the street (65,2%) because they find working on the street very insecure (40,5%) and tiring (27,5%). On the other hand, some children (34,8%) are happy with working on the street because they think they may contribute to their family income (68,2%).

The results show that the children hanker mostly for sufficient income (44,6%), affection (19,3%) and nice food and clothing (17,1%).

Most of the children state that they expect to be teacher (23,9%), doctor (16,3%), football player (12,1%), and policeman (11,7%).

DISCUSSION AND CONCLUSION

This study claims to be a unique contribution to the literature on street-working children focusing on the strengths of the children such as the solidarity networks they establish and exploring the meaning they attribute to the place they turn into a space. These two are also the factors that make Turkey distinctive in terms of street-working children.

Unlike what literature shows on street-living children, this study explores that, in Turkey these children are not the victims of family breakdown (Manadhar, 1994; Zeytinoğlu, 1989, Patel, 1990). On the contrary, these are the children of very strong nuclear families, in which relations of children with their parents are highly positive. Nevertheless, these children are not forced but most probably convinced emotionally to work on the street by their parents. They convinced to work by their own

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will because they believe that they will contribute to the family income which is very low compared to the average income in Turkey. These are the poorest of the poor because they are the newcomers to the metropolitan city which has already long been populated by the people from rural areas in the process of urbanization. They are especially vulnerable compared to the others because as they were displaced they had to leave everything behind.

Therefore, this vulnerability became the motive behind their endeavor to establish strong solidarity bonds which transformed street-working practices as well. Hence, the general picture of street-working children is somehow different from other countries. For example, despite the fact that the children in this study started working on the street at a very early age (6 years) they haven't got acquainted with street-living children. Their solidarity networks are constituted firstly by their families then, relatives and neighbors, and peers. These networks are not only perceived as a protector of the children on the street without any need for the police protection, but also determine the route they follow for migration and location they end up with. Although these networks provide a shield for the children against the dangers of the street, these children still find the streets insecure. It is obvious that these are so strong children that they go on working on the street by their own in order just to contribute to family income. It also shows their strength; they give almost all their earnings to their families by their own will. Moreover, the ones who keep their money for themselves spend it for meeting their school needs, which proves how they become "little men/women" having responsibility in life. What they long for in life is also a very good sign of this. They state that theirs is a longing for sufficient income for their families. Their expectation from life also reproduces their status as "little men"; majority of them want to be teacher or doctor in the future. It is interesting that a significant number of the children want to be a policeman; this points out how they try to exist in an extremely insecure environment in spite of their solidarity networks.

It should be noted that all these factors that empower these children on the street also reproduce and legitimate their existence as street-working children on the street. On the other hand, all the professional interventions must locate these children as the agents/actors of their own life while considering all the negative factors surrounding their working experience such as family's emotional abuse and threats and risks at the streets.

Also, what makes them "little men/women" will constitute the basic ground of any endeavor to help them improve their social functioning. As a result, what makes the practice of street-working children in Turkey should also be the main focus of both social policies and social services delivered for them.

It appeared as a result of the research that there is a great need for further research on street-working children especially from a qualitative methodology. The results of the research show that solidarity networks and how the children interpret their existence on the street constitute the ground for understanding the phenomenon. Therefore, in-debt and focus group interviews would be efficient tools for a comprehensive understanding of the street-working children.

REFERENCES

B. Altıntaş (2003). *Mendile, Simite, Boyaya, Çöpe: Ankara Sokaklarında Çalışan Çocuklar* Istanbul: İletişim.

L. Aptekar, (1994). 'Street Children in the Developing World: A Review of their Condition', *Cross-cultural Research*, Vol. 28

S. Atauz (1997). *Diyarbakır Sokak Çocukları Araştırması* Istanbul: Uluslararası Lions MD-118U Yönetim Çevresi.

BAAK, *Türkiye Aile Yıllığı* (1991) Ankara: T.C. Başbakanlık Aile Araştırma Kurumu, 1991.

M. Black, (1993). 'Street and Working Children', *Innocenti Global Seminar.* Florence Italy: UN Children's Fund, February 15-25.

H.Ü. Nüfus Etütleri Enstitüsü, (2006). *Türkiye Göç ve Yerinden Olmuş Nüfus Araştırması* Ankara: H.Ü. Yayınlari.

http://www.memurlar.net/haber/36511/, last date of visit: 12/5/2009.

http://www.milliyet.com.tr/default.aspx?aType=HaberDetay&ArticleID=521178, last date of visit: 12/5/2009.

B. İlik and Z. Türkmen (1994). *Sokakta Çalışan Çocuklar* Ankara: ILO/IPEC.

Institute of Social Research and Development, (1990). *A Report of a Study on Children in Especially Difficult Circumstances, Street Children of Karachi*

O. Işık and M. Pınarcıoğlu (2001). *Nöbetleşe Yoksulluk – Sultanbeyli Örneği* Istanbul: İletişim.

A. James and A. Prout (ed.) (1990). *Constructing and Deconstructing Childhood* London: Falmer Press

O. Lewis, (1975). *Five Families: Mexican Case Studies in the Culture of Poverty* Basic Books

N. Manandhar (1994). 'A Situation Relating to Street Children in Nepal', A. J. Rane (ed.), *Street Children A Challenge to the Social Work Profession* Bombay: Tata Institute of Social Sciences.

F. Merter, (1990). *1950-1998 Yılları Arasında Köy Ailesinde Meydana Gelen Değişmeler - Malatya Örneği* Ankara: T.C. Başbakanlık Devlet İstatistik Enstitüsü.

M. Pare, (2003). 'Why have Street Children Disappeared? The Role of International Human Rights Law in Protecting Vulnerable Groups', *The International Journal of Children's Rights,* Vol. 11 , pp.: 1-32.

S. Patel, (1990). 'Street Children, Hotel Boys and Children of Pavement Dwellers and Construction Workers in Bombay: How They Meet their Daily Needs', *Environment and Urbanization*, Vol 2

W.S.K. Philips (1994). *Street Children in India. Jaipur and New Delhi* . New Delhi: Rawat Publication,

G. Standing and V. Tokman, (1991). *Towards Social Adjustment*. Geneva: ILO

CEDAW (2004) Turkey's Shadow Report (Türkiye Gölge Raporu)*,* www.kadinininsanhaklari.org/yayinlar.php.

UNICEF, A (1998). Background Paper on Street Children submitted at the *National Workshop on the Street Children* 29th and 30th August 1998, New Delhi.

S. Zeytinoğlu (1989). 'Sokakta Çalışan Çocuklar ve Sokak Çocukları', *Çocuk İstismarı ve İhmali, Çocukların Kötü Muameleden Korunması I. Ulusal Kongresi*, (Ankara: 12-14 June 1989).

A SURVEY OF STUDENTS AND FACILITATORS' PERCEPTIONS OF PROBLEMS IN OPEN UNIVERSITY SYSTEM, OYO AND KWARA STATES, NIGERIA

Dr. A. Y. Abdulkareem
University of Ilorin,
NIGERIA
ayabdulkareem@unilorin.edu.ng

Dr. S. O. Afolabi,
Kwara State University, Malete
NIGERIA
stephen.afolabi@kwasu.edu.ng

Dr. O. G. Olorisade
Kwara State University, Malete
NIGERIA
olayiwola.olorisade@kwasu.edu.ng

ABSTRACT

National Open University which was formally established in Nigeria in 1983 aimed at bridging the existing gaps in education. The study is a survey research of descriptive type which unveiled the myriads of problems facing the National Open University of Nigeria as perceived by the facilitators and the students in Kwara and Oyo States. Forty facilitators and fifty students randomly selected from Kwara and Oyo States study centres participated in the study. Questionnaire was the major instrument used while simple percentage and chi-square statistics were used to analyze the research questions and the two hypotheses generated respectively. The findings of the study revealed lack of standard classrooms, inadequate supply of electricity and inadequate funding which are the variables of resource allocation and organization, as major problems facing the Open University Programme in Nigeria. However, the study revealed that there is no significant difference between facilitators' and students' perception of the problems associated with resource allocation and organization of programmes. It was therefore, recommended among others that adequate funds should be made available by the government, the institution should make course materials and computer-based media available at all study centres for students' use. Also, uninterrupted academic calendar of the university must be ensured while internet services should be provided at all study centres.

Keywords: Open University System, Resource Allocation, Organization, Facilitators, Problems, Hindering

INTRODUCTION

Since 1960s, the Government of Nigeria has been committed to remedying perceived deficiencies in the colonial education strategies, which focused only a few privileged people in the society. This has catalyzed socio-economic development using educational policies as a tool. The formulation of National Policy on Education in 1977 and its revision in 1981 and 2004 ushered in a compulsory education for every Nigerian child from the age of six. This was followed by series of educational programmes which were meant to increase access and quality of education at primary, secondary and tertiary levels.

In response to the demand of many Nigerians for university education, National Open University of Nigeria (NOUN) was established by National Open University Act 25 of 1983 under the administration of President Alhaji Shehu Shagari. The institution could not take off as a result of military intervention. It was resuscitated in 2003 sequel to President Obasanjo's fresh commitment to restart the programme. According to him, the new system would enhance the Government's effort in providing education to all Nigerians by the year 2015.

The Government (Federal Republic of Nigeria, 2004), stated that open and distance education would benefit those who graduated from schools and desire to update their knowledge and skills, those who left schools for one reason or the other, those who did not go to school but are willing to benefit from ''Education For All Programme'' and those who were not successful when they were in school but now

want to remedy their deficiencies. These are meant to provide education for all, life- long learning, adult education, self-learning, personalized learning, part-time studies and mass education which are different types of open and distance education. The Open University programme has a good vision in the provision of equal and life- long education for Nigeria, yet some problems are assumed to be posing serious challenges to the effective operation of the programme in Nigeria. This accounts for the reason why the study is out to uncover the problems as perceived by both the facilitators and students in Oyo and Kwara States, Nigeria.

REVIEW OF RELATED LITERATURE

There had not been opportunity for people who were on the job to pursue learning especially at the higher level. Where it existed, higher education was proliferated without thorough regulation and standard not been maintained. Also characterized such mushroom institutions are unbefitting physical and material resources while some of the manpower engaged in such institutions were not qualified. Initially, all the affiliated institutions were left alone to operate part time courses by the Federal government, until the standard was becoming intolerable. The Federal government had to explore the best alternative at her disposal as contained in the National Policy on Education, which stated that:

> *Maximum efforts will be made to enable those who can benefit from higher education to be given access to it. Such access may be through Universities or Correspondence or Open Universities or part time and work study programme (FGN, 2004) .*

The Open University is considered as the second best to none to offer life-long education that would completely eliminate educational inequality. Osasona (1985) described Open University as the most comprehensive learning programme through which universities get their programmes acquainted to the people. This statement was corroborated by Fagbamiye (2000), when he stated that learning is made open with regards to admission, teaching media, space, time, course contents and course objectives. According to Makinde in Afolabi (2006), many people who had been deprived of higher education in Nigeria on account of geographical isolation, limited educational facilities, shift job, financial incapability, handicap and age will be able to satisfy their educational needs. This is due to the fact that open university system would eliminate all manners of constraints in acquisition of education (Alaezi, 2008).

The Government, (Federal Republic of Nigeria, 2003) stated the objectives of the Open University as:

a) Meeting the learning needs of all young people and adults irrespective of sex, religion or tribe through access to appropriate learning and life skills programme. Thus, Open University is designed to meet the educational needs of nomads, women and disabled.

b) Enhancing access to quality basic and higher education. With substantial number of school age children out of school, National Open University aimed at achieving a high rate of access to higher education;

c) Providing an alternative distance learning delivery and discouraging mushroom outreach and satellite campuses that had no regard for quality.

d) Disseminating knowledge and information to target groups particularly with respect to government policies and activities with a view to promoting socio-political harmony, and national ethics and values;

e) Affording learners the opportunity to study what they want, when and where they want to take place. This is meant to give those on full time occupations and employment to have control over time and space. This makes NOUN to lend itself to synchronous learning;

f) Affording the high level academic personnel the opportunity of maximum utilization of their skills

and talents; and

g) Providing infrastructure for the acquisition and dissemination of educational resources through information and communication technology.

Thus, Open University is a crucial strategy for expanding and improving public education system. Its learning system will allow the nation to respond effectively to the growing demand of working adults and others who have difficulty in getting training in conventional education because of lack of flexibility in the time and location. Therefore, National Open University (NOUN) which was formally established on 22nd July, 1983 was meant to be the fountain-head and springboard of modern day open and distance education in Nigeria.

Moreover, Kayes and Rumble (1981) described open and distance education as a system which uses various instructional media, provides access and quality education for diverse learners in a cost effective and efficient manner and assists learners to develop their full potentials. Also, Akande in Babarinde (2006) stated that distance education is a cost effective system of instruction, independent of time, location, pace and space. In spite of its numerous advantages, open and distance learning system has been identified with poor facilities, lack of qualified personnel, poor electricity supply and poor administration (Fasasi, 2004).

METHODOLOGY

The study is a descriptive survey that x-rays the opinions of facilitators and students on the problems facing the operation of the Open University in Nigeria. A researchers' designed questionnaire containing 13 items on resource allocation and organization of Open University in Nigeria was used to elicit the data needed. The questionnaire was pilot tested at the Open University, Ilorin study using five facilitators and ten students who were not part of the sample for the study. The instrument was validated and using test-retest method a reliability coefficient of .76 was obtained. Stratified random sampling technique was adopted to select 20 facilitators and 25 students each from Oyo and Kwara States study centers, making 90 participants in all.

The following research questions were answered:

1. Is resource allocation to Open University adequate?

2. What is the facilitator and students' perception of organization of NOUN?

Also the following hypotheses were generated and tested in the study:

Ho 1: There is no significant difference between facilitators and students' perception on problems associated with resource allocation at Open University programme in Nigeria.

Ho 2: There is no significant difference between facilitators and students' perception on problems associated with organization of Open University in Nigeria.

Percentage was used for analysis of the facilitators and the students' responses to research questions. For easy analysis of the research questions, Likert-four point rating scale of 'strongly agree' and 'agree' were brought together while 'disagree' and 'strongly disagree' options were brought together. Chi-square (ð) statistic was employed to analyze the two hypotheses generated for the study.

DATA ANALYSIS

Research Question 1: Is resource allocation to Open University adequate?

Table1. Percentage Analysis of Facilitators and Students' Perception of Resource Allocation to Open University Programme in Nigeria.

S/N	ITEMS	Strongly Agree	Agree	Disagree	Strongly Disagree
1	Provision of standard classroom	3(3.3%)	2(2.2%)	50(55.5 %)	35 (38.9%)
2	Provision of laboratory for practical	2 (2.2%)	0	52(57.8%)	36 (40%)
3	Adequate facilitators	20(22.2%)	35(38.9%)	28(31.1%)	17 (18.9%)
4	Adequate course materials	7 (7.8%)	23(25.6%)	40(44.4%)	20 (22.2%)
5	Available internet services at study center	0	2 (2.2%)	40(44.4%)	48 (53.3%)
6	Regular supply of electricity	1 (1.1%)	0	52(57.8%)	37 (41.1%)
7	Adequate funding	5 (5.6%)	20(22.2%)	31(3.3%)	34 (37.8%)
8	Qualified facilitators are engaged	39 (43.3%)	36(40%)	15(16.7%)	10(11.1%)

Table1 gives the summary of both the facilitators and the student's views on problems associated with the resource allocation for the operation of Open University in Nigeria. Respondents who agreed were 5.5% as against 94.5% who disagreed that there was provision for standard classrooms. Also, 2.2% of them agreed that laboratory was made available for practical teaching, 23.3% agreed that adequate provision was made for students' course materials, 2.2% agreed that there was provision of internet service at the study centers 1.1% agreed that there was a regular supply of electricity at the study centers. Also, 27.8% responded that there was adequate funding for the NOUN programme. On the quality of facilitators recruited by Open University, 75 respondents representing 83.3% agreed that they are of good quality. In a nutshell, the problems identified by the majority of the respondents are lack of standard classrooms, lack of Science laboratory for practical purpose, inadequate provision of course materials for the students, interrupted power supply, lack of internet service at the study centers.

Research Question 2: What is the facilitator and students' perception of organization of National Open University of Nigeria?
Table 2. Percentage Analysis of Facilitator and Students' Perception on Organization of National Open University of Nigeria.

S/n	Items	Strongly Agree	Agree	Agree	Strongly Disagree
1	Interaction among the students	6 (6.7%)	8 (8.9%)	46 (5.1%)	30 (33.3%)
2	School fees is very high	35 (42.2%)	45 (0.5%)	4 (4.4%)	6 (6.7%)
3	Difficult to combine domestic work, secular job with learning	46 (51.1%)	34 (37.8%)	10 (11.1%)	0
4	Non completion of the programme on time	46 (51.1%)	40 (44.4%)	3 (3.3%)	1(1.1%)
5	Non interruption of tutorial periods	12 (13.3%)	8 (8.9%)	20 (22.2%)	50 (55.5%)

Table 2 is on the facilitators and students' perception on the organization of Open University programme in Nigeria. Analysis shows that 14 representing 15% of the total respondent's agreed that interaction among the students is encouraged as against 76 (84.4%) respondents. Also, 80 respondents representing 88.9% agreed that school fees charged at the Open University is high. Similarly 80 representing 88.9% of the respondents agreed that the learners found it difficult to cope with the rigor of combining the domestic work and secular job with learning. Also, 86 representing 95.6% of the respondents agreed that the learners do not complete the programme on time. Lastly, 20 respondents (22.2%) agreed to the item, which stated that there is no interruption of tutorial hour. It can be inferred that the learning is not organized in such a way that interaction among students could be enhanced, school fees is high, there is difficulty in combining secular job with the learning and there is non- completion of the program on time.

Hypothesis Testing

Ho 1: There is no significant difference between facilitators and students' perception on problems associated with resource allocation at National Open University programme in Nigeria.

Table 3. Chi- square Analysis of Facilitators and Students' Perception of Resource Allocation at National Open University in Nigeria.

Respondents	SA	A	D	SD	TOTAL
Facilitators	15	10	8	7	40
Students	20	15	10	5	50
Grand Total	35	25	18	12	90

SA: Strongly Agree; A: Agree; D: Disagree; SD: Strongly Disagree

In Table 3, the calculated chi-square (ð) value is 1.41 while the critical ð-value is 7.815 at df(r-1)(k-1) of 3.Comparing the two figures, the calculated value is found to be less than the table value, which implies the acceptance of the hypothesis, which stated that there is no significant difference between facilitators, and students' perceptions on the problems associated with resource allocation at the Open University in Nigeria.

Ho 2: There is no significant difference between facilitators and students' perception of problems associated with organization of Open University in Nigeria.

Table 4. Chi- square Analysis of the facilitators and students perception on problems associated with the organization of Open University in Nigeria.

Respondents	SA	A	D	SD	TOTAL
Facilitators	12	16	7	5	40
Students	10	20	8	12	50
Grand Total	22	36	15	17	90

SA: Strongly Agree; A: Agree; D: Disagree; SD: Strongly Disagree

Ín table 4, the calculated chi-square (ð) value is 3.078 while the critical ð-value is 7.815 at df(r-1)(k-1) of 3. Comparing the two values revealed that there is no significant difference between the facilitators and learners' on the problems associated with the organization of Open University in Nigeria.

DISCUSSIONS

The findings of the study affirmed the existing fundamental problems bewildering the operation of Open University in Nigeria. Such problems as revealed by the study are lack of standard classroom, lack of laboratory for practical exercises, inadequate facilitators, inadequate course materials, lack of internet services at study centre, irregular supply of electricity at the study centre and inadequate funding. Non-provision of the essential facilities shows a deviation from the original plan of the Government (Federal Republic of Nigeria, 2003).

Inadequacy of the relevant course materials for the distance-learning programme in Nigeria has been a major hindrance to the success of distance learning in Nigeria. This is contrary to the view expressed by Kegan in Babarinde (2006) that the recruited professionals are to produce adequate course materials, conduct tutorial and design the methodology for the programme.

The importance of physical resources to the success of Open University, as stressed by Akande in Babarinde (2006) has not been met. The study shows that there are no standard classrooms for proper interaction between the facilitators and the learners. This has been a great obstacle to the operation of the Open University in Nigeria.

CONCLUSION

National Open University in Nigeria is faced with many challenges which could hinder the achievement of the laudable objective of the distance-learning programme. There is need for adequate attention to the problems so that the purpose of its establishment could be actualised .

RECOMMENDATIONS

Indeed, National Open University of Nigeria has a good vision in the provision of equal and life-long education for the Nation. However, for this vision to be realized, the following recommendations are noteworthy.

Firstly, the government should ensure that qualified personnel are employed. The staff should be well remunerated and their welfare should be taken care of.

The multimedia facilities such as print, written correspondence, audio, video computer based media, telephone and television must be made available to the students at subsidized prices. This will afford them the opportunity to procure the facilities at a minimum cost.

Electricity supply must be improved in all the study centers for the success of distance learning programme in Nigeria. This will enable users of teaching and learning facilities to derive maximum benefit from them

There is a need to build modern library at every local government area in the country. This would avail the learners in the Open University the opportunity to pursue the programme without rigor.

The authority should ensure that there is no interruption in the academic calendar of the University. Therefore, adequate supervision of the programme must be put in place to ensure that the facilitators attend classes and course materials sent to the learners on time.

Learning facilities such as laboratories and classrooms should be provided in good quality at all study centers. Also, Internet services should be provided at all study centers to guarantee easy accessibility of all students to all aspects of the programme.

REFERENCES

Afolabi S.O (2006).National Open University. A remedial approach to inequality in life long education in Nigeria. *Ilorin Journal of Teacher Education* 3(1), 27-33.

Alaezi, O. (2008).Open school in Nigeria: The reality and challenge. In A. Ejiogu & V. Onyene (Eds.). *Emergent issues in Nigerian education*. 4, (pp.122-133). Lagos: Mukugamu & Brothers Enterprises

Babarinde R.S (2006). Feasibility of computer aided instruction application in distance learning system in Nigeria. *Ilorin Journal of Teacher Education* 3 (1), 43-45

Fagbamiye, E. O. (2000).The organization and administration of distance education. In J. O. Fadipe & E. E. Oluchukwu (Eds.). *Educational planning and administration in Nigeria in the 21st century*. Chapter 27 (pp.337-343). A publication of National Institute for Educational Planning and Administration, Ondo.

Fasasi, Y.A. (2004).Open and distance learning: A strategy for the development of human resources in Nigeria. In E. O. Fagbamiye, J.B. Babalola, M. Fabunmi & A. O. Ayeni (Eds.). *Management of primary and secondary education in Nigeria*.(pp.193-203). Ibadan: NAEAP Publications.

Federal Republic of Nigeria (2003). *Blue print and implementation plan for the National open and distance learning programme*. Abuja: Federal Ministry of Education.

Federal Republic of Nigeria (2004*). National Policy on Education*. Abuja: Federal Ministry of Education.

Kayes, A. & Rumble, P. (1981). *Distance teaching for higher and adult education*. London: Crown Helm.

Osasona, I.S. (1985). Using educational technology for effective learning in the distance learning system. *Journal of Nigerian Association for Educational Media and Technology*. 5 (1), 135-140

TEACHERS' PERCEPTION OF SUPERVISORY ROLES IN PRIMARY SCHOOLS IN OSUN STATE OF NIGERIA

Dr. Y. A. Fasasi
Department of Educational Management
University of Ilorin
NIGERIA
yunusadeb@unilorin.edu.ng

ABSTRACT

The focus of this study was on supervisory roles as perceived by primary school teachers in Osun State of Nigeria. Stratified random sampling method was used to select 330 teachers who responded to 'Supervisory Role Perception Inventory'. The t-test statistic was used to analyse the data collected on the three hypotheses that were formulated in the study. It was found that male and female teachers tend to have a similar perception of supervisory roles; that perception of supervisory roles tends to be different between experienced and less experienced teachers; and that, teachers in urban and rural schools tend to be different in their perception of supervisory roles. Conclusion was that supervisory role perception among primary school teachers was influenced by the teachers' years of experience and location of schools. Recommendations included regular conferences, seminar and workshops for teachers and supervisors in order to encourage positive perception and foster good relationship among them.

Keywords: Role perception, supervisors, primary schools, urban and rural schools

INTRODUCTION

Supervision in education is a specific occasion for examining a school as place of learning. It is also a continuous process of guidance which is focused on different aspects of the school (Musaazi, 1982). In a similar vein, Ukeje, Akabogu and Ndu (1992) see it as a process of guiding and coordinating the work of teachers and all people connected with a school in such a way that educational objectives are achieved. These definitions show that the act of supervising involves either an occasional or a regular visit by an educational supervisor, whereby attention is focused on different aspects of the school organization with a view to assisting teachers.

A supervisor is somebody who guides and coordinates the activities of teachers and other school personnel towards the realization of educational objectives. He mediates between people and school programmes in order to ensure that the processes of teaching and learning are improved (Ogunsaju, 1983a).

Although personnel within a school do perform supervisory duties, supervisors from the ministry of education are the focus in this study. These officials are also referred to as school inspectors (Ogunnu, 2002). Heads of schools, heads of departments and class teachers who perform supervisory assignments in schools are basically teachers.

Supervisory roles are the functions which a supervisor performs in schools. The Government, the society and the teachers have expectations on what a supervisor should do. These are the roles the supervisor is expected to play towards the realization of educational objectives. For example, the supervisor is assigned to a school in order to assist teachers in solving educational problems, serve as

a link between the teacher and the government and contribute to teachers' improvement on the job (Olagboye, 2004).

Before Nigeria attained independence in 1960 and shortly after, school supervisors acted as government agents. They assessed teachers and gave instructions on what must be done in the schools. Ajayi (1985), noted that supervision was focused on teachers' personalities purposely to find faults, judge and criticize. He stated further that a master-servant relationship existed between the supervisor and the supervisees. However, modern concept of supervision focuses on improvement of teaching and learning in school. Supervisors are supposed to complement the efforts of various educational agencies in providing guidance, evaluation, co-ordination and information services to teachers. They are also expected to contribute to growth, development and stability of the education system (Lambo & Ihebuzor, 1990). Similarly, the Government stated that the responsibility of school supervisors includes giving information to teachers on instructional materials and effective teaching methods; serving as a link between teachers and appropriate authorities; and, monitoring the overall quality of education in schools (Federal Republic of Nigeria, 2004). As observed by Chike-Okoli (2006), supervision has been transformed from one conducted by an 'all-knowing' official called 'inspector' to the present-day democratic and co-operative interchange between the supervisor and the supervisee.

As in other states of Nigeria, teachers in Osun State primary schools have certain differences which could affect their job performance. They differ in years of experience, location of working place and level of competence. A supervisor has many roles to play in order to assist the teachers in their different categories. According to Ogunsaju (1983b), new teachers need proper orientation on performance of their duties; old teachers need to be exposed to innovations in the education system, while incompetent teachers need improvement on their areas of incompetency.

Therefore, the supervisors are to play complementary roles with the teachers in order to ensure a qualitative education for the nation. However, either the supervisor or the teacher could perceive their roles differently as a result of individual differences in needs, values, interests, family background and past experiences. As observed by Ukeje et al. (1992), perceptual difference could lead to perceptual distortion whereby teachers would have wrong impressions about the supervisors who are supposed to be their partners in the education system. This could impact negatively on the achievement of educational objectives.

STATEMENT OF THE PROBLEM

Primary schools are the institutions for providing basic knowledge and skills to pupils between the ages of 6 and 11. Both teachers and school supervisors have the responsibilities of ensuring a solid foundation in which subsequent knowledge and skill acquisition would be built. The need for positive role perception and good relationship among them cannot be overemphasized. The concern in this study, therefore, is whether or not there is significant difference in perception of supervisory roles among primary school teachers in Osun State of Nigeria.

HYPOTHESES

Ho$_1$:   There is no significant difference in supervisors' role perception between male and female teachers.

Ho$_2$:   There is no significant difference in supervisors' role perception between experienced and less experienced teachers.

Ho$_3$:   There is no significant difference in supervisors' role perception between teachers in urban and rural schools.

METHODOLOGY

The design for this study was a descriptive survey carried out 'ex-post facto'. The instrument 'Supervisory Role Perception Inventory' (SRPI) designed by the investigator was used for data collection. The literature review on supervision and supervisory roles showed that a supervisor plays many roles in a school. Four major roles were identified as common to all supervisors. They were guidance, evaluation, coordination and information. Under each major role, six specific roles were identified, making twenty four items in all.

The SRPI was then pilot-tested in two Local Government Areas in Osun State, outside the sample but within the population. As a result, 4 of the original 24 items were dropped leaving 20 items for the inventory.

In order to ensure content and face validity of the inventory, each of the twenty items was thoroughly examined by the researcher. The inventory was also given to specialists in educational supervision for scrutiny. In the process some of the items were restructured while others were retained. Reliability of the Inventory was determined through the use of Kuder-Richardson formula 20. The resulting reliability co-efficient was 0.74. Responses to the SRPI were sought on a four-point Likert scale as follows: Very Often (V.O) =4; Often (0) =3;

Rarely (R)   =   2

Very Rarely (V.R)   =   1

Out of the 30 Local Government Areas in Osun State, 10 were randomly sampled for this study. In each of the sampled Local Government Areas, four primary schools were selected using stratified random sampling technique to ensure that schools from each of the three Senatorial Districts in the state were adequately represented. In each of the schools, 10 teachers were selected by stratified random sampling method to include male and female teachers, experienced and less experienced teachers from schools located in urban and rural areas.

Of the 400 inventories administered, 330 were the usable returns. This represented 82.6% of the number administered. Analysis of data was done, using a t-test statistical method to determine the significant difference between the variables under investigation. The research hypotheses were tested at 0.5 probability level.

RESULTS

Ho₁: There is no significant difference in supervisors' role perception between male and female teachers.

Table 1. Supervisory Role Perception of Male and Female Teachers

Sex	N	$\overline{X}$	SD	t	p	Critical Value	Remarks
Male	134	28	17				
Female	196	32	31	1.48	.05	1.96	NS

N.B.   1.48< 1.96
        Degree of freedom = 328
        NS = Not Significant

The calculated t value was 1.48. There was no significant difference between male and female primary school teachers in their perception of supervisory roles. The hypothesis is therefore accepted.

Ho₂: There is no significant difference in supervisors' role perception between experience and less experienced teachers.

Table 2. Supervisory Role Perception of Experienced and Less Experienced Teachers

Length of Service	N	$\overline{X}$	SD	t	p	Critical Value	Remarks
Experienced	171	45	24				
Less Experienced	159	26	36	5.60	.05	1.96	S

N.B.   5.60 > 1.96

Degree of freedom = 328   S = Significant

The calculated t value was 5.60. This was significant at p< .05. Thus, Table 2 revealed that there is a significant difference in supervisors' role perception between experienced and less experienced teachers. The hypothesis is therefore rejected. This implied that the two categories of teachers perceived supervisory roles differently.

Ho₃: There is no significant difference in supervisors' role perception between teachers in urban and rural schools.

Table 3. Supervisory Role Perception of Teachers in Urban and Rural Schools

Location	N	$\overline{X}$	SD	t	p	Critical Value	Remarks
Urban	170	38	22				
Rural	160	21	28	6.12	.05	1.96	S

N.B.   6.12 > 1.96

Degree of freedom = 328   S = Significant

From Table 3, the calculated t-value is 6.12. This is greater than the critical table value which is 1.96. Therefore, the hypothesis is rejected. The alternative hypothesis which states that there is a significant difference in supervisors' role perception of teachers in urban and rural areas is therefore upheld.

DISCUSSION

Analysis of findings in this study revealed that, in Osun State primary schools, there is no significant difference between male and female teachers' perception of supervisory roles. However, experienced and less experienced teacher's expressed a significant difference in their perception of supervisory roles. Similarly, teachers whose schools were located in urban areas expressed a significant difference in supervisory role perception from the teachers whose schools were located in rural area. Based on the findings, it could be concluded that difference in supervisory role perception among primary school teachers in Osun State, may not be attributed to the teachers' sex. It could be concluded that the teachers' years of experience and rural or urban location of schools are probable reasons for their perceptual differences.

Experienced teachers are likely to have a better understanding of supervisory roles. They are likely to have confidence in their profession as a result of many years of teaching. These could have led to the difference in their perception of supervisory roles when compared with the less experienced ones.

Also, schools that are located in urban areas enjoy certain facilities more than the schools in rural areas. Such facilities are easy communication, adequate and relevant teaching-learning materials, qualified personnel and conducive academic environment. These could have enhanced supervisory activities in urban centres and influenced the teachers' perception of supervisory roles in their schools.

In fact, perceptual difference of supervisory roles among teachers makes it imperative on the supervisors to perform their expected duties, which centres on improvement of teaching-learning situations (Chike-Okoli, 2006). More so, the difference seems to have been due to the teachers' experience and school location. Therefore, new teachers and teachers serving in different geographical locations need proper orientation, exposure to innovations and assistance towards better job performance. Supervisory duties could focus on these aspects in order to enhance perception of teacher-supervisor's interdependent roles.

Naturally, there are individual differences. This would affect the perceptual level of individuals. It could also cause perceptual distortion among them (Ukeje, et al 1922). The supervisor therefore has the responsibility of encouraging teachers to have a positive perception of the roles of their supervisors.

RECOMMENDATIONS

There should be regular meetings of supervisors and supervisees through workshops and seminars. These could foster positive relationship and better understanding of their interdependent roles.

Teachers of different categories and in different locations should be given adequate assistance by the supervisors. In doing this, supervisors should concentrate on activities that are meant to improve teaching and learning in schools rather than focusing attention on teachers' personalities.

Finally, supervision should be conducted regularly in all schools in order to enhance interaction among teachers and supervisors.

REFERENCES

Ajayi, K. (1985). The inspectorate in the Nigerian education system (1842- 1984): Problems, challenges and prospects. *Journal of Teacher Education*. 1 (1), 33- 47.

Chike-Okoli, A. (2006). Supervision of instruction and accountability. In J. B. Babalola, A. O. Ayeni, S. O. Adedeji, A. A. Suleiman & M. O. Arikewuyo (Eds.). *Educational management: Thoughts and practice*. Ibadan: Codat Publications pp. 187- 218.

Federal Republic of Nigeria (2004). *National policy on education*. Lagos: NERDC.

Lambo, L. C. & Ihebuzor, N.A. (1990). *Towards improving educational standard in language arts: The role of supervisors and inspectors*. Paper presented at the second national workshop on supervisory and inspectorate services in the 6- 3- 3- 4 system of education. Ilorin: Institute of Education, University of Ilorin.

Musaazi, J. C. S. (1982). *The theory and practice of educational administration*. London: Macmillan press limited.

Ogunnu, M. A. (2002). The roles of school inspector in the implementation of the Universal Basic Education Scheme. In T. Ajayi, J. O. Fadipe, P. K. Ojedele & E. E. Oluchukwu. (Eds). *Planning and Administration of Universal Basic Education* (UBE) in Nigeria. Ondo: National Institute for Educational Planning and Administration. Chapter 27, pp. 269- 284.

Ogunsaju, S. (1983a). *Educational supervision: Perspectives and practices in Nigeria*. Ife: University of Ife Press Limited.

Ogunsaju, S. (1983b). Nigerian teachers and supervision: The supervisor's role. *The Inspector*. Journal of Federal Inspectorate of Education 3, (1), 26- 28.

Olagboye A. A. (2004) *Introduction to educational management in Nigeria*. Ibadan: Daily graphics (Nigeria) limited.

Ukeje, B. O., Akabogu, G. C. & Ndu, A. (1992). *Educational administration*. Enugu: Fourth Dimension Publishing co., Ltd.

E-GOVERNMENT ADOPTION AMONG BUSINESSES IN JORDAN

Mohammad Al-Zoubi
Department of Technology Management
University Utara Malaysia
MALAYSIA
Abu4212@yahoo.com

Dr. Thi Lip Sam
College of Business
University Utara Malaysia
MALAYSIA

Dr. Lim Hock Eam
College of Business
University Utara Malaysia
MALAYSIA

ABSTRACT

This study investigates e-government adoption among businesses in Jordan. Specifically, the objectives of the study are twofold: (a) to determine the status (level) of e-government adoption among businesses in Jordan, (b) to identify the factors that drive e-government adoption among businesses in Jordan. For this purpose, an integrated theoretical framework for assessing e-government adoption, beyond initial adoption was developed. The responses of 113 firms were used to determine the relationships between technological, organizational, and external factors and adoption of e-government. The result found the existence of significant relationship between the technological, organizational, and external factors and the businesses e-government adoption. It is further found that higher explicitness and accumulation of technology can help the transfer of technological knowledge within the organization and can raise the capability to adopt innovative technologies.

Keywords: E-Government; E-Commerce; E-Business; Businesses; SMEs; Literature Review; Hierarchical Cluster

INTRODUCTION

The revolution in information communication technologies (ICT) has resulted in changes in many aspects of people's daily lives around the world. This revolution has also changed the way governments around the globe interact with their citizens, businesses, agencies, employees and other stakeholders (Lee, 2010). These changes and development have promoted the adoption of electronic government or e-government (Raus, Liu, and Kipp, 2010; Elsheikh, Cullen, and Hobbs, 2007). The revolution in ICT has raised the attention among researchers and the information system practitioners worldwide. The field of e-government has become an important subject around the globe (Siau and Long, 2006; Chen, Chen, Huang, and Ching, 2006).

Electronic government or e-government as some authors call it has become a pervasive global phenomenon in both industrialised and developing nations (Pacific Council on International Policy, 2002). E-government refers to the public sector uptake of technology applications to enhance services delivery to citizens, businesses, and other agencies, 24 hours a day, seven days a week (Seiferr and Bonham, 2004).

The general perception is that e-government uptake helps to reduce costs by making operations more efficient, serving citizens better and, reducing complex and over-stretched bureaucratic system (Basu, 2004). Therefore, the adoption of e-government has become a major for the policy planning by many countries which led to allocate significant amount of resources towards the implementation of e-government initiatives.

A broad definition of e-government is the use of ICT, particularly internet application by government to increase the availability of necessary information and services to citizen, business organisations and other institutions (Layne and Lee, 2001). Therefore, it is argued that enhancing economic development is one function of e-government. By using e-government technology, government can facilitates the delivery of and ease access to timely information and services to businesses and therefore, can be one type of customized assistance used by government to promote the economy. Ideally anyone who can access the internet can access the information and services. Presumably e-government could be used to enhance developing countries economic development.

Joseph (2009) has highlighted the importance of the interaction between government and businesses via the web environment that he refers to it as G2B. Past literature highlighted several advantages of business organizations adoption of e-government. For example, reducing the amount of time and money that businesses must spend to comply with rules and regulations (Awan, 2007). According to DeBenedictis et al. (2002), this can be done in five ways namely providing information in one easy-to-access location; simplifying and streamlining reporting requirements; reducing the number of forms; making transactions easier (paying fees, obtaining permits); and helping businesses understand what regulations apply to them and how to comply with them. Together, these capabilities can have a significant impact on a business's bottom line. Another significant advantage of such e-government is attracting foreign direct investment (FDI). E-government service uptake by the business organization helps in creating an attractive atmosphere for FDI. As reported by Kostopoulos (2006), some Arab countries including Jordan wanted to use e-government services to attract foreign direct investment (FDI) through transparency, accountability, and efficient public service towards the basic needs of individuals and businesses.

In addition, the Jordanian government realized the need to implement e-government in order to take advantage of the opportunities offered by international trade. Jordan would need more efficient, market-oriented customs regime to comply with World Trade Organization (WTO) requirements, capable of handling increased traffic at the borders while at the same time preventing the entry of pirated software (Tadros and Assem, 2006). As such, the Jordanian government has invested heavily in e-government initiatives for the last 10 years. However, it seems there is a lack of empirical evidence regarding the current stage of e-government adoption and what influence business organizations in Jordan to adopt e-government from the demand side perspective.

This study could provide information to the Jordanian government for future policy planning purposes and to enhance the adoption of e-government in Jordan. The knowledge resulted from Jordan's experience in implementation of e-government could also be used by other nations which aimed to embarked on similar initiatives.

Similarly, this study is important to e-government consultants and IT vendors for designing, developing and supplying hardware and software that could enhance the effectiveness and efficiency of e-government service deliveries that will indirectly drive the uptake of e-government systems among citizens.

The knowledge from this study could also extent the boundaries of e-government literature that can be shared by academics and researchers who are pursing research in this subject area.

REVIEW OF RELATED LITERATURE

Empirical suggestions of some e-government studies often differ with findings in the literature. Accordingly, lack of generalizability is frequently cited as one of the limitations in some empirical studies (Horst et al. 2007; Fu et al. 2006). For example, Deursen et al. (2006) makes an interesting observation despite similarities in Dutch and Scandinavian culture, welfare state, and political system; the usage of e-government vastly differs in these countries. The adoption early of ICT and higher levels of awareness about the use of technology helped search for e-government success in developed nations (Sheridan and Riley 2006). In comparing, businesses in developing countries are far behind in

adoption of ICT (Nikam et al. 2004). In Jordan, for example, e-government research is in its early stages (Elsheikh et al., 2007) and the level of change ICT would bring to the Jordan will be huge, can hardly afford to be left behind in harnessing the benefits of implementing e-government (Mofleh and Wanous, 2008).

The literature review suggested various types of stage models. Some have three phases, four phases, five phases, or more. However, there are similarities and overlap between these phases. Whatever the stages model is, essential stages should be included. These are publishing, transaction and integration stages. Based on that, during the e-government's lifecycle, what are the stages that it should move through still without a common agreement? One of the most used, is Gartner Group's (2004) model that classified e-government services offered online into four evolutionary phases: (1) publishing (web presence) is the earliest stage where static information about the agency mission, services, phone numbers and agency address are provided for further communication; (2) interacting is goes one step further by enhancing the site's features with search capabilities and intentions-based programmes; (3) transacting is focus to build self service application for public to access online. Typical services such as tax filling and payment, driver's license renewal are available; and finally (4) transforming is considered to be the long-term goal of almost all government services.

A study conducted by Al-Qirim (2007) to examine the factors that influencing adoption and diffusion of e-commerce in developing countries to streamline its business processes and information flow to businesses in Jordan and to other international businesses interested in the Jordanian market. As result, positive relationships between innovation adoption and (relative advantage, compatibility, image, top management support, size and resources, quality of IS, and competition) and negative relationships between innovation adoption and (complexity, trialability, observability, cost, user involvement, product champion, suppliers buyers, and technology vendors). Al-Qirim (2007) highlighted different drivers and impediments to the adoption decision of e-commerce in one nongovernmental organisation (Jordan House of Commerce) in Jordan. However, this study was limited to an exploratory focus of issues surrounding e-commerce adoption and success in one nongovernmental organisation in a developing country. Looking at organisational factors such as perceived benefit, security, IT infrastructure, government pressure, business nature, organisation culture, top management support, financial recourse and examining their impact on the adoption decision process were not a focus in this study and, hence, they were left as potential future research areas. As such, future research can focus on extending this study to other organisation such as Amman Stock Exchange (ASE).

Study conducted by OECD (2003) examined several countries' experiences with implementing e-government including Denmark, Canada, Australia, Mexico, Germany, and the US. This study compared and evaluated the differences of implementing e-government among these selected OECD countries. In addition, they focused on the obstacles and challenges that should be overcome in order for e-governments to develop. The findings showed that the most important challenges facing governments today and in the future include lack of funds, overall costs, lack of accountability, shortage of skills, and difficulties of monitoring and evaluating e-government programs. While the OECD (2003) focused on the OECD countries, in the same year, Heeks (2003) conducted a study in order to examine the failure and success rates of e-government in developing or transitional countries. Results show that 85% e-government initiatives face a total or partial failure and only 15% were successful. Heeks (2003) provides potential reasons for such failure by highlighting the problem that often arises with developing countries which is that there is frequently a mismatch between the current and future systems, due to the large gap in the economic, cultural, physical, and various other contexts between the software designers and the place it is being implemented. The model has led Heeks (2003) to identify archetypes of situations where design reality gaps are common. These are summarized below:

- Hard-Soft Gaps: the difference between the actual technology (hard) and the social context (people, culture, politics etc.) in which it operates (soft).

- Private-Public Gaps: the difference between the private and public sectors means that a system that works in one sector often does not work in the other one.
- Country Context Gaps: the gap that exists when trying to use the e-government systems for both developed and developing countries.

As such, there is scope for further research in both the areas of failure and success of e-government in developing countries, and undoubtedly as more real world cases come forth, so will new interpretations.

THEORETICAL FOUNDATION

The foundation of many previous information system and innovation adoption studies were based on the theoretical frameworks derived from Fishbein and Ajzen's (1975) theory of reasoned action (TRA); Theory of Planned Behaviours (TPB) Ajzen's (1985); Davis' (1989) technology acceptance model (TAM); Rogers' (1983,1995) diffusion of innovation (DOI) theory; and Tornatzky and Fleischer's (1990) TOE model. While some of these theories are able to explain the organisation level of innovation adoption, other focused on the individual acceptance of new technology (see Table 1).

Table 1. Applicable theories

Theories (Author)	Factors	Usage	Selected Articles Using the Theory
Diffusion of innovation (Rogers, 1995)	Relative Advantage Compatibility Complexity Trialability Observability	Acceptance of any new innovation Such as e-initiative, computer, internet	Korteland and Bekkers, 2007; Carter and Belanger, 2005; Fu et al., 2006; Schaupp and Carter, 2005
Technology-Organisation-Environment (Tornatsky and Fleischer, 1990)	Technology Organisation Environment	Adoption of a technology or innovation such as e-government, mobile, PDA, e-commerce, internet banking	Al-Qirim et al., 2007; Mohamad and Ismail, 2009; Ramdani et al., 2009; Wang and Ahmed, 2009
Technology Acceptance Model (Davis, 1989)	Perceived Usefulness (PU) Perceived Easy Of Use (PEOU)	Acceptance of innovation of technology such as mobile, e-initiative, PDA, e-vommerce, internet banking	Trkman and Turk, 2009; Colesca, 2008; Carter and Belanger, 2005; Dimitrova and Chen, 2006; Gilbert et al., 2004; Horst et al., 2007; Lau et al., 2008; Carter, 2008. Walczuch et al., 2007; Wang et al., 2006
Theory of Planned Behaviours (TPB) Ajzen's (1985)	Attitude toward Using (A) Subjective Norm (SN) Perceived Behavioral Control (BC)	Improved the predictability of intention in various health-related fields such as condom use, leisure, exercise, diet	Horst et al., 2007; Warkentin et al., 2002.
Theory of Reasoned Action (TRA) Fishbein and Ajzen's (1975)	Attitude Toward Behavior (A) Subjective Norm (SN)	Most use in medical innovation such as dieting, condom, limiting sun exposure	Trkman and Turk, 2009; Napoli and Ewing, 2000;

An individual acceptance and adoption of innovation differ from organisation innovation adoption in terms of the factors that influence such adoption (Moon and Norris, 2005; Titah and Barki, 2006). An organisational innovation is defined as a new process, system, or service that is either internally developed or purchased from an external source (Damanpour and Evan, 1984). As the definition suggests, organisation replace exciting process with new one (innovation) in the hope of improving the effectiveness as well as the efficiency of the organisation performance (Gallivan, 2001). One

major reason for such innovation is the environmental where the firms operate. The pressures that drive firms to adopt innovation caused by competition actions and the firm struggle of have competitive advantage (Teo et al., 2003). Therefore, using Rogers's theory of DOI with combination with TOE framework would provide a useful theoretical framework to explain the organisation adoption of any e-initiative in general and e-government among business organisation in particular (Mohamad and Ismail, 2009; Ramdani et al., 2009; Lippert and Govindarajulu, 2006). Such approach could provide strong empirical support to e-government adoption research and account for the technological, organisational, and external influencing e-government adoption among business organisations (Al-Qirim, 2007).

To gain a comprehensive view on what factors may shape the adoption of e-government, the TOE framework by Tornatzky and Fleischer (1982), will also be adopted. The TOE framework identifies three aspects of an organizational factor that influence the process by which it adopts and implements a technology innovation. These dimensions are technology factors, organization factors, and environment factors. A review of the success factors of e-government literature would suggest that the technology-organization-environment (TOE) framework (Tornatzky and Fleischer, 1990) is an appropriate starting point to our research.

The technological factors describe the characteristics of the innovation in question as well as the organization's internal technological landscape (Tornatzky and Fleischer, 1990). For the purpose of our research, relative advantage, compatibility, security, and IT infrastructure were examined.

The organisational factor represents the different mechanisms, structures and characteristics that influence the propensity of adoption and assimilation of an innovation (Tornatzky and Fleischer, 1990). The organizational attributes included are the top management support, resources, and organisation culture which are important to IT implementation in organization.

The External factors examined the organisation's external landscape (Tornatzky and Fleischer, 1990). For the purpose of our research, competition pressure and government support was examined.
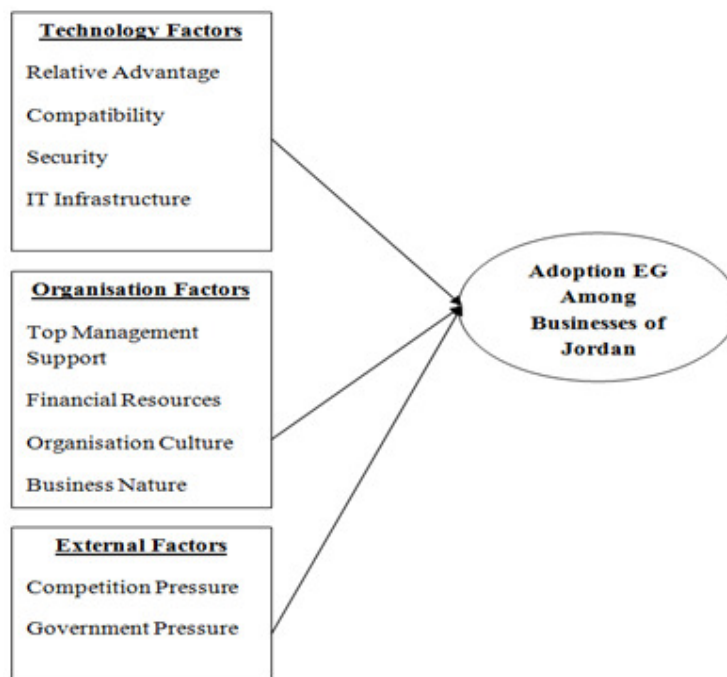

Figure 1. Trend of research on e-government among businesses

OPERATIONALIZATION OF VARIABLES

The proposed framework of this research consists of two parts. The first part is the e-government's antecedent's factors which are the technological, organizational, and external factors. The second part is the e-government adoption among business in Jordan which is operationalized in general as the firm's uptake and use of the various available functions and services provided by the Jordanian e-government which range from getting information to conducting transactions with government online. Table 2 below shows the operational definitions of the variables used in this study.

Table 2. Research variables and operational definitions

Variables	Operationalization	Number of Items	Items Source
E-government Adoption	The firm's uptake and use of the various available functions and services provided by the Jordanian e-government which range from getting information to conducting transactions with government online.	4 items	Zhao et al., 2008
Technological Factors	The existing and new technologies relevant to the firm that play significant role in the firm's adoption decision as it determine the ability of the firm to benefits from e-government initiative.	16	-
Organizational Factors	Descriptive measures related to organization structure, financial support, and top management support.	18	-
External Factors	Competition and government pressures that act as environmental external factors which drive firms to adopt new technology.	10	-
Relative Advantage	The degree to which an innovation is perceived as being better than the idea it supersedes.	4	Moore, 1991
Compatibility	The degree to which an innovation is perceived as consistent with the existing values, past experiences, and needs of potential adopters.	4	Premkumar, 2003
IT Infrastructure	Hardware and software that enable users to do secure internet related business.	5	Ramamurthy, 1999
Security	Perception and fear of safeguarding mechanisms for the movement and storage of information through electronic databases and transmission media.	3	Jones and Beatty, 1998; Fulford and Doherty, 2003
Organisational Culture	Second order construct that consisted of four traits. These are adaptability, mission, involvement and consistency.	8	Denison et at., 1995
Top Management Support	The extent of commitment and resource support from Organisation's top management for e-government adoption.	4	Sutanonpaiboon and Pearson, 2006
Resource	Allocation and spending of the amount of money required to support activities and obtain the necessary human and other resources such as hardware and software licenses.	6	Sutanonpaiboon and Pearson, 2006
Competitive Pressure	Pressure derived from the advantages that competitors enjoy when they adoption new technology, in which a firm has to consider whether or not to follow its competitors, or threat of losing competitive advantage, forcing firms to adopt e-government.	5	Sutanonpaiboon and Pearson, 2006
Government Pressure	The government support and promotion of e-government adoption among business.	5	Sutanonpaiboon and Pearson, 2006

DATA COLLECTION AND DATA ANALYSIS

The survey was conducted on 260 firms. A total of 113 responses were received representing 43.4% response rate. Statistical Package for Social Science (SPSS) was used to determine the causal relationship among the variables as proposed in the framework.

A principal component analysis with varimax rotation was executed to examine the factor structure of e-government adoption antecedent measures. Four technological factors with the eigenvalue above 1.0 arose and they were generally consistent with the constructs proposed, representing the themes of relative advantage, compatibility, security, and IT infrastructure. These four factors altogether explained a total of 75% of the variance. Items were retained in a factor if they had a loading at or above .5 on that factor, and the differences between this loading and two other cross-loadings (Hair, 2006). Based on the final factor structure and the component variables, four different factors with the variables in each factor were identified. In addition, all the rotated variables were returned as there was no cross loading of variables of more than 0.5 observed. In order to provide meanings to each factor, these factors were labeled based on the meanings of the variables in each factor. Factor 1 consists of five items related to IT infrastructure; therefore, this factor was labeled as 'IT infrastructure'. Factor 2 had four items related to relative advantage, so this factor was labeled as 'Relative advantage'. The third factor consists of four items all related to compatibility, as such this factor was labels as 'Compatibility'. Finally, three items were grouped in the last factors which all related to security. Thus, this factor was labeled as 'Security'.

Three organisational factors with the eigenvalue above 1.0 arose and they were generally consistent with the constructs proposed, representing the themes of top management support, resources, and organisation culture. These three factors altogether explained a total of 76% of the variance. Based on the final factor structure and the component variables, five different factors with the variables in each factor were identified. In addition, all the rotated variables were returned as there was no cross loading of variables of more than o.5 observed. In order to provide meanings to each factor, these factors were labeled based on the meanings of the variables in each factor. The first factor consists of four items all related to the adaptability and mission of the organization; therefore, this factor was labeled as 'Organization adaptability and mission'. Factor two had four items all were related to the involvement and consistency of the organization, so this factor was labeled as 'Organization involvement and consistency'. The third factor consists of four items all related to the support of the top management, as such this factor was labels as 'Top management support'. The fourth factor had items related to human resource in the organization, and therefore this factor was labeled as 'Human resource'. Finally, three items were grouped in the last factors which all related to financial resources. Thus, this factor was labeled as 'Financial resources'.

Two external factors with the eigenvalue above 1.0 arose and they were generally consistent with the constructs proposed, representing the themes of competition pressure and government support. These two factors altogether explained a total of 60% of the variance. Based on the final factor structure and the component variables, tow different factors with the variables in each factor were identified. In addition, all the rotated variables were returned as there was no cross loading of variables of more than 0.5 observed. In order to provide meanings to each factor, these factors were labeled based on the meanings of the variables in each factor. Factor 1 consists of five items related to government support; therefore, this factor was labeled as 'Government support'. Factor 2 had five items related to competitive, so this factor was labeled as 'Competitive'.

Testing for reliability could be achieved by calculating the Cronbach alpha. All the constructs were found to have adequate alpha value (>0.7) (Table 3).

Table 3. Comparing original dimensions to final dimension after factor analysis

Original dimension	Dimension derived after factor analysis	N. Items	Alpha (a)
Technology Factors			
Relative Advantage	Relative Advantage	4	.897
Compatibility	Compatibility	4	.888
IT Infrastructure	IT Infrastructure	5	.864
Security	Security	3	.887
Organisational Factors			
Resources	Human Resources	3	.774
	Financial Resources	3	.892
Top Management Support	Top Management Support	4	.832
Organizational Culture	Organization Adaptability and Mission	4	.896
	Organization Involvement and Consistency	4	.884
External Factors			
Competition	Competition	5	.798
Government Support	Government Support	5	.847

Hierarchical Cluster

The most appropriate cluster analysis method is hierarchical clustering as a tool for solving classification problems (Rudzkiene and Martinaityte, 2010). Its object is to sort cases or variables into groups, or clusters, so that the degree of association is strong between members of the same cluster and weak between members of different clusters. Each cluster describes, in terms of the data collected, the class to which its members belong; and this description may be abstracted through use from the particular to the general class or type. Cluster analysis is a tool of discovery. It may reveal associations and structure in data which, though not previously evident, nevertheless are sensible and useful once found. The results of cluster analysis may contribute to the definition of a formal classification scheme, suggest statistical models or indicate rules for assigning new cases to classes for identification and diagnostic purposes or find exemplars to represent classes (Hair, 2006). Based on the Everitt et al. (2001) and as it is argued in the literature that hierarchical clustering is appropriate for smaller samples (typically < 150).

According to Hair et al. (2006), hierarchical clustering techniques have long been the more popular clustering method with average linkage probably being the best available. The average linkage method is chosen in this analysis as a compromise to the algorithms relying on a single observation (single or complete- linkage algorithm) while also generating clusters with small within-cluster variation. Ward's methods was not used because of its tendency to generate clusters of equal size, and determining cluster size variation in the sample is an important consideration in this research question (Hair et al. 2006).

In hierarchical clustering, the clusters are nested rather than being mutually exclusive, as is the usual case, that is, in hierarchical clustering; larger clusters created at later stages may contain smaller clusters created at earlier stages of agglomeration (Sharma 1996). The following results show a sample of the results of the hierarchical clustering, which results in a two clusters.

Table 4. Agglomeration schedule under hierarchical clustering

| stage | Cluster Combined | | Coefficients | Stage Cluster First Appears | | Next Stage |
	Cluster 1	Cluster 2		Cluster 1	Cluster 2	
1	43	113	.000	0	0	68
2	41	112	.000	0	0	40
3	42	111	.000	0	0	71
4	76	109	.000	0	0	20
5	28	106	.000	0	0	99
6	37	102	.000	0	0	43
7	72	101	.000	0	0	24
8	81	100	.000	0	0	16
9	82	99	.000	0	0	62
10	25	97	.000	0	0	46

Table 5 below shows the number of cases in each cluster and their percentages. The first cluster includes 74 firms (65.5%), whereas cluster 2 consists of 39 firms (34.5%) of the sample.

Table 5. Number of cases in each cluster

Average Linkage (Within Group)				
		Frequency	Valid Percent	Cumulative Percent
Valid	1	74	65.5	65.5
	2	39	34.5	100.0
	Total	113	100.0	
Missing		0		
Total		113		

Based on the initial cluster centers which include two clusters and gives the average value of each variable in each cluster, it can be observed that cluster (1) has the highest averages with all variables. In addition, referring to the clustering analysis result - cluster membership - confirmed this observation. For example firms (1, 7, 8, and 9) are in the first cluster which has the highest values, while firms 3, 10, and 11 are in the second cluster which has the lowest averages (see Figure 2 below). Based on this, as well as the mean average of each variable in each cluster, these two clusters could be named. The first cluster is labeled as advanced-adopters while the second cluster is named as basic-adopters.

Binary Logistic Regression

The binary logistic regression analysis was performed to identify factors which were associated with adoption groups namely basic and advance adopters. Backward eliminations, a method of stepwise regression were used as it would retain only the predictor variables that were statistically significant in the model (Menard, 2002).

	Information	Mutual	Financial	Integration	CLU2_2
1	4	3	2	4	1
2	4	4	3	4	1
3	2	3	1	3	2
4	4	5	3	4	1
5	4	4	3	3	1
6	4	4	2	1	1
7	3	3	4	2	1
8	4	4	3	1	1
9	4	4	3	3	1
10	3	3	2	3	2
11	3	3	1	2	2
12	5	5	2	2	1

Figure 2. Initial cluster centers

The preliminary results of the chi-squared tests and pseudo R square values that measure the effectiveness of the regression model (testing the overall fit of the model) showed that the chi-squared differences was significant at 0.00 level (Table 6 below). In other words, the improvement in the results after the predictor variables were included provides evidence that the predictors were indeed associated with adoption.

Table 6. Model fitting information

	-2 Log Likelihood	Chi-Square	Df	Sig.
Intercept Only	145.630			
Final	87.531	58.099	11	.000

In addition, Table 7 below shows that Nagelkerke R square value of 0.402 for the overall model. The results indicate the model could explain approximately 40% of the variance in the dependents variables. Nagelkerke R square is chosen because it is a modification over the Cox and Snell R square and has a range of 0 – 1.

Table 7. Pseudo R-Square

Pseudo R-Square	
Cox and Snell	.402
Nagelkerke	.555

The Wald statistic is used to evaluate the statistical significance of each predictor variable in explaining the dependent variable, and Wald statistic indicates whether the β-coefficient for a predictor is significantly different from zero. If so, then the predictor variable is assumed to make a significant contribution to the prediction of the outcome of the dependent variable.

Table 8. Binary logistic regression model

Current Status [a]		B	Std. Error	Wald	df	Sig.	Exp(B)	95% Confidence Interval for Exp(B)	
								Lower Bound	Upper Bound
Advance	Intercept	7.649	3.585	4.552	1	.033			
	Relative Advantage	1.286	.581	4.901	1	**.027**	.276	.089	.863
	Compatibility	.253	.449	.317	1	.573	1.287	.534	3.102
	IT Infrastructure	1.398	.598	5.466	1	**.019**	4.045	1.253	13.054
	Security	.197	.490	.161	1	.688	1.217	.466	3.181
	Competition	1.246	.598	4.343	1	**.037**	.288	.089	.929
	Government Support	1.282	.509	6.340	1	**.012**	3.602	1.328	9.768
	Adaptability & Mission	.995	.436	5.205	1	**.023**	2.704	1.150	6.354
	Involvement &Consistency	2.006	.468	18.378	1	**.000**	7.434	2.971	18.600
	Top Management Support	.598	.569	1.107	1	.293	1.819	.597	5.542
	Financial Resources	.919	.463	3.945	1	**.047**	.399	.161	.988
	Human Resources	.530	.510	1.081	1	.299	1.700	.625	4.622
a. The reference category is: Basic.									

Table 8 above shows the summary of the results from the binary logistics regressions. Seven predictor variables, namely relative advantage, IT infrastructure, competition, government support, adaptability and mission, involvement and consistency, and financial resources, were found to be significantly associated with e-government adoption.

DISCUSSION

In this section discusses the result that emerged from the data analysis. Attempts will be made to explore how the result related to the findings from previous studies. The approaches adopted in this section are that the discussion will reiterate the highlights if the results are as expected, and if the results are unexpected, the discussion will be an attempt to reconcile. The results obtained from interpreting the adoption level and matrix will be discussed and followed by discussion on factors associated with e-government adoption.

Characterizing E-Government Adoption

Whilst the works of Thompson et al. (2009), Boggs and Walters (2006), Campbell and Beck (2004), Wilkinson and Cappel (2005), Zhao and Zhao (2004), and Zhao et al. (2006) have provided the approach to describe firm's e-government progression, these studies have focused mainly on whether an application has been adopted or not and whether there is any plan to adopt an application. This study has sought to extend existing adoption studies by focusing on both the range of e-government applications adopted and the extent of usage of each one in order to provide a comprehensive picture of the adoption of e-government by Jordanian businesses.

The finding from this study indicated two distinct groups have emerged, which reflected of the adoption of e-government among the businesses. To enable further analysis on e-government adoption, two groups of adopters are labeled as basic-adopters and advance-adopters.

Basic-adopters represented about 35 percent of the sample. The choices of applications being adopted by these businesses are limited. They have mainly adopted e-government applications which include searching for general business information (laws and regulations, financial, market and technology information), locating governmental agencies, downloading forms, and applications on governmental web sites.

On the other hand, the advance-adopters group represented about 65.5 percent of the total number of businesses in this study. Advance-adopters, in addition to adopting the applications of basic-adopters, also have adopted more sophisticated applications such as filling out forms, submitting information online and conducting transactions with government online.

One possible reason to explain the high percentage of advance adopters in the present study is the effort made by the Jordanian government since year 2000 concentrating in achieving high level of online services believing that e-government success can be achieved by enabling a complicated service online (MoICT, 2007; Mofleh and Wanous, 2008). Though the current status of e-government adoption for the basic adopter-group could be sufficient to meet their needs, however, the basic adopters group which represents 35 percent of the study sample shed the light on the need to improve government efforts in promoting as well as developing high quality online service among business firms in Jordan.

Factors Associated with E-Government Adoption

One of the objectives of this study is to identify factors that are associated with e-government adoption. This section discusses the results based on the findings from the analysis. The binary logistic regression was used to examine the association of technological, organizational and external factors as independent variables against the two adoption groups.

The findings from this study indicate seven of the eleven factors are significantly associated with various stage of e-government adoption. Among the independent variables relative advantage, IT Infrastructure, organization adaptability and mission, organization involvement and consistency, financial resources, competition, and government support have been found to be significant determinants of businesses adoption of e-government. It is found that higher explicitness and accumulation of technology can help the transfer of technological knowledge within the organization and can raise the capability to adopt innovative technologies. Jordanian firms can increase their technological innovation capabilities by encouraging or supporting their employees to adopt e-government and by training and educating their employees. Not surprisingly, TOE factors have been found to be significant. The finding from this study confirmed the important roles played by TOE in e-government adoption, and are consistent with findings from previous information system studies conducted by Alawneh (2009), Thompson et al. (2009), Salwani (2008), Lin (2008), and Al-Qirim (2007).

CONCLUSION

The Jordanian government may have to concentrate on achieving high quality low level informative services before moving to more advanced levels. This will give the government the time to focus on simple e-government adoption that are more responsive to their needs and at the same time establish a positive online relationship with businesses, while at the same time working on increasing the number of internet users in Jordan before paving the way to more advanced levels of e-government adoption. Continuous improvement of these e-services is needed among the stage currently offering such e-services without transactional and intelligent capacities since such e-services play important roles in enhancing the stage economic competitiveness (Brush, 2007; State of Nebraska, 2001).

This study was limited to businesses from the industry, insurance, services, and banking sector. In order to have a complete picture of e-government adoption, future research should also be conducted on other sectors such as hotel, hospital, and communication sectors. Finding from other sector firms would be useful in providing a comparison of the nature of e-government adoption between other sector firms.

In terms of generalizability to other countries' e-government services, results of this study can be expected to apply in general to countries with large government sectors. They will have to be interpreted with caution for countries that are very different in their business environment, business culture, and political system. Additionally, there is inadequate empirical research to support meaningful generalization across different countries in terms of e-government adoption. To facilitate comparisons across different countries, more research is needed, given the scarcity of research in this area.

The current study concentrates only on G2B but the developed framework can be utilized to carry out comparative study among various forms of e-government such as government to government (G2G) or government to employees (G2E) context which will provide knowledge on the topic of e-government adoption.

Future studies can investigate the adoption decision according to businesses. Organizations from different businesses face different operating conditions and may possess different requirements. For example, business conditions in a manufacturing industry are different from that in a pharmaceutical industry. Such findings may be invaluable in delivering more effective and targeted administrative services.

The respondents chosen for the study have been taken from various industries but the model is confined to single-country context. Hence, the research fails to provide comprehensive information for other industries in other counters. Therefore, further research is called for the purpose of providing a comprehensive insight using similar framework to be conducted in other counters such as Syria, Iraq, Yemen, and Gulf countries.

Similarly, the adoption analysis can also be carried out from the perspective of individuals and households as the e-government services provided by the Jordanian government involves various customers comprising of both businesses and individuals. It is, suggested for future research to explore the various factors impacting the decisions of individuals and households whereby the differences between them will provide knowledge on what kinds of e-government services are needed for these categorize as adopters facilities and services for both groups of users.

The research model of the current study has integrated two theoretical research streams which are (TOE and the literature on innovation diffusion). Hence, this research can be a starting point for further research focusing on the adoption decisions of others technologies such as technology competence, image, and technology readiness. In addition, the previous theoretical framework of innovation diffusion has been less effective towards the adoption decision of e-government services. On the other hand, it is believed that this framework could be used to explain the adoption of other technologies (delivered via World Wide Web and others). In terms of the obstacles of adoption, the factors referred to the organizational perspective have been found to be insignificant in this study still a sufficient theory for understanding successful technology adoption. However, it is important to continue to explore other of each model factor in technologies in future studies.

REFERENCE

Ajzen, I. (1985). *From Intentions to Actions: A Theory of Planned Behaviour*: in J. Kuhl, J. Beckmann (eds), Action Control from Cognition to Behavior, Springer Verlag, New York.

Al-Omari, H. (2006). E-Government Architecture in Jordan: A Comparative Analysis. *Computer Science, 2*(11), 846-852.

Awan, M. A. (2007). Dubai e-Government: An Evaluation of G2B Websites. *Internet Commerce, 6*(3), 115-129.

Basu, S. (2004). E-Government and Developing Countries: An Overview. *International Review of Low Computer and Technology, 18*(1), 109-132.

Carter, L., and Belanger, F. (2005). The Utilization of E-Government Services: Citizen Trust, Innovation and Acceptance. *Information Systems Journal, 15*, 5-25.

Carter, L. (2008). E-Government Diffusion: A Comparison of Adoption Constructs. *Transforming Government: People, Process and Transforming Government: People, Process and Policy, 2*(3), 146-161.

Chen, Y. N., Chen, H. M., Huang, W., and Ching, R. K. H. (2006). E-Government Strategies in Developed and Developing Countries: An Implementation Framework and Case Study. *Journal of Global Information Management, 14*(1), 46.

Davis, F. D. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS Quarterly, 13*(3), 318-340.

DeBenedictis, A., Howell, W., Figueroa, R., and Boggs, R. (2002). E-Government Defined: An Overview of the Next Big Information Technology Challenge. *Issues in Information Systems, 3*(1), 130-136.

Deursen, A. V., Dijk, J. V., & Ebbers, W. (2006). Why E-Government Usage Lags Behind: Explaining the Gap Between Potential and Actual Usage of Electronic Public Services in the Netherlands. In M. A. W. e. al (Ed.), *EGOV 2006, LNCS 4084* (pp. 269-280). Springer-Verlag Berlin Heidelberg.

Dimitrova, D., and Chen, Y. C. (2006). Profiling the Adopters of E-Government Information Services: The Influence of Psychological Characteristics, Civic Mindedness, and Information Channels. *Social Science Computer Review, 24*(2), 172-188.

Elsheikh, Y., Cullen, A., and Hobbs, D. (2007). E-Government in Jordan: Challenges and Opportunities. *eGovernment Workshop '07 (eGOV07)*, 1-13.

Fu, J. R., Farn, C. K., and Chao, W. P. (2006). Acceptance of Electronic Tax Filing: A Study of Taxpayer Intentions. *Information and Management, 43*, 109-126.

Gilbert, D., Balestrini, P., and Littleboy, D. (2004). Barriers and Benefits in the Adoption of E-Government. *International Journal of Public Sector Management, 17*(4), 286-301.

Hair, J. F., Black, W. C., Babin, B. J. and Anderson, R. E. (2006*). Multivariate Data Analysis* (5th ed.). New Jersey: Pearson Prentice

Hair, J., Money, A., Page, M., and Samouel, P. (2007). *Research Methods for Business*. New York: John Wiley & Sons, Ltd.

Hair, J., Samouel, P., Babin, B., and Money, A. (2003). *Essentials of Business Research Methods*. New York: John Wiley & Sons Inc.

Heeks, R. (2003). Information Systems and Developing Countries: Failure, Success, and Local Improvisations. *Routledge Taylor, 18*(2), 101-112.

Horst, M., Kuttschreuter, M., and Gutteling, J. (2007). Perceived Usefulness, Personal Experiences, Risk Perception and Trust as Determinants of Adoption of E-Government Services in the Netherlands. *Computers in Human Behavior, 23*, 1838-1852.

Joseph, R. C. (2009). Government-To-Business (G2B) Perspectives in E-Government. *Northeast Decision Sciences Institute Proceedings*, 192-199.

Korteland, E., & Bekkers, V. (2007). Diffusion of E-government Innovations in the Dutch Public Sector: The Case of Digital Community Policing. *Information Polity 12*(3), 139-150.

Kostopoulos, G. (2006). E-government in the Arabian Gulf: A vision toward reality *E-government, Internet & Telecommunication Forum*.

Lau, T. Y., Aboulhoson, M., Lin, C., and Atkin, D. J. (2006). Adoption of E-Government in Three Latin American Countries: Argentina, Brazil and Mexico. *Telecommunications Policy 32*, 88-100.

Layne, K, and Lee. (2001). Developing a Fully Functional E-Government: A Four Stage Model. *Government Information Quarterly, 18*(2), 122-136.

Lee. (2010). 10 Year Retrospect on Stage Models of E-Government: A Qualitative Meta-Synthesis. *Government Information Quarterly*, 1-11.

Lippert, S. K., and Govindarajulu, C. (2006). Technological, Organizational, and Environmental Antecedents to Web Services Adoption. *Communications of the IIMA, 6*(1), 146-158.

Pacific Councilon International Policy. (2002). Roadmap for E-government in the Developing World: 10 Questions E-Government Leaders Should Ask Themselves. from http://unpan1.un.org/intradoc/groups/public/documents/apcity/unpan005030.pdf

Mohama, R., and Ismaild, N. A. (2009). Electronic Commerce Adoption in SME: The Trend of Prior Studies. *Journal of Internet Banking and Commerce, 14*(2).

Nikam, K., Ganesh, A. C., & Tamizhchelvan, M. (2004). The Changing Face of Lndia. Part I: bridging the Digital Divide. *Library Review, 53*(4), 213-219.

OECD. (2003). *The E-Government Imperative*. OECDE-Government Studies: OECD, Paris.

Ramdani, B., Kawalek, P., and Lorenzo, O. (2009). Predicting SMEs' Adoption of Enterprise Systems. *Enterprise Information Management, 22*(1/2), 10-24.

Raus, M., Liu, J., & Kipp, A. (2010). Evaluating IT Innovations in A Business-to-Government Context: A Framework and its Applications. *Government Information Quarterly, 27*, 122–133.

Rogers, E. M. (1995). *Diffusion of Innovation*: New York: Free Press.

Rogers, P. (1983). Capillary Patency and Permeability in The Endometrial Surrounding The Implanting Rat Blastocyst. *International Journal of Microcirculation and Clinical Experiments 2*, 241–249.

Schaupp, L. C., and Carter, L. (2005). E-Voting: From Apathy to Adoption. *The Journal of Enterprise*

Information Management, 18(5), 586-601.

Seifert, J., and Bonham, G. (2004). The Transformative Potential of E-Government in Transitional Democracies. *Review of Reviewed Item.*

Sheriden, W., & Riley, T. (2006). Comparing E-Government vs. E-Governance. *Commonwealth Center for e-Governance*, from http://www.egovmonitor.com/node/6556

Siau, K., and Long, Y. (2006). Using Social Development Lenses to Understand E-Government Development. *Global Information Management, 14*(1), 47-62.

Tadros, I., and assem, A.-s. (2006). Success Factors In Jordan E-Government. *IMB, Australia, 1*(1), 388-398.

Tomatzky, L., and Fleischer, M. (1982). Innovation Characteristics and Innovation Adoption-Implementation: A Meta-Analysis of Findings. *IEEE Transactions on Engineering Management, EM-29*(1), 28-43.

Tomatzky, L., and Fleischer, M. (1990). *The Process of Technology Innovation.* Lexington, MA: Lexington Books.

Trkman, P., and Turk, T. (2009). A Conceptual Model for the Development of Broadband and E-Government. *Government Information Quarterly, 26*, 416-421.

Wang, Y., and Ahmed, P. K. (2009). The Moderating Effect of the Business Strategic Orientation on Ecommerce Adoption: Evidence from UK Family Run SMEs. *Journal of Strategic Information Systems, 18*, 16–30.

Warkentin, M., Gefen, D., Pavlou, P. A., and Rose, M. G. (2002). Encouraging Citizen Adoption of E-Government by Building Trust. *Journal of Telematics and Informatics, 12*(3), 157–162.

PERSONALITY DYNAMICS OF BOARDERS AND DAY SCHOLARS WHO BELONG TO MADRASSAH AND PUBLIC SCHOOL

Shagufta Perveen
Department of Psychology
Hazara University Mansehra
PAKISTAN
nav11649@yahoo.com

Dr. S. Farhana Kazmi
Department of Psychology
Hazara University Mansehra
PAKISTAN
s.farhanakazmi@yahoo.com

ABSTRACT

The major objective of the present study was to assess and compare the personality dynamics of boarders and day scholars who belongs to Madrassah and Public schools. Population of the present included all female and male students studying in Public school and Madrassah in Hazara division. For the present study six Public schools and six Madrassahs were randomly selected from four cities Haripur, Havelian, Abbottabad and Mansehra of Hazara division. Simple random sampling technique was used to select the sample of 168 students with age ranged from 15 years to 30 years out of which 84 male and female students were taken from Madrassah and same number of male and female students from Public schools respectively. Urdu version of NEO-PI (Goldberg, 1999) was used to collect data. t-test was used to analyze the data. Gender wise analysis indicated that Madrassah female students exhibited high vulnerability for Anxiety and Depression than Public school students, while male students from Public schools exhibited inclination towards Neuroticism and Extraversion as compares to Madrassah students. On the other hand both type of students manifested same level of Conscientiousness, Agreeableness, and Openness.

Keyword: Personality Dynamics, Madrassah students, Public school students, Boarders, Day-Scholars.

INTRODUCTION

Personality of an individual is an identity that is molded by many factors i.e., socialization, training, life experiences, social perception and education. The structure in which person acquires education also have strong impact on the development of person's personality (Jeff & smith, 1999). personality dynamic in general comprised of major dimensions such as on the process of learning, the way problem is solved and the way communication skill are utilized (Seagle, 2010). Human Dynamics based on the psychological, affection and the bodily aspect of an organism, which are of comparable significance and worth (Seagal, 2002). Ritter (2008) proved that some people are psychologically, expressively and bodily centered may be possessing extra or less intellectual qualities, sympathetic, skilful or talented. Cherry (2011) views that an individual's behavior is not predetermined, rather it is based on his preferences. Education has three factors: 1) The material which is planned to learn, 2) environmental condition, and 3) subjects readiness (Jeff & smith, 1999). Basically, there are two systems of education existing in Pakistan: roots of the conventional religion-based education system and the modern formal education system are traced back to British royal law and continued after the country's independence (Memon, 2007). Another import aspect of educational life is the place of residence during that phase. It is found that children sent to boarding school causes lack of emotional expression .Such institution bane on emotional expression results in disruption of self concept. As Children at boarding school pass through distress of the home sickness lack of emotional expression on the basis of which particularly in British sending children to boarding school is considered to be an act of child abuse. It is proved; at boarding schools children feel distraught full which later on results into adaptation of phony personality (Schaverien, 2004).

Terry (1994) conducted study on boarding house upbringing on personality and adjustment activities and found that environmental aspect of a boarding house has an effect on the adjustment skills and ability. Raju (2009) stated that the aspect of being alone emotional stability and academic performance are significantly related with boarding house environment. It was suggested that if the physical conditions are not of high-quality it will lead to maladjustment in academic and social aspects of student's life. Examining the effect of homesickness on mental processes, it was found that meddlesome thoughts of home results into symptoms such as loss of attentiveness. Results suggest that reminiscence may lessen capacity to focus and to give attention, but that this failure of attention is not enough to be taken as a major cause of low educational capacity (Burt, 1993). .It is further proposed that hostel life experiences may have long lasting unconstructive outcome for the personality development of the students. Boarding schools tend to shatter the family bond as well as it causes deprivation being making them away from their family specific ways of life (Leon as cited in Henderson, 1997).Homesickness was thought to be positively correlated with departure experience and age (Carden, 1991).

Along with the other factors impact residential care and environment on personality development has been studied suggesting that those students who live at their homes with their family member are more emotionally stable and confident as compared to boarders .Residential care has a great impact on personality development (Little at al., 2005). Topper (1985) has observed that boarding school experiences results in to many problems of which most prominent is emotional disorder (Krush, at al., 1988). Jensen and Overgaard (1993) reported that as compared to boarders bear high risk of adapting unhealthy habits. Research findings had proved that there is a positive association between factors relating to residential condition, status and children's unhealthy personality (Rutter, 1985). Kleinfeld and Bloom (1977) stated that whether boarding schools weaken the psychological well being of Eskimo and Indian children. Investigative the special effects of boarding schools on teenagers it was found that Forty- nine percent of the students suffered from social impairment and mood disorder. Though boarding school administration had taken few measures in terms of altering the prevailing environment, which proved to be helpful to lessen the rate of disordered personality among the students, but in the long run it was unable to eliminate the adverse effect of boarding school.

Mishra (1994) reported that among boarders lack of emotional expression is very much evident which later on converts into problematic behavior such as feeling of inadequacy, restiveness, antagonism violence and egocentricity. Comparing the level of social adjustment, significant difference was reported, as hosteller exhibited less sociability. With reference to level of personality incorporation integration hostellers showed less personality integration as hosteller as compared to day scholar student scored high on these dimensions (reaction, irrational fear formation, rationalization, distrust, depravity).The personality of hostlers and non hostler was investigated founding that there was significant difference between both group on major dimensions of the personality (Kumar at al., 2009). Day scholars are proved to be healthier (physically and emotionally) and especially posses better self concept than boarders (Dambuzo, 2009). Boarders students exhibited lower scores on determinants of ego identity, self esteem (Togonoli, 2003).For boarders homesickness is said to be a normal developmental process of place identity (Jacqueline, 2002).Boarders suffer from the problems of absorption in different living setup which results into poor academic performance and emotional maladjustment (Eric & Ynkramer, 1974).

Moffat (2011) stated that boarding schools proves to be playing an important role in the development of child's mind and personality. At boarding school child is provided an environment of healthy competition with other classmates and age mates, which motivates the children to improve their performance and exceed over other. Along with this spirit to work as one team, and the feeling of kinship are taught on a daily basis life style and etiquettes. This facilitates them to maintain in a sound way in the future in the practical life. Wickstom and Fleck (1983) conducted a study in order to compare the level of Self esteem of students of religious institute it was proved that as compared to boarders day scholars had better self concept and self esteem.

Similar, to earlier studies negative impact of boarding life was proved by Thurber (1999). One of the adverse effects is the homesickness which causes incapability to keep the concentration, feeling of sadness and impairment in daily life activities. Bronfenbrenner (2007) found that students of boarding school exhibited greater conformity to social pressures than day.

Giving the description of Madrassah life, Hussain and Qureshi (2007) states that Madrassah proves to be strict institution with merciless conditions. Other critiques even reported of incidents of physical abuse and sex exploitation (Murphy as cited in Sajjad (2008). Dwelle (2000) conducted a study investigating the influence of assemblage of God follower, on personality characteristics. The impact of mission on personality trait type of missionary adolescents seems insignificant. Whereas at the same time, less religious minded should be even more expected to deviate if they have weak self disciplined because they will be less able to hold down their desires and needs even if they have some fear of a penalizing afterlife (Tittle, et al. study as cited in Welch at al., 2006).Emotional stability is even reported to have direct link with one's religious beliefs and personality dynamics. Tolerance was more observed among conservatives as compare to liberal viewed individuals (Durrheim, 1998). McCullough and Worthington (2001) proved that there is strong link between forgiveness, religion and personality. Research study has proved that religious discrimination is linked with basic life values of social conformity, admiration for tradition and expressed racism (Hall at al., 2010). Strong relationship between religion Agreeableness and Conscientiousness is been reported (French at al., 2008).

McCullough at al., (2003) found importance of Conscientiousness as a predictor of religiousness. Another study proved that there Self-control is positively correlated with religiosity and negatively with depression and anxiety (Khan at al., 2008).

Duriez and Soenens (2006) tested Five Factor model (FEM) of personality, identity styles assuming that the relationships between adolescent personality and adolescent religiosity are intercede by the personality style and self concept. Mainly the religiosity dimension, openness to experience was associated with identity style and self concept. Whereas another study high Neuroticism is proved to be an indicator of extrinsic religiosity and Emotional Stability is related to stronger religiosity and spirituality (Saroglou, 2001).Overly concerned attachment to God was proved to be an important predictor of neuroticism and agreeableness was significantly positively correlated with avoidant attachment to God (Rowatt & Kirkpatrick, 2002). The same kind of research study on religion and neuroticism entitled conducted by Francis and Jackson, (2003) proved positive correlation between guilt feelings and religiosity, while unhappiness and religiosity was found to be negatively correlated, on the other hand no correlation was found between religiosity and low-self esteem, anxiety, dependency.

Lewis and Maltby (1999) found no associations between neuroticism and extraversion for both males and females. Similarly Openness was found to be largely unassociated with religion (Taylor & MacDonald, 1999). Highly religious people tend to exhibit more the role of helper and offer economical support to people (Gronbjerg & Never, 2004; Francis & Brooks, 2004; Saroglou at al., 2005; Ahmad, 2009).

Religiosity has an effect on mental health (Emmons at al.,1998; Headey & Wearing , 2009). Saroglou and Fiasse (2002) reported that religious mindedness is associated with better physical and mental health, and longer endurance (George at al., 2007).Another proved the relationship between religious values and feeling of life satisfaction (Cohen, at al., 2005).

The demographic factors as gender is found to be an important predictor of mental health state in relationship with religiosity/ spirituality (R/S),as the relationship between religiosity and subjective well being was in general stronger or more unique for males and young people than for females and younger adolescents (Wong & Slaikeu, 2006).

Contradictory to earlier researches, research study conducted by Williams at al., (1999) reported that religious beliefs are not significantly related to mental health status. In contrast, it provides a shield against harmful effects of stress on mental health.

Francis at al., (2003) conducted a study to measure the association between personality dynamics and religiosity of undergraduate students. The results revealed that data psychoticism is elemental to individual differences in religiosity, while religiosity not dependents on neither extraversion nor neuroticism. Same kind of study was conducted on secondary school pupils in South Africa during the early 1990s. The conclusions were similar with those studies measuring the religiosity among school pupils and adults in the UK. According to the findings neither neuroticism, nor extraversion was neither positively or negatively associated to religiosity, overall psychoticism was negatively correlated with religiosity (Francis & Kerr, 2003).

Wilcox (1997) conducted a study on "A" level religious studies students in order to examine the relationship between Personality and Religion. It was revealed that the way student represents their attachment reliance on religious faith, which in turn considered being an important aspect of their personality. Results demonstrated that it is the psychoticism as personality dimension which is elementary to individual differences in attitude toward Christian. The strong association between religiosity and life satisfaction was proved by Lewis (1998). Results revealed significant association between the Attitude towards Christianity and the Satisfaction with Life. A study conducted by Argyle and Hills (2000) found that spirituality is negatively correlated with the ones state of happiness, suggesting that who had spiritual experiences tended to report lower levels of happiness.

Religious service and rituals enhance the mental health of an individual (Larson & Larson, 2001). In a study of high-school students from West Virginia, the ego strengths of optimism: will, principle, loyalty, worship, and concern amplified as the students lived out their religious values more keenly (Markstrom, 2002). Nielsen (1998) found that people who are indulged in religious activities report greater levels of happiness than do those who are not religious. It was reported that among weekly churchgoers, 85% reported being "very satisfied" with life, but this number reduced to 77% among those who never went to church (Inglehart, 1990).

Studies have found that adolescents who frequently attend religious services and gets spiritual support from others in their community have the lowest levels of depression (Wright at al., 1993). On the other hand, lack of religious affiliation correlates with an increased risk of suicide (Tovato study as cited in Fagan 2006). According to McCullough at al., (2003) emotional stability was found to have strong connection with the religiosity. Davis at al., (2003) revealed that the higher the religious well-being, existential well-being, and intrinsic religious orientation were among males, the lower the anxiety. Whereas lower existential well-being, was found to be associated with lower anxiety among females. Religiosity has a considerable impact on mental health (Woodberry, 2001). Ano and Vasconcelles (2004) investigated the correlation between religiosity and coping abilities to stressful situation. Religious copers were less violent or antagonistic, more modest indicates their inclination to be more liable, diligent, and didactic than non-religious copers (Koenig at al., 2000).

Obst and Tham (2009) found that religious and spiritual practices can have positive impact on one's health and well-being. Reviewing previous articles reveals that about 90 % of studies exhibit the higher levels of association between R/S and better mental health in adolescents. Further it was found that the relationships between R/S and mental health were in general stronger for males and older adolescents than for females and younger adolescents (Wong at al., 2006). A series of study in order to check the impact of religiosity on one's mental health was conducted of which 24 studies revealed only slight positive correlation (Bergin, 2009). Ness and Larson (2002) reported that in general religious persons experiences higher levels of subjective well-being and possess all key element of healthy and satisfied life (Ellison, & Levin 1998). Finally, belief in an afterlife and frequency of prayer buffer the adverse effects of poor health and financial decline on anxiety (Ellison at al., 2009). The majority of studies on mental health revealed that religiosity is positively associated with mental well-being and with less sadness, desperate thoughts and drug abuse (Moreira-Almeida at al., 2006).

Mookerjee and Beron (2005) stated that both religion and gender proves to be having a vital impact on the happiness. Exploring the association between religiosity and one's state of contentment, psychological health, physical health, apprehension, and sadness, Further it was found that as compared to boys, girls had higher mean scores on nervousness, mysticism and depression (Abdel-Khalek, 2007).There is a strong relationship between spirituality and teenager's physical wellbeing (Cotton at al., 2010).

Lesmana and Tiliopoulos (2009) reported the same type of effect of religiosity on one's mental health among Hindus such as schizotypal personality trait was found to be positively correlated with the performance of religious rituals. Studying Hinduism and Mental Health Kang (2010) claimed that teaching of Hinduism had a positive impact on mental health among Hindus.

Desrosiers and Miller (2006) found Subjective mental wellbeing is positively correlated with religiosity and proved that religious minded adolescent girls are less likely to be depressive. Research study have shown that among young adults, regularity of prayer is a overriding religious ritual in creating the association between religiosity and improved mental health such as lower level of anxiety and depression (Brown & Gary 1991 ;Maltby at al., 2010).

Shreve-Neiger and Edelstein (2004) proved decreased anxiety to be associated with religiosity. Impact of religiosity on liberal mindedness is been proved as reported by Roychwdhury (2010). Study results reported that church-going Protestants exhibited with higher education are more theologically open-minded, suggesting that the as compare to amount of higher education type of education matters more (Reimer, 2010).

RESEARCH METHODOLOGY

Objectives of the study

The study aimed to assess and compare the personality dynamics of Boarders of Public Schools and Madrassah students. Madrassah and Public schools are two different systems of education as their structure, teaching mode, syllabus and atmosphere is different from each other, thus will result into development of particular personality dimensions such as extrovert, conscientiousness etc. Basically, there are two systems of education existing in Pakistan: roots of the conventional religion-based education system and the modern formal education system are traced back to British royal law and continued after the country's independence (Memon, 2007).

Hypotheses

The study follows the following hypotheses:

Hypothesis1*:* There will be significant difference between Madrassah and Public school boarders and day scholars on Personality dynamics scale.
Hypothesis2*:* There will be significant difference between Madrassah boarders and day scholars on Neuroticism Personality dynamics subscale.

Hypothesis3: There will be significant difference between Madrassah boarders and day scholars on Extroversion Personality dynamics subscale.

Hypothesis4*:* There will be significant difference between Madrassah boarders and day scholars on Openness Personality dynamics subscale.

Hypothesis5*:* There will be significant difference between Madrassah boarders and day scholars on Agreeableness Personality dynamics subscale.

Hypothesis6*:* There will be significant difference among Public school boarders and day scholars on Conscientiousness Personality dynamics subscale.

Research Design

The research design for the present study was quantitative, where as cross sectional research design was employed to compare and investigate the data.

Population

Population of the present study included all female and male boarders and day scholars of Public schools and Madrassahs locating in Hazara division. According to Education Department the estimated number of Colleges/Higher secondary schools in Abbottabad, Havelian, Mansehra and Haripur cities was 264 with 162307 students. Whereas, the estimated number of Madrassashs in Abbottabad, Havelian, Mansehra and Haripur cities were 218 with 5768 Tlibilums. The total strength of Public education based Secondary school and Madrassah students were 168075 in number. The expected number of students targeted in this study was one fourth of the total strength of secondary level Public schools and Madrassah, which were about 42016. It was not possible for the researcher to approach the total population therefore sampling technique was applied.

Sample

For the present study six public boarding schools and six Madrassah (3 Female institutes and 3 Male institutes) were randomly selected from Haripur, Havelian, Abbottabad and Mansehra. Researcher selected the sample through Simple random sampling technique by using student's attendance registers/ nominal record. Every third student of the list was selected in a sample from the above mentioned institutes (Public Schools and Madrassah). In this way 168 students with the age ranged from 15 years to 30 years were selected in a Sample (84Females and 84Males).

The researcher selected Abbottabad, Mansehra, Havelian and Haripur as the field of study .Six Public sector schools and six Madrassah institutes were randomly selected, of which three were for girls and three for boys respectively. Sample comprised of 168 students, out of which 84 were girls and84 were boys. It was decided to select equal respondents from each institute by applying probability simple random sampling.

Research instrument

Urdu version of revised NEO personality inventory (IPIP NEO PI, 1999) developed by Goldberg (1999) was used in the present study. The test was consisted of 98 items with five response options, measuring Five Factors Extraversion, Agreeableness, Conscientiousness, Neuroticism and Openness to Experience. Positive items were scored as Strongly agree= 5, Agree = 4, Undecided = 3, Disagree = 2, strongly Disagree = 1. Whereas Negative valence items were scored as Strongly Agree = 1, Agree = 2, Undecided = 3, disagree = 4, Strongly Disagree = 5 respectively.

Procedure

For the data collection respondents were personally approached by the researcher and questionnaires were distributed individually in face to face fashion. Clear instructions were prepared for the respondents. They were requested to go through the general instructions first and then to respond. The respondents were asked to decide about agreement with the statements and mark the relevant response category honestly. The questionnaire was distributed randomly to the subjects with request to complete and return it .The cooperation from institution teachers was remarkable.

RESULTS AND DISCUSSION

Data is tabulated and statistically treated in order to get conclusions.

Table1. Cross tabulation of Frequencies of Demographic Variables (Educational system, Gender and place of residence) of secondary level students (N= 168)

Education System	Gender		Place of residence	
	Boys	Girls	Boarders	Day scholars
Public school	42	42	---	---
	----	---	84	84
Madrassah Education	42	42	---	---
	---	---	84	84

Table 2. Alpha Reliability coefficient for personality dynamic scale

Scales	N of items	M	SD	Reliability
Neuroticism	30	83.74	13.81	0.68
Extraversion	20	51.82	8.96	0.53
Agreeableness	20	55.32	9.675	0.60
Conscientiousness	16	43.06	9.79	0.71
Openness	12	31.18	8.17	0.72

The results in table2: clearly exhibits that calculated reliability of translated version of NEO personality inventory (1992) is 0.53 to 0.72 which shows that scale is reliable to measure personality Dynamics of Madrassah and Public school students. Whereas Internal consistency of Original version of NEO PI were: N= .79, E= .79, O= .80, A= .75, C= .83**.**

Table3. Cross Tabulation of Frequencies of Demographic Variables (Age and Education) of Public School and Madrassah students (N=168)

	Educational System			
	Madrassah (n=84)		Public School (n=84)	
Age	Matric	Intermediate	Matric	Intermediate
15-20	25	22	14	23
21-25	22	21	30	11
26-30	11	34	21	18

Table 3 shows that age and educational status of Madrassah and Public school students are similar, most fall within the range of 15-20 and their education ranges from Matriculation to intermediate level.

Table4. *Mean Standard Deviation and t- scores of Boarders and Day scholars on personality dynamic scale (N = 168)*

	Boarders (n=84) M	SD	Day Scholar (n=84) M	SD	t	p
Overall Personality Dynamic	273.36	15.74	264.26	18.04	5.34*	.000
Neuroticism	87.21	10.08	79.19	11.18	7.45*	.000
Extroversion	50.55	7.345	57.25	6.079	9.56*	.000
Openness	31.72	5.503	34.69	8.404	4.27*	.000
Agreeableness	57.75	6.249	51.73	6.784	9.11*	.000
Conscientiousness	46.15	6.048	41.41	6.885	7.26*	.000

df =166 , *p< .05

Above Table shows significant difference between Boarders and Day Scholars with reference to Personality dynamics. The Mean scores of Boarders on personality dynamic scale 273.366 are higher as compared to day Scholar i.e., 264.262. Moreover table exhibits difference between Boarder students and Day Scholar students with reference to Personality dynamics facets of Neuroticism, Extroversion, Openness, Agreeableness and Conscientiousness.

DISCUSSION

The present study was intended to compare personality dynamics between Boarders and Day scholars of Madrassah and Public school students. Another prominent purpose of present study was to measure the relationship between impact of place of residence on personality dynamics. The findings supported the hypothesis as the results were significant, it was proved that place of residence does affect personality along with it was found that as compared to day scholar students boarders or hostilities show significant difference on major dimensions of personality such as neuroticism, openness, agreeableness, conscientiousness and extraversion (t=5.34 ,df= 166, P<.05) (Table 4). This also supports the earlier findings stating that children sent to boarding school causes lack of emotional expression. It is proved, at boarding schools children feels distraught full which later on results into adaptation of phony personality (Schaverien, 2004). The personality of hostlers and non hostlers was found to be significantly different on major dimensions of the personality (Kumar at al., 2009). Similar findings were presented by Terry (1994) suggesting that environmental aspect of a boarding house have an effect on the adjustment skills and ability. Similar views about the aversive affect of boarding house on personality dynamics was presented stating that the aspect of being alone, emotional instability and academic performance are significantly related with boarding house environment (Burt, 1993; Raju, 2009).

The research findings supported the hypothesis i.e., There will be significant difference between Madrassah boarders and day scholars on Neuroticism Personality dynamics subscale. As compared to day scholars, Madrassah boarders (t=7.45, df=166,P<.05) exhibits emotional unsteadiness, nervousness, hostility, depression due to their residence in tense and restricted environment of the hostel. Present result is supported by several earlier researches affirming the homesickness to be one of the negative effects which results in lack of concentration, depression and dysfunctional behavior. (Thurber, 1999) stated that homesickness is interrelated with age and of home leaving experiences. Restricted environment of Boarding school causes the problem of emotional expression which turns in to counterfeit personality (Schaverien, 2004). The majority of studies on mental health revealed that

religiosity is positively associated with mental well-being and with less sadness, desperate thoughts and drug abuse (Moreira-Almeida at al., 2006). Lesmana and Tiliopoulos (2009) reported the same type of effect of religiosity on one's mental health among Hindus such as schizotypal personality trait was found to be positively correlated with the performance of religious rituals. Kang (2010) claimed that teaching of Hinduism had a positive impact on mental health among Hindus. Residential condition was found to be positively associated with Child's unhealthy personality. It was found that Boarding school upbringing weakens the emotional and psychological status: resulting in anxiety, home sickness (Rutter, 1985**;** Kleinfeld, & Bloom 1977; Mishra, 1994; Dwelle, 2000). Overly concerned attachment with God was proved to be an important predictor of neuroticism (Rowatt & Kirkpatrick, 2002). Research study have shown that among young adults, regularity of prayer is a overriding religious ritual in creating the association between religiosity and improved mental health such as lower level of anxiety and depression (Brown & Gary 1991 ;Maltby at al., 2010).Obst and Tham (2009)found that religious and spiritual practices can have positive impact on one's health and well-being. Contrary to present research findings it was proved that there Self-control is positively correlated with religiosity and negatively with depression and anxiety (Khan at al., 2008). Religiosity provides a shield against harmful effects of stress on mental health. Religious service and rituals enhance the mental health of an individual (Larson & Larson, 2001). Contradictory to earlier researches, research study conducted by Williams at al., (1999) reported that religious beliefs are not significantly related to mental health status. Kleinfeld and Bloom (1977) stated that whether boarding schools weaken the psychological well being of Eskimo and Indian children.

 Studying the hypothesis i.e., There will be significant difference between Madrassah boarders and day scholars on Extroversion Personality dynamics subscale it was proved that Madrassah boarders were less extroverted than day scholars. Similar finding were reported by Jeff and Smith (1999) suggesting Christianity to be linked, with low scores on extraversion (Bourke at al., 2007). Religiosity was proved to be positively co-related with Extraversion (Kokkonen & Pulkkinen, 2001; Saroglou 2002; Jorm & Christensen, 2003). Previous researches suggested no relationship between Extroversion and religiosity (Taylor & MacDonald, 1999; Francis & Shirley, 2003).

Studying another hypothesis i.e., There will be significant difference between Madrassah boarders and day scholars on Openness Personality dynamics subscale, it was found that Madrassah boarders were less open than Madrassah day scholars. Similarly findings were reported by Taylor and MacDonald, (1999) suggesting Openness to be fundamentally unassociated with religion**.**

  Another hypothesis of the present study was i.e., There will be significant difference between Madrassah boarders and day scholars on Agreeableness Personality dynamics subscale. Study finding proved that Madrassah day scholars were more considerate and cooperative. Present research findings are supported by Bronfenbrenner (2007) found that children of boarding school were different from day scholars in showing conformity to social values. Agreeableness was significantly positively correlated with avoidant attachment to God (Rowatt & Kirkpatrick, 2002).

Studying another aspect of personality dynamic it was hypothesized i.e., There will be significant difference among Public school boarders and day scholars on Conscientiousness Personality dynamics subscale. Present study has proved that Madrassah boarders are more careful and vigilant and have the sense of right and wrong in performing the order of others. Similar findings were reported by Wickstrom and Fleck (1983) suggesting that boarding schools provides an environment of healthy competition which motivates the children to improve their performance and exceed over other. McCullough at al., (2003) found importance of Conscientiousness as a predictor of religiousness. Francis and Jackson (2003) proved positive correlation between guilt feelings and religiosity, while unhappiness and religiosity was found to be negatively correlated; on the other hand no correlation was found between religiosity and low-self esteem, anxiety, dependency. Consistent with earlier study it was proved that boarding school develops the team spirit and the feeling of kinship which proves to be beneficial for their practical life (Burt**,** 1993; Terry, 1994; Little at al., 2005; Raju 2009; Moffat, 2011). Wickstrom and Fleck (1983) conducted a study in order to compare the level of Self esteem of students of religious institute it was proved that as compared to boarders day scholars had better self

concept and self esteem. Public school boarders experience more relaxed and open environment thus suffer less from negative effect of boarding and have healthy personality. Public school boarding schools designate proper time schedule for both studies and entertainment which lower down many adverse effect of boarding school i.e., home sickness, depression.

CONCLUSION

On the basis of obtained findings it is concluded that place of residence variable does exert the influence on personality dynamics. Significant difference was observed among the students living as Boarders and day scholars of Madrassah and Public school. It further indicates that religious education proved to be helpful and supportive as providing coping ability in order to deal with everyday life problems, as it was proved that as compared to boarders of Public schools. Madrassah boarders showed less vulnerability to stress and possessed mental wellbeing but exhibited less extroverted tendencies. On the other hand Boarders of Madrassah student are more agreeing, higher grade of organization, persistence, control and motivation in goal directed behavior. Study also concluded that as compared to day scholar students, boarders or hostilities showed significant difference on major dimensions of personality such as neuroticism, openness, agreeableness, conscientiousness, and extraversion.

REFERENCES

Abdel-Khalek, A. M. (2007). Religiosity, happiness, health, and psychopathology in a probability sample of Muslim adolescents. *Mental Health, Religion & Culture,* 10(6), 571 – 583.doi: 10.1080/1367467060 1034547.

Ahmed, A.M. (2009). Are Religious People More Prosocial? A Quasi-Experimental Study with Madrasah Pupils in a Rural Community in India. *Journal for the Scientific Study of Religion*, 48(2), 368–374.doi:10 1111/j.1468-5906.2009. 01452.x.

Ano G. G, Vasconcelles, E. B. (2004). Religious coping and psychological adjustment to stress: A meta-analysis. *Journal of Clinical Psychology*, *61(4),* 461 – 480. Retrieved from *http://www.Ncbi.nlm.nih.govpubmed/5 503316.*

Bergin, A. (1983). Religiosity and mental health: A critical reevaluation and meta-analysis. *Professional Psychology: Research and Practice.* 14 (2), 170-184. doi: 10.1037/0735-7028.14.2.170.

Barkan, S.A. (2003).Religious attendance and subjective well being among older Americans: evidence from the general social survey. 45(2), 116-129. Retreved from http://www.jstor.org/pss/3512578.

Bourke, R; Francis, L. J.; Robbins, M. (2007). Cattell's personality model and attitude toward Christianity. *Mental Health, Religion & Culture, Volume*, 10(4), 353-362. doi: 10.1080/13694670600722460.

Brown, D. R., & Gary, L.E. (1994). Religious involvement and health status   among African-American Males. *Journal of National Medical Association*, 86(11), 825–831. PMCID: PMC2607613.

Bronfenbrenner, U. (2007). Reaction to social pressure from adults versus peers among Soviet day school and boarding school pupils in the perspective of an American sample. *Journal of Personality and Social Psychology.*15(3), 179-189. doi: 10.1037/h0029426 .

Carden, A.I., & Feicht,R.(1991) Homesickness among American and Turkish College Students *Journal of Cross-Cultural Psychology* , 22 (3) 418-428 doi: 10.1177/0022022191223007

Cherry, K. (2011). About.com Guide to Psychology. Retrieved from http://psychology.about.com/od/psychology101/u/psychology-theories.htm

Cohen, A. B., Pierce, J. D., Chambers, J., Meade, R., Gorvine, B. J., & Koenig, H. G. (2005). Intrinsic and extrinsic religiosity, belief in the afterlife, death anxiety, and life satisfaction in young Catholics and Protestants. *Journal of Research in Personality.* 39(3), 307-324. doi:10.1016/j.jrp. 2004.02.005.

Cotton, S., Mc Grady, M. E., & Rosenthal, S. L. (2010). Measurement of Religiosity/Spirituality in Adolescent Health Outcomes Research: Trends and Recommendations. *Journal of Religion and Health,* doi: 10.1007/s 10943-010-9324-0.

Davis, T. L. Kerr, B. A., & Kurpius, S.E. R. (2003). Meaning, Purpose, and Religiosity in At-Risk Youth: The Relationship between Anxiety and Spirituality. *Journal of Psychology and Theology,* 31, Retrieved from http://www.questia.com/googleScholar.qst?docId=500257650.

Desrosiers, A., & Miller, L. (2007). Relational spirituality and depression in adolescent girls. *Journal of Clinical Psychology*, 63(10), 1021 – 1037.doi: 10.1002/ jclp.20409.

Ritter, D. (2008). A Brief Overview of Human Dynamics. Life and Spiritual Coaching, July. Retrieved from http://dritter55.wordpress.com/2008/ 07/09/a-brief-review-of-human-dynamics/

Duriez, B., & Soenens, B. (2006). Personality, identity styles, and religiosity: An integrative study among late and middle adolescents. *Journal of Adolescence,* 29(1), 119-135. doi:10.1016/j.adolescence.2004.11.007

Dambudzo, I. I.(2009). The relationship between learner self-concept and achievement in secondary schools in Zimbabwe. Retrieved from http://hdl.handle.net/10500/2393

Durrheim, K. (1998). The relationship between tolerance of ambiguity and attitudinal conservatism: a multidimensional analysis. European *Journal of Social Psychology*, 28(5), 731-753 .doi:10.1002/(SICI)1099 0992(199809/10)28:5<731.295-299.ISSN1195-1982. Retrieved from http://cat.inist.fr/?aModele=affic heN&cpsidt=863475

Dwelle, T.L.(2005). Personality trait profiles of missionary adolescents. Journal of travel Mdicine, 7(9), DOI: 10.2310/7060.2000.00081

Ellison C. G., & Burdette, A.M., & Hill, T.D. (2009). Blessed assurance: religion, anxiety, and tranquility among US adults. Social Science Research. 38(3), 656-67, http://www.ncbi.nlm.nih.gov/pubmed/1985 6703. PMID:19856703

Ellison, C.G., & Levin J. S. (1998).The Religion Health connection, Evidence, Theory and future Direction. *Health Education & behavior*, 25(6). Retrieved from http://www.religionomics.com/old/erel2006s/readings/Ellison–Levin%2 0--%20Religion-Health%20Connection.pdf.

Emmons, R.A., Cheung, C., & Tehrani, K. (1998).Assessing spirituality through personal goals: implication for research on religion and subjective well-being. *Social Indicator Research*, 45, (1-3), 391-422, doi: 10.1023/A: 1006926720976.

Encyclopedia of Islam, new ed (1995).*Madrassah*, : New York: Oxford Univ. Press

Fagan, P. (2006). Why Religion Matters Even More: The Impact of Religious Practice on Social Stability. Heritage Foundation .Retrieved from http:// www.heritage.org/Research/Reports/2006/12/Why-Religion-Matters-Even-More-The-Impact-of-Religious-Practice-on-Social.

Francis, L. J., & Kerr, S. (2003). Secondary School Pupils in South Africa in the Early 1990S. *Journal of Religion and Theology*, 10(2), 224-236. doi: 10.1163/157430103X00051.

Francis, L. J., & Jackson, C. J. (2003). Eysenck's dimensional model of personality and religion: are religious people more neurotic? Mental Health, Religion & Culture, 6 (1), 87–100.doi:10.1080/13674670310000 8627.

Francis, L. J., Ziebertz, H.-G., & Lewis, C. A. (2003). The relationship between personality and religion among undergraduate students in Germany. *Archive for the Psychology of Religion / Archiv für Religionspychologie*, 24(1), 121-127. doi: 10.1163/157361203X00264.

Francis, L.J., & Bourke, R. (2004). Personality and religion: Applying Cattell's model among secondary school pupils. *Current Psychology,* 22 (2), 224-236. doi: 10.1007/s12144-003-1003-9

Greenfield, E.A., & Marks, N.F. (2007). Religious Social Identity as an Explanatory Factor for Associations between More Frequent Formal Religious Participation and Psychological Well-Being. *International Journal Psychology Religion,* 17(3), 245–259. PMCID: PMC2507864 NIHMSID: NIHMS56430.

Goldberg, L. (1993). The structure of phenotypic personality traits. *American Psychologist, 48,* 26-34. Retrieved from http://internal.psychology.illinois.edu /~broberts/Goldberg,%201993.pdf.

Grønbjerg, K. A., & Never, B. (2004). The role of religious networks and other factors in types of volunteer work. *Nonprofit Management and Leadership*, 14 (3), 263 – 289. doi:10.1002/nml.34.

Hall, D.L. Matz, D.C4., & Wood, W. (2010). Why Don't We Practice What We Preach? A Meta-Analytic Review of Religious Racism. *Journal of personality and social psychology review*, 14 (1), 126-139.doi:101177/10 88868309352172.

Headey, B., & Wearing, A. (2002). Personality, Life Events, and Subjective Well-Being: Toward a Dynamic Equilibrium Model. *Journal of Personality and Social Psychology. 57(4)*, 731-739. Retrieved from http://www.sciencedirect.com/science?_ob=ArticleURL&_udi=B6X01-46X8T6756&_user=10&_cover Date=10%2F31%2F1989&_rdoc=1&_fmt=high&_orig=search&_origin=search&_sort=d&_docanch or=&view=c&_acct=C000050221&_version=1&_urlVersion=0&_userid=10&md5=ae4346fccc2695 c3e1cb21315991db59&searchtype=a Available online 4 October 2002.

Henderson, E. (1997). Navajo 'Cousin-Brother' gangs. Paper presented at the 39th annual conference of the Western Social Association, Albuquerque,NM. Retrieved from http://ww w.ucdenver.edu/academics/colleges/Pu blicH ealth/research/centers/CAIANH/journal/Documents/Volume%208/8(2)_2_Henderson_Boarding_and _public_schools.pdf

Hussain, M., & Qureshi, M. (2007). Madrasah Education in Pakistan: Issues & Its Effects on Education System of Pakistan. *Journal of Educational Research*, 2(10), 62-7. Issn.10279776. Retrieved from http://www.doaj .org/doaj? func =abstract& id=306770.

Idler, E. (2008).The psychological and Physical benefits of spiritual religious practices. *Spirituality in higher education*. 4(2).Retrieved from http://www .spirituality.ucla.edu/docs/newsletters/4/Idler_Final.pdf.

Inglehart, R. (1990). Culture shift in advanced industrial society. Princeton, NJ: Princeton University Press. Retrieved from http://esr.oxfordjournals.org/content /8/1/95.full.pdf

International Crisis Group, (2002). Retrieved from http://schools.nashua.edu /my class/fenlonm/block1/Lists/D ueDates/Attachments/10/madrassah-history.pdf.

Jeff, T., & Smith, M. K.(1999). What is education? Retrieved from http:// www.infed.org/foundations/f-educ.htm.

Jensen, M.J., & Overgaard, M. (1993). Investigation of smoking habit among 14-17 year old boarding school students. *Public Health.* 107(2), 117-123. doi:10.1016/S0033-3506(05)80409-3.

Jorm, A.F., & Christensen, H. (2003). Religiosity and personality: evidence for non-linear associations. *Personality and Individual Differences,* 36 , (6), 14 33-1441. doi:10.1016/S0191-8 869(03)00239-3.

Kang, C. (2010). Hinduism and Mental Health: engaging British Hindus. *Mental Health, Religion & Culture,* 13(6), 587-593. doi:10.1080/13674676.2010. 488427.

Khan, H. F., Watson, P. J. D., & Cothran, L. (2008). Self-control in Pakistani Muslims: relationships with religious orientation, depression and anxiety. *Journal of Beliefs & Values,* 29(2), 213 – 216. doi: 10.1080/136176708022 89734.

Kokkonen, M., & Pulkkinen, L. (2001). Extraversion and Neuroticism as antecedents of emotion regulation and deregulation in adulthood. *European Journal of Personality.*15(6), 407 – 424. doi:10.1002/per.425.

Kleinfeld, J., & Bloom, J. (1977). Boarding schools: effects on the mental health of Eskimo adolescents. *American Journal of Psychiatry*, 134, 411-417. Retrieved from http://ajp.psychiatryonline.org/cgi/content/ab stract/ 134/4/411.

Koenig, H. G., Larson, D. B., & Larson, S. S. (2001). Religion and coping with serious medical illness. *The Annals of Pharmacotherapy*, 35(3), 352-359. Retrieved from http://www.ncbi.nlm.nih.gov /pub med/11261534.

Kumar, M. M., & Reader, Arun, K. (2009). Comparative study of personality pattern of hostlers and no hostlers at senior secondary school students. Gyanodaya: The Journal of Progressive Education, 2(2), Print ISSN: 0974-1801. Retrieved from http://www.Indianjournals.com/ijor.aspx?target=ijor:gjpe&volume=2& issue=2&ar ticle=003.

Kushlis, J.(2004, December 6). Unitarian Universalist student retreats boost more than Eva Baker's spiritual life. Study concludes religion improves self-esteem.(Daily Orange) (U-WIRE) SYRACUSE, N.Y. Retrieved from http://www .high beam .com /doc/1P1-103158874.html.

Larson, D.B, & Larson, S.S. (2001). Religion and coping with serious medical illness. *The Annals of Pharmacotherapy*: 35(3), 352-359. doi 10.1345/aph.10215

Lewis, C.A. (1998). Towards a Clarification of the Association between Religiosity and Life Satisfaction. *Journal of Beliefs & Values*, 19(1), 119 – 122. doi: 10.10 80/1361767980190110.

Lewis, C.A., & Maltby, J. (1999). Religiosity and personality among U.S. adults. *Personality and Individual Differences.* 18(2), 293-295. doi: 10.1016/0191-8869(94)00159-P

Little, M., Kohm, A., & Thompson, R. (2005). The impact of residential placement on child development: research and policy implications. International Journal of Social Welfare, 14(3), 200–209, doi: 101111/j.1468 -2397.2005.00360.x

Maltby,J., at al., (2010). Religion and health : the application of a cognitive-behavioral framework. *Mental Health, Religion & Culture*, 13(7-8), 749-759. doi:10.1 080/13674670802596930.

McCullough, M.E., & Worthington, E.L. (2001). Religion and the Forgiving Personality. *Journal of personality*. 67(6), 1141–1164, doi: 10.1111/1467-6494.00085.

McCullough, M.E., Tsang, J.A., & Brion, S. (2003). Personality Traits in Adolescence as Predictors of Religiousness in Early Adulthood: Findings from the Terman Longitudinal Study. *Personality and Social Psychology Bulletin*, 29(8), 980-991.doi:10.1177/0146167203253210.

McShane, D. (1988). An analysis of mental health research with American Indian youth. *Journal of Adolescence*, 11, (2), 87-116. doi:10.1016/S0140-1971(88)80047-2

Memon, G.R. (2007). Education in Pakistan: The Key Issues, Problem and The New Challenges. Journal of Management and Social Sciences, 3(1), 47-55. http://admin.hero.ac.uk/sites/international /resources /Education%20in%20Pakistan%20%20The%20Key%20Issues,%20Problems%20and%20The%20New%20Challenges.pdf

Mishra, A.N. (1994). Students and Hostel life: a study of university students. Retrieved from http://books.google.com./books?id=PzWMCFzITZYC&pg=PA26&lpg=PA26&dq=Mishra,+(1994)+host eller&source=bl&ots=ba0BuAAGh7sig=vP6wE_ahNGyxMgS78ulv9TfTI&hl=en=cohHTbSLF8KhQ eRptgkBQ&sa=X&oi=book_result&ct=result&resnum=1&ved=0CBYQ6aEwAA#v=0nepage&q&f= false .

Moreira-Almeida, A., Neto, F. L., & Koenig, H. G. (2006). Religiousness and mental health: a review. *Revista Brasileira de Psiquiatria*, doi: 10.1590 /S1516-44462006005000006. *Print version* ISSN 1516-4446.

Mookerjee, R., Beron, K. (2004). Gender, religion and happiness. *Journal of Socio-Economics*, 34 (5), 674-685. doi:10.1016/j.socec.2005.07.012.

Moffat (2011). *Overall Personality Development of The Students Is Primed By The Boarding School UK*. Retrieved from http://www.bukisa.com/articles /434153_overall-personality-development-of-the-students-is-primed-by-the-boarding-school-uk.

Obst, P., & Tham, N. (2009). Helping the soul: the relationship between connectivity and well-being within a church community. *Journal of Community psychology*, 37(3), 342-361. doi: 10.1002/jcop.20299.

Pakistan's National Education Census (NEC) 2006 .*The News* (Islamabad), Oct. 12, 2006.Retrieved from http://www.docstoc.com/docs/34340495/Two-RecentUpdated-CRS-Reports--Islam.

Pfeifera, S., & Waelty, U. (1999). Anxiety, depression, and religiosity—a controlled clinical study. *Journal of Mental health religion and culture*, 2 (1) , 35 – 45. doi: 10.1080/13674679908406330.

Raju, T. (2009). *Personality and Adjustment of University Hostel students*. Retrieved from http://books. google.com.pk/books?hl=en&lr=&id=X7I4RF9d9nAC&oi=fnd&pg=PA1&dq=hostel++and++student +pers onality+&ots=GoOFfz88rA&sig=wzNveviIVp8biUkFr_J_82dxg3w#v=onepage&q=hostel%20%20a nd%20%20student%20personality&f=false.ISBN.978-81-8356 -424-3.

Rutter, M. (1985). Family and school influences on behavioral development. *Journal of Child Psychology and Psychiatry,* 26(3), 349–368. doi:10.1111/j .1469-7610.1985.tb01938.x.

Rowatt, W., & Kirkpatrick, L. A. (2002). Two Dimensions of Attachment to God and Their Relation to Affect, Religiosity, and Personality Constructs. *Journal for the Scientific Study of Religion*, 41(4), 637 – 651.doi:10.1111/1 468-5906.00143.

Roychowdhury, A. (2010). Religion and democracy. Retrieved from http://www.articlesbase.com/politics-articles/religion-and-democracy-3005427.html.

Sajjad, M. W. (2008).*Madrasas in Pakistan: thinking beyond terrorism-based reforms.* The Institute of Strategic Studies, Islamabad. Retrieved from http://www.issi.org.pk/ss_Detail.php?dataId=506.

Saroglou, V. (2001). Religion and the five factors of personality: a meta analytic review. *Personality and Individual Differences,* 32(1), 15-25. doi:10.1016/ S0191-8869(00)00233-6.

Saroglou, V., Pichon, I., Trompette, L., Verschueren, M., & Dernelle, R. (2005). Prosocial Behavior and Religion: New Evidence Based on Projective Measures and Peer Ratings. *Journal for the Scientific Study of Religion*, 44 (3), 323–348. doi: 10.1111/j.1468-5906.2005.00289.x

Saroglou, V., & Fiasse, L. (2002). Birth order, personality, and religion: a study among young adults from a three-sibling family. *Personality and Individual Differences* .35(1), 19-29. doi:10.1016/S0191-8869(02)00137-X .

Schaverien, J. (2004).Boarding school: the trauma of the 'privileged' child. *Journal of Analytical Psychology*, 49, 683–705. doi: 10.1111/j.0021-8774 .2004.00495.x.

Seagal, S. (2002).The Human Dynamics Body of Knowledge and its Implications for Education: A Brief Account. *New Horizons for Learning,* Retrieved from http://www.marthalakecov.org/~building/strategie s/styles/horne.html.

Seagal, S.(2010). What is Human Dynamics? Retrieved from http://www.humandynamics.com/ind ex.php/about-human-dynamics? Name=Value.

Shreve-Neiger, A. K., & Edelstein, B.A. (2004). Religion and anxiety: A critical review of the literature. *Clinical Psychology Review,* 24 (4), 379-397. doi:10.1016/j.cpr.2004.02.003 .

Taylor, A., & MacDonald, D.A. (1999). Religion and the five factor model of personality: An exploratory investigation using a Canadian university sample. *Personality and Individual Differences.* 27(6), 1243-1259. doi:10.1 016/S0191-8869(99)00068-9.

Terry**,** T.J. (2002). Determinants of Coping: The Role of Stable and Situational Factors. *Journal of Personality and Social Psychology*, 66(5), 895-910. Retrieved from http://www.sciencedirect.com/science?_ob=ArticleU RL&_udi=B6X0146SGKK32V&_user=10&_coverDate=05%2F31%2F1994&_rdoc=1&_fmt=high &_ori g=search&_origin=search&_sort=d&_docanchor=&view=c&_acct=C000050221&_version =1&_urlVersion =0&_userid=10&md5=16a1e0bc9674367c5a1f1fe5f3 23b1f5&searchtyp e=a

Thurber C.A. (1999). The Phenomenology of Homesickness in Boys. *Journal of Abnormal Child Psychology,* 27(2), 125-139. Retrieved from http://www.ingentaconnect.com/content/klu/jacp/1999/00000027/00000002/0 0413143.

Tognoli, J. (2003).Leaving Home Homesickness, Place Attachment, and Transition Among Residential College Students. *Journal of College Student Psychotherapy*, 18(1),35-48.DOI: 10.1300/J035v18n01_04

Welch, M. R., Tittle, C. R., &. Grasmick, H. G. (2006). Christian religiosity, self-control and social conformity. *Social Forces*. Retrieved from http://www .highbeam.com/doc/1G1-145337511.html.

Wickstom, D. L., & Fleck, J. R. (1983). Missionary Children: Correlates of Self-Esteem and Dependency. *Journal of Psychology and Theology La Mirada*, Cal. 11(3), 226-235. Retrieved from http://www.microsofttranslator.com /BV.aspx?ref=IE8Activity&a=http%3A%2F%2Fcat.inist.fr%2F%3FaModele%3DafficheN%26cpsidt %3D12328556

Wilcox, C. (1997). Personality and Religion among A level Religious Studies Students. *International Journal of Children's Spirituality*, 1, 48–56. doi: 10.1080/1364436970010207.

Williams, D.R., Larson, D.B., Buckler, R.E., Heckmann, R.C., & Pyle, C.M. (1991). Religion and psychological distress in a community sample. *U.S. National Library of Medicine .National Institutes of Health*. *Social Science Medical.* 32(11), 1257-62. Retrieved from http://www.ncbi.nlm.nih.gov /pubmed/2068608.

Wikipedia the free encyclopedia, (2011). Education in Pakistan. Retrieved from http://en.wikipedia .org/wiki/Education_in_Pakistan.

Wright, L. S., Frost, C. J., & Wisecarever, S. J. (1993). Church attendance, meaningfulness of religion, and depressive symptomatology among adolescents. *Journal of Youth and Adolescence ,* 22(5), 559-568. doi: 10.1007/BF01537716.

Woodberry, R.D. (2001).Hidden Yeast: Overlooked Sources of Democracy Project on Religion and Economic Change Working Paper #002. Retrieved http://74.125.155.132/scholar?q=cache:FuXb4qVnudwJ: scholar.google.com/+research+article+on+religon+by+Young+2002%3B+Woodberry+2000%3B+Sm ith+and+Woodberry+2001%3B+Anheier+and+Salamon+1998).&hl=en&as_sdt=0,5.

Wong, Y. J. Rew, L,. & Slaikeu, D.K. (2006). A systematic review of recent research on adolescent religiosity/spirituality and mental health. *Issues in Mental Health Nursing*. 27(2), 161-183. doi: 10.10 80/01612840500436941.

CREDIBILITY OF SCHOOL EXAMINATIONS IN ZIMBABWE: A REFLECTIVE ANALYSIS

Charles Musarurwa
Department of Languages &
Social Sciences Education
University of Botswana
BOTSWANA.
charles.musarurwa@mopipi.ub.bw

Sylod Chimhenga
Zimbabwe Open University,
Bulawayo
ZIMBABWE.
chimhengas@gmail.com

ABSTRACT

It is certainly true that examinations play a major role both in assessment of learning and selection of candidates for subsequent stages of education and/or for employment, (Bray 1998) hence most countries consider assessment and examinations as one of the most important aspects of the education system. Like in most Commonwealth countries[1], Zimbabwe inherited an examination model of the UK, characterized by Ordinary (O) and Advanced (A) Level examinations. However after gradually taking over the examination process, suddenly, there have arisen negative sentiments on credibility of examinations and maintenance of assessment standards. Is there any objectivity in these statements or it is just a nostalgic attachment to pre-colonial institutions? This paper tries to answer this particular question as well as exploring alternative solutions

Keywords: Zimbabwe, School Examinations, Curriculum Development, Education

INTRODUCTION

Zimbabwe, a former British Colony known as Rhodesia, is a landlocked country in Southern Africa, sharing borders with Mozambique to the east and north east, South Africa to the South, Zambia to the north, Botswana to the west and south west as well as Namibia to the west at the Caprivi Strip. Zimbabwe's education system consists of primary education, secondary education and tertiary education. Primary education is seven-years and compulsory, secondary education comprises a four-year O-Level cycle where the official entry age is 13 years, and a two-year Advanced Level (A-Level) cycle. Like primary education, the secondary curriculum is centrally designed by the CDU[2] in the Ministry of Education, Sport and Culture. After O-Level, a student may choose to proceed to A-Level or go to any of the following: teacher's training college, technical college, agricultural college, polytechnic, and nursing training college (Kanyongo 2005). By the mid-1990s, Zimbabwe had achieved near universal primary education for all and literacy levels for 15 – 24 year olds rose from 95% to 98% between 1992 and 1999 (Government of Zimbabwe 2004, Murira 2001)

School Examinations in Zimbabwe

Zimbabwe's school examinations have a long history dating back to the pre – independence era, when the country depended heavily on UK based examination boards both for Schools and University. The ordinary level and advanced level examinations were the preserve of several external examinations

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[1] Zimbabwe joined the Commonwealth of Nations soon after Independence in 1980. However the country left the Commonwealth in 2008 in protest of the Commonwealth heads of government and states attempt to intervene in Zimbabwe's political issues

[2] Curriculum Development Unit

board such as the University of Cambridge Local Examinations Syndicate (UCLES), The University of London Schools Examinations Board (ULSEB), and the Associated Examinations Board (AEB). AEB was meant for white sat for students while UCLES was mainly used by African pupils[3] The country had its own Examinations Branch under the Ministry of Education which, besides playing an administrative role for external examination, administered the terminal primary school grade seven examinations, the secondary school Junior Certificate examinations, and the grade eleven examinations[4] that was meant for African students. The discriminatory purpose of the assessment system was meant to disadvantage a large section of the population that happened to be black and hence after independence in 1980, Zimbabwe became determined to take control of its examinations. Dorsey (1981) gives a preview the problem "The black child… entered a system that was voluntary and highly selective. Whether he continued at various levels depended on his ability to pass examinations with a high mark and his parents' ability to pay his school fees. In 1975 only 54.5 percent of the grade 1 cohort completed the 7-year primary school course, 9.9 percent went on to secondary school, 4 percent completed form 4, and the number in the sixth form qualifying for university entrance was 0.3 percent." (Dorsey 1981)

According to Abraham (2003) citing Bond-Stewart (1986) and Mazhero (1986) it was such resentment toward outside involvement in the examination system and lack of faith in the previous examination process that led to the localization[5] of examinations to take place between 1984 and 1994 with emphasis initially on 'O' level examinations. AEB examinations were gradually phased out while UCLES took over all examinations and assisted with localization.

The Zimbabwe School Examinations Council (ZIMSEC) was established though an Act of Parliament (Zimbabwe School Examinations Act of 1994) as the body responsible for assessment in primary and secondary education in Zimbabwe (Abraham 2003). ZIMSEC then took over activities from the Exams Branch in Zimbabwe and the Cambridge Local Examinations Syndicate (UCLES) of the United Kingdom (UK). The ZIMSEC Act (1994:67) empowered ZIMSEC to: consider and approve subjects suitable for examination, confer or approve the conferment of certificates, diplomas and other awards to persons who have passed examinations, maintain the integrity of examinations at primary and secondary level, appoint panels or boards of examiners, approve and register examination centers. organize and conduct such examinations in subjects that form part of a course of primary or secondary education, enter into arrangements, whether reciprocal or otherwise with persons or organizations, inside or outside Zimbabwe, for the recognition of certificates, diplomas and other awards granted by the council.

The localization of examinations was completed in 2002 when ZIMSEC finally took over the control of Advanced level examinations. Though it still falls under the Ministry of Education, ZIMSEC is an autonomous institution controlled by a Board of directors representing different stakeholders in society with an interest in education, and remains funded through a government vote, examination fees, as well as its own fund-raising projects.The ZIMSEC board includes educationists, industrialists, University Vice Chancellors among others. The Zimbabwe Schools Examination Council (ZIMSEC) is now responsible for all examinations in primary and secondary education, which are Grade 7 examination, Zimbabwe Junior Certificate of Education (ZJC)[6], Zimbabwe General Certificate of Education Ordinary Level (ZGCE O-Level) and Zimbabwe General Certificate of Education Advanced Level (ZGCE A-Level) examinations.

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[3] In Zimbabwe, the term 'White' is commonly used to refer to people of European origin while the term African is often used to refer to blacks.

[4] Grade eleven examinations were meant for African students who could not be absorbed to write the O level examinations. Under the colonial administration, a quota system was adopted where in any given year, only 12.5% of all African students leaving primary school were allowed to proceed to through the normal O level academic route also known as the F1 system, 23.5% was channelled towards a vocational based curriculum F2 system. The rest had to drop out of school. Despite the curriculum being skills based the F2 system was heavily resented by the black population leading to their abolition because it was considered to be for the less academically gifted and led to a dead end in terms of further education (Gumbo 1986, Mungazi 1989, Zvobgo 1994)

[5] Localisation is a term used in Zimbabwe to refer to the taking over of examination administration by ZIMSEC from UCLES

[6] The ZJC examination has been temporarily discontinued.

ZIMSEC and CDU: Is there a duplication of effort?

As noted by Yoloye(1986) most countries in Anglophone Africa (Zimbabwe included) institutionalized the search for relevance in educational content by setting up national curriculum development centres, whose task was that of preparing curriculum materials hence localization of content was one of the ways of achieving curriculum relevance. In 1980 Zimbabwe created the Curriculum Development Unit (CDU). It had the mandate to develop ZJC and O level syllabuses, teaching materials like pupils and teachers modules as well as approving textbooks for use in both primary and secondary schools. These educational resources had to be produced in line with the country's chosen ideology of Socialism then. The Unit then under the directorship of Fay Chung, who later became the Minister of Education and Culture, adopted a broad based approach of involving all stakeholders in the development of subject specific curriculum. This is captured in the UNESCO report on education in Zimbabwe which says "the curriculum constitutes the legal framework for the development of teaching/learning activities. It should respond to the needs of the society and to the needs of individuals. The curriculum development process, therefore, involves close co-ordination between a variety of stakeholders and institutions. Curriculum development work cannot be done in isolation. Because of this, decisions about curriculum issues are made in close consultation with the learners, parents, teachers, heads of schools, education officers in the regions, the examinations council, subject specialists, commerce and industry, teachers colleges and universities." (UNESCO – Government of Zimbabwe 2001)

Thus the Zimbabwe School Examinations Council was not only given the responsibility for making decisions on assessment objectives as well content of public examinations, assessment and the awarding of grades but, also to offer syllabus review suggestions. ZIMSEC and CDU were meant to complement each other on curriculum and assessment matters and initially this arrangement worked well. Problems surfaced after the Economic Structural Adjustment Programme (ESAP) that later resulted in the downsizing of CDU. ESAP was a creation of the IMF, which instead of reducing poverty, it led to poverty spreading all over Zimbabwe (Richards and Govere 2010). This resulted in ZIMSEC slowly assuming the duties of the CDU, particularly revising and drawing up of syllabuses in addition to examinations. By 2000 when the process of localizing Advanced level examinations began, CDU was a shadow of its former self and since then ZIMSEC has been reviewing syllabuses, developing test items, and running examinations on its own. This scenario reveals the following
Firstly, the checks and balances associated that were meant to be between curriculum developer (CDU) and the assessment arm (ZIMSEC) is no longer there.

Secondly, it is no longer clear if the national goals and aims are adequately catered for since the CDU is not fully operational. The philosophical and ideological aspects of education were better catered for through CDU, with ZIMSEC assessing the candidate's learning in line with national needs. Though current syllabuses do contain aims and objectives that appear to be in line with national goals, the process of developing them should be left to curriculum practitioners.

However, it is also true that the current situation has demonstrated that they may have been no need of having two institutions with overlapping interests and functions. It could be prudent to have curriculum planners with ZIMSEC. UCLES both developed and assessed its own syllabuses and hence there is no reason why ZIMSEC cannot do the same.
It appears as if CDU was of benefit to a few individuals. In most cases, the curriculum planners were the authors of school textbooks and hence tended to approve books they had written or had been written by their colleagues. The fact that CDU personnel were privy to the requirements for writing school text books meant that they could monopolize the production of school textbooks, which are of course a big business in Zimbabwe. At least ZIMSEC offers a level playing field as it recommends set books from the commercial market, and leaves educationists to get whichever textbooks are appropriate to cover a syllabus.

Standards are Falling! – Says Who?

ZIMSEC is affiliated to the Association of Educational Assessment in Africa (AEAA) and the International Association of Educational Assessment (IAEA). It is also monitored by the National Academic Recognition Information Centre. This ensures that ZIMSEC adheres to internationally acclaimed standards of assessing student achievement. Despite the affiliations and accreditation, ZIMSEC (2003) points out that one of the most frequent asked questions is whether the localisation of examinations has not led to a decline in standards of examinations. One then wonders why a section of the Zimbabwean community could claim that assessment standards plummeted with the complete takeover of examinations by ZIMSEC such that they will struggle to find a place at any reputable university in the future.

Localisation was a phased process and was carefully executed to ensure that assessment was not compromised (ZIMSEC 2003). Initially UCLES controlled the setting of examination items, the marking and processing of results. At this point ZIMSEC only played an administrative role in ensuring that the examinations were conducted in time and under appropriate conditions. The institution then went through a period of association with UCLES were the administrative and assessment processes were slowly transferred to ZIMSEC. This included the training of markers, chief examiners, item writers and other essential personnel. Later on the institution's association with UCLES changed once again with ZIMSEC taking control of most examination processes and UCLES assuming the role of a validating body. During all this time there were no problems of examinations credibility. Once ZIMSEC completely took over the examination system, credibility issues seemingly cropped up. There is a multiplicity of reasons for such a scenario:

Zimbabwe has existed for a greater part of its life as a socially divided community of haves and the have not. The previous advantaged communities could not accept competing with the less privileged through the same exam. Social differences have always been perpetuated by making sure that examinations focus on foreign values and knowledge thereby ensuring the success of the country's elite only. Basing the exam on the same values and goals increased competition for all and hence falling standards could be a necessary scapegoat.

Previously, a Cambridge School Certificate was a passport for admission to many foreign Universities. This was by virtue of Cambridge's tradition as a reputable academic institution. Holders of UCLES certificates had often been admitted into UK universities since they had British certificates. However, with ZIMSEC certificates, they had to be evaluated first before gaining entrance and in some cases at a cost. This probably did not imply an inferior education system but that at that point ZIMSEC was an institution of unknown reputation. But this defies the point that ZIMSEC and UCLES conducted examinations in partnership for a decade. Maybe, the partnership should have been over a lengthy period before weaning off ZIMSEC.

Lastly the idea of high standards and quality is central in the Zimbabwean society be it in the sourcing of goods or services. School certificates have always been seen to be issued by a University (Cambridge or University of London). The sudden change where a University seal is no longer visible on a school certificate is the cause of credibility rumblings. Some question as to when ZIMSEC became a University. What Zimbabweans fail to appreciate is that localisation did not only take place in Zimbabwe, but also in many SADC states such as Botswana, Swaziland and Tanzania, and examinations councils in these states are the sole certifying authorities. The nostalgic feeling of the good old days takes time to pass away and at times, creates perceived problems where they are nonexistent.

However, credibility questions could have been fuelled by technical problems such as examination leaks and at times the administration of wrong papers during an exam. The continued leaking and disruptions of ZIMSEC examinations each year have had a negative impact on the credibility of the local examinations body. This has been compounded by the movement of experienced examiners to

greener pastures, leaving a gap with no one to fill. (Ncube 2004) What most people fail to realise is that such problems are not only pertinent to Zimbabwe but to many countries worldwide. Probably one could ask; what could be the best way forward to restore confidence in the examination system?

Restoring Public Confidence in the Examinations System

There are three options that would help restore ZIMSEC's credibility. The first option would be to bring back the partnership between ZIMSEC and the University of Cambridge. The degree of the partnership could vary from Cambridge International Examinations (CIE)[7] taking direct control of the examinations to acting as a validating body. Either way that need is there. It appears as if the Ministry of Education and Culture is already moving toward that direction. Officials from CIE have visited ZIMSEC to determine what could have gone wrong with localization (Coltart 2009, Nyathi 2010). Rewinding the clock could restore confidence in the examination system in the shortest possible time since Zimbabwe has had a long partnership with the University of Cambridge dating back to the colonial period. To borrow form Jansen (1990) Cambridge Overseas Certificate not only serves internal expectations and the state's legitimation needs, but may also reflect a need for the metropole's validation of the quality of Zimbabwe's graduates and, therefore, of the "success" of the state in meeting international standards. It should be noted that this problem of preferring foreign certificates is not peculiar to Zimbabwe only. Studies in Mauritius and Malta have shown that candidates would prefer a certificate from Cambridge or London than a local one (Bissoondoyal 1996, Sultana 1996 in Bray 1998). Though re-establishing the ZIMSEC Cambridge partnership would be a worthwhile move, this would impact negative again on the economy through the repatriation of large sums of money that the country had tried to avoid through localization. In any case education comes at a cost!

The second option could be that of finding a local validating body like the University of Zimbabwe (UZ). UZ' programmes and certificates are accepted throughout the world and having the University seal on school certificates would give them weight. Furthermore, UZ's Department of Teacher Education has the monopoly of certifying teacher trainees through its 14 associate colleges. Thus adding ZIMSEC to its portfolio would not be a problem. However, Zimbabwe now has 14 Universities, which also have their own education departments. ZIMSEC could still affiliate to any one of the Universities or a body including all Universities in Zimbabwe could be created to validate ZIMSEC's examinations. This is possible by enacting an act of parliament that would set out the parameters through which ZIMSEC would partner any University of a group of Universities.

The last option would involve the whole SADC region and hence it is subject to international cooperation among the SADC states. Bray (2003) discusses how some governments that have been anxious to detach their education systems from metropolitan agencies but which have had misgivings about embarking on national arrangements have instead joined regional bodies. Three well established regional examination bodies, which include the West African Examinations Council (WAEC), the Caribbean Examinations Council (CXC), and the South Pacific Board for Educational Assessment (SPBEA), are given as examples. Since the SADC[8] countries are aiming towards total social and economic regional integration, this could finally be translated into the education sector as well. A regional examination body may bring with it thorough supervision of the process of setting, printing, and packaging of examination papers to avoid both errors and leakages. This would also help Boards such as ZIMSEC to manage its information base efficiently to avoid errors during the publication of results so that the results retain credibility. It would be easy to do that taking into account the fact that most SADC states share the same colonial history, boundaries, culture etc. Of course different political ideologies and governance styles could be an immediate impediment. Some governments

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[7] CIE is the successor to UCLES

[8] Southern Africa Development Community is a grouping of 14 countries in Southern Africa that started as an effort to reduce the economic dependence of independent Southern African countries on South Africa before 1994. It has since changed its focus towards a total regional integration.

would see it as surrendering national pride and compromising national goals while others might see their educational position as being watered down and thus reducing their standards.

Whilst a regional examination body could be an appealing solution, it presents problems in the sense that the SADC countries have different educational systems as well. The duration of both the junior certificate and ordinary level vary from one country to another, and so are university entrance qualifications. An effective regional examinations board would need to standardize these differences. However, it is possible to have a regional examinations body that comes up with country specific examinations that are recognized within the same region.

CONCLUSION

The issue of examinations is a contentious one since they are a vital instrument determining the students' prospects for further education and employment. Unfortunately, for developing countries most of which are former colonies, examinations have been controlled from educational centres in the developed countries. Efforts to establish credible examination systems as in Zimbabwe have been affected by the long established tradition of preferring foreign qualifications hence negating efforts to ensuring curricula from matching the broader community needs (Namasasu 1990). This was worse by economic problems that coincided with localisation and incompetence at some levels of examination administration. As detailed in this paper, credibility can still be built by re – establishing partnership with Cambridge. Total control of examinations should come after a long working relationship coupled with a gradual weaning system. A regional examination system could also be of benefit to SADC.

REFERENCES

Abraham, R. (2003). The localization of 'O' Level Art Examinations in Zimbabwe: Studies in Art Education. 45, (1), 73-87

Bray, M., (1998). National Self ‑ determination and International Dependence: the organization and control of secondary school examinations in the small states of the Commonwealth, Assessment in Education: Principles, Policy & Practice, 5:2, 151-173

Coltart, D., (2009) ZIMSEC's loss is Cambridge's gain; The Standard 29 November 2009 http://davidcoltart.com/?p=1113 (Accessed online 30 May 2011)

Chung, F. and Ngara, E. (1985) Socialism, Education and Development: A Challenge to Zimbabwe Harare: Zimbabwe Publishing House

Dorsey. B. J. (1981). "Equality of Opportunity in Zimbabwe: Past and Future," World Yearbook of Education 1981. London: Kogan

Govt of Zimbabwe, (2001). Developments in Education: the Education System at the end of the 20th Century 1990 – 2000; UNESCO: Harare

Government of Zimbabwe, (1994). ZIMSEC Act, Government Printers: Harare

Government of Zimbabwe, (2004). Zimbabwe Millennium Development Goals Progress Report: UNDP Zimbabwe

Government of Zimbabwe, (2008). National report on the status of education by Zimbabwe: UNESCO Geneva

Gumbo, S.D. (1986). Vocationalising Curriculum in Zimbabwe: An Evaluation Perspective.

Vocationalising Education Conference paper, London, May 7-9, 1986.

Jansen, J. D. (1990). Curriculum Policy as Compensatory Legitimation? A View from the Periphery Oxford Review of Education. 16 (1), 29-38

Kanyongo, G. Y. 2005. Zimbabwe's public education system reforms: Successes and challenges International Education Journal. 6(1), 65-74.

Mungazi, D.A. (1989). To bind ties between the school and tribal life: Educational policy for

Africans under George Stark in Zimbabwe. Journal of Negro Education, 58(4), 468-77.

Murira, C. B. (2001). Examination administration in ZIMSEC. Harare: ZIMSEC.

Namasasu, O. (1990). Seeking a Socialist Geography in Zimbabwe Area, 22 (4) 392-393

Ncube, N. J. (2004). Managing the quality of education in Zimbabwe. The internal efficiency of rural day secondary schools; Unpublished DED Thesis, Pretoria: UNISA

Nyathi, K. (2010). 'ZIMSEC rot exposed' The Standard 13/03/2010: Harare. [ONLINE] http://www.thestandard.co.zw/local/23743--zimsec-rot-exposed.html

Nyathi, K. (2010). Coltart Tackles ZIMSEC Crisis; The Standard 29 March 2010 [ONLINE] http://www.thestandard.co.zw/local/23949-coltart-tackles-zimsec-crisis.html

Nziramasanga, C.T. (1999). The Presidential Commission for Inquiry into Education and Training: National Report of the Republic of Zimbabwe.

Richards, K. & Govere, E. (2003). Educational legislation in colonial Zimbabwe (1899-1979), Journal of Educational Administration and History, 35 (2), 137-151

Yoloye, E. A. (1986). The Relevance of Educational Content to National Needs in Africa International Review of Education 32 (2), 149 – 172

ZIMSEC, (2003). Frequently asked questions. Harare: ZIMSEC

ZIMSEC, (2003). Localisation awareness. Harare: ZIMSEC

Zvobgo, R.J. (1994). Colonialism and Education in Zimbabwe. SAPES Books: Harare.

CULTURAL BELIEFS AS FACTORS INFLUENCING INTERPERSONAL COMMUNICATION AMONG THE EMPLOYEES OF EDO STATE PUBLIC LIBRARY IN BENIN CITY, NIGERIA

Oshiotse Andrew Okwilagwe
Department of Library, Archival and Information Studies
University of Ibadan, Ibadan
NIGERIA
okwilagweandrew@yahoo.com

ABSTRACT

This study investigated the mediating influence of cultural beliefs on the communication behaviours of Librarians in the Edo State Public Library in Benin City. The data for the study were generated through a questionnaire administered to 36 staff in the Cataloguing Division of the public library. The results of data analysis indicate that: Edo and Igbo ethnic groups members have different cultural beliefs but common psychological communication response orientations; the response orientations negatively influence their communication behaviours; Edo and Igbo ethnic group members are ethnocentric and prejudiced, therefore, are stereotyped and dogmatic in their communication behaviours; these psychological dispositions influence Edo and Igbo ethnic groups members' communication orientations; and they exhibit negative (suspicious and defensiveness, closed-minded, alienation and hostility) communication response tendencies.

INTRODUCTION

Nigeria is the most populous country in Africa, the most populous country in the world in which the majority of the population is black. It is composed of more than 250 ethnic groups. The most populous and politically influential ethnic groups are Hausa and Fulani 29 percent, Yoruba 21 percent, Igbo 18 percent, Ijaw 6.5 percent, Ibibio 4.5 percent, Kanuri 4 percent, Anang 3.5 percent, Tiv 2.5 percent, Efik 2 percent. Although fewer than 25 percent of Nigerians live in urban cities, not less than 24 cities have populations of more than 100,000.

Nigeria is a nation of the religious. It is awash with several religious which are helping to accentuate regional ethnic distinctions in the country. (Wikipedia.org/wiki/Religion). The indigenous belief system has its grip on the people despite the presence of other foreign and exotic religions. There is a system of belief that combine family ghosts with relations to the primordial spirits; sorcery and witchcraft beliefs manifest in different forms of worship among various ethnic groups in the country. The ethnicity in Nigeria is so varied that there is no definition of a Nigerian beyond that of someone who lives within the borders of the country. The ethnic groups are composed of smaller groups but there is much difference between even the small groups "as there is between Germans, English, Russians and Turks" (Chief Obafemi Awolowo, cited by Rakov, 1990).

As a result of the ethnic diversity and cultural differences, the country's unity has been consistently under siege; eight attempts at succession threatened national unity from 1914 to 1977. The Bianfran war, religiously—inspired Kano riots in 1980, Major Gideon Ockar attempted coup in 1991, the Jos and Boko Haran riots of 2009 and 2010 religious riots in the heart of the northern states of Nigeria are collectively traceable to ethnicity and religious factors based on cultural orientation and responses to national issues by the ethnic nationalities that make up the nation. This situation equally provides explanation for the continued existence of the misunderstanding, tension, confusion, conflict and riots that characterise the body polity of Nigeria.

There appears to be a close link between culture, behaviour and personality of the ethnic group members. Levine (2009) and Serebra Learning Corporation (2010) are of the view that everything you say is influenced by culture. That you operate with a set of invisible beliefs, values and assumptions that become apparent to other people in the way you behave. Culture is important to the way you communicate even though it is often hidden. Understanding more about culture can be a real bonus when working as part of an organization.

PROBLEM STATEMENT AND OBJECTIVES

Various forms of misunderstanding, conflict, unrest and serious violence have occurred at different places and organizations in Nigeria. The State and National Houses of Assemblies have had their fair share of violence and serious disruptions of their sessions. The Senate, State and Federal ministries and agencies, private sector and the institutions of learning have been bedevilled with violence in which thousands of lives were lost and enormous valuable property destroyed in the country. Most often the causes of such violence have been loosely and wrongly been ascribed to poverty, ignorance, dissatisfaction due to lack of social amenities and poor conditions of services. In spite of the havoc the social, economic and political dislocations violence has caused in Nigeria, no serious effort has been made to determine the foregrounding factors of the national malice, at least, by considering the roles of ethnic and cultural beliefs in interethnic harmony in Nigeria. It was in the light that this study investigated cultural beliefs as factors influencing intercultural communication among the employee (Edo and Igbo ethnic groups members) of Edo State Public Library in Benin City.

The specific objective was to determine how cultural beliefs predispose the communicators—librarians in the Edo State Library to developing communication response orientations and the consequences of such response orientations to effective communication and social relationships.

Research Questions

The under listed research questions were raised to guide this study:

   (a) Do the employees of the Cataloguing Section of the Edo State Library hold different cultural beliefs?
   (b) Do the value systems held by the employee result in ethnocentricism or behaviour stereotype or dogmatism?
   (c) Does ethnocentrism or stereotype or dogmatism negatively affect the employee interpersonal communication?

Significance of Study

The findings of this study would create knowledge of how the cultural backgrounds predispose Nigerians to affecting certain negative communication orientations; assist in the rebranding of Nigeria through value system reorientation for national integration; provide information to help the managements of public and private organizations understand how the dynamics of ethnicity could be harnessed for high productivity through creating helpful organizational climate and culture; and specifically, the findings would provide the Edo State Library Management board with relevant information and knowledge to improve on the management of the library. And very importantly, this study will provide, to some extent, some insight into the communication setting that could affect business transactions, with foreign businesses in Nigeria.

Literature Review

The objectives of this literature review was to determine whether the employee of the Cataloguing Sections of the Edo State Library belong in different ethnic groups; have different cultures and value systems; have different cultural communication orientations; and effect different communication responses which may be inimical to productive cultural communication in an organisational setting,

and generally find a nexus between ethnicity, culture, personality and communication in an ethic or intercultural setting.

Ethnicity, Cultural Predispositions and Personality

Each of the culturally distinct groups in Nigeria today is an ethnic group. Ethnic groups are categories of people characterised by cultural criteria of symbols including language, value system and normative behaviour, and whose members are anchored in a particular part of the new state territory (Otite, 2010). Some features of an ethnic group are: an ethnic group is identified with a particular geographical part of the country; distinct component of culture such as language and geography and organisational forms, each ethnic group develops and manipulates its own mythology of descent, ritual beliefs and moral practices; each ethnic group members share an exclusive culture and normative behaviour; members of each group share an identity which they use as a means of forging relationship within political and economic spheres and in accessing resources in the nation; as an interest group is a cultural expression of its Kith-and-kin ideology; and each ethnic group has its own identifiable way of life, mode of dress, values, food and food habits cultural predispositions for members to do or not to do certain things; and its shared mechanisms or patterns of socialising its members (Otite, 2010).

Ethnic group cultural predispositions are markers for groups differences. Levine (2009) noted that variability in behaviour among human individuals exists at many levels. In order to explain this, Levine (2009) referred to Khuckhohn and Murray dictum that "Every man is certain respects; like all other man, like some other men; and like no other man". The point is that culture influences behaviour and personality of individuals in quite different ways in different ethnic groups Sereba Learning Corporation (http://www.training-classes.com/programs/01/91/19149-the-impact-o...) opined that everything you say is influenced by culture. You operate with set of invisible beliefs, values and assumptions that become apparent to other people in the way you behave. Culture is important to the way you communicate even though it is often hidden.

Understanding more about culture can be a real bonus when working as part of any organisation. Levine (2009) stated that culture and personality studies are primarily concerned with those aspects in which a man is like some other men particularly his fellow group members in contrast to members of other groups. In line with this preposition, Levine (2009) extracted from "intercultural experience" the under listed plausible assumptions about cultural variation in individual dispositions:

1. Some culturally distinctive patterns of thought and feeling are not readily accessible to verbal formulation or voluntary control but seem to influence the individual decision about regulating himself and adapting to his environment.

2. These patterns are not easily reversed even when the individual is outside the cultural environment that normally reinforces them.

3. The individual can adapt behaviourally to the demands of novel cultural environments without eliminating these patterns of thought and feelings, although their behaviourally manifestations may be temporarily inhibited or situationally restricted.

4. The relatively conscious, involuntary and persistent qualities of these patterns and the difficulty of being acquired by an exotic adult through conscious imitation indicate that they are acquired early in the life of the individual.

5. The persistence of these patterns in novel cultural environments and the probability of their childhood acquisition suggest that they should be thought of as representing dispositions of the person (personality dispositions) rather than supply the environmental situations that fostered them.

6. Their conceptualisation as reflecting personality dispositions is also supported by their apparent silence in the individuals' structure of subjective thoughts and emotions about

himself as a separate and continuous entity and by the apparent relevance of that structure of his decisions about self-regulations and adaption. In other words they, play part in the organisation of his personality.

Levine (2009) noted that these prepositions are roughly consistent with intercultural experience at many times and places, and they represent an argument for the dispositional and culturally variable view of personality. However, Murray and Khuckhon (1953) had observed that the phrase "culture and personality has unfortunate implications. These writers suggested that clear and orderly thinking about personality formation will be facilitated if four classes of determinants (and the interactions) were distinguished which are constitutional, group-membership, role, and situational. These four classes of determinants of personality will help in the understanding of what ways every men is "like some other man", like no other man".

By further explanation (Murray and Khuckhon, 1953) posited that the recognition of culture as one of the determinants of personality and behaviour is a great gain but some indication of this theoretical postulate tended to obscure the significance of other types of determinants. In order to avoid the perpetuation of an over emphasis upon culture, cultural forces should be treated as one variety of the press to which personalities are subjected as a consequence of their membership in an organised group. A balanced consideration of personality in nature, society, and culture must be carried out within the framework of a complex conceptual scheme which explicitly recognises instead of tacitly exchanging a number of types of determinants. Nevertheless, culture has an enduring influence on the other determinants of personality. The personality and communication behaviour of an individual are essentially products of inherited dispositions and environmental experiences. These experiences are known to occur within the field of the individual's physical, biological, and social environment all of which are modified by the culture of his group (Murray and Khuckhon, 1953).

Cultural Communication and Organisational Process

The Library organizations are made up of human beings who must, as a matter of necessity, interact toward the achievement of the organizational goals. The results of the interactions between the staff are largely determined by the extent to which they interact effectively and harmoniously as a team. Of very great interest is the fact that the library is a communication agency or organization. Therefore, the library manufactures goods and services through the enduring process of communication. Through the same process of communication, renders information services to the society in different formats and in different ways. Library managers are, therefore, involved in a complex process in the manufacturing of goods and services just as managers in the industrial sector of the nation, essentially, management of an organization is done through communication. It is true that: (Riggs, 1991).

> *Motivation, persuasion, influence, or any other leadership activity that might seek to elicit greater dedication or effort is almost totally dependent on the flow of communication. The job of the leader is ultimately, communication, regardless of how varied or specialized the activity of the moment. Libraries are human organizations that are organized to gain specific goals. Attainment of this goals is far more dependent upon leadership and communication than we would normally imagine. Leadership leads by pulling (persuading) rather than by pushing, by inspiring rather than by ordering, and by empowering the library staff, use their own initiative and experiences rather than by denying or contrasting their experiences and actions ...*

Communication is the way leaders can bridge the gaps, stay in touch, build trust, monitor performance, and attain the concerted vision (Riggs, 1991). However, library organizations in the traditional but emerging societies of Africa, just to be specific to some extent, would appear to be faced with peculiar communication and management problems. It would appear that they are operating in societies in which native traditions and belief systems are strong and influential. More so,

the library organizations are operating in societies where, perhaps, national flue systems have not been clearly defined and where there seems to be no commonly held work-place expectations by the different ethnic member groups that make up the staff of the library organizations. In this situation; (Shaughnessy, 1988) often, library managers become frustrated by their inability to effect change in their departments or libraries. Many seem to have taken all the right steps - from involving staff in decision-making and recruiting skilled employees to setting performance standards and providing regular feedbacks. Yet they seem to meet an invisible wall, a force that somehow wears them down and prevents the organization from realizing its potential. There may, of course, be occasional breakthrough or minor victories, but these are frequently negated by the unit's overpowering inertia.

The invisible wall or force that sometimes prevents libraries from achieving management effectiveness and high productivity could reside in the organizational culture of the libraries or to a, larger extent, the culture(s) of the employee. We should hold on strongly to this point as it points to the direction of the root of the problem, even though according to Shaughnessy, (1988) many factors may contribute to the scenario. These include but are not limited to management failures of one kind or another, a lack of leadership, poor employee morale, an inadequate recognition and rewards system or insufficiently trained staff. But oftentimes none of these factors is present, yet the organization or department continues to lag in productivity and effectiveness. According to a growing number of management analysts, the problems described above may be caused by the organization's culture.

An organization's culture can be explained as the existing or prevailing patterns of values, attitudes, beliefs, assumptions, expectations, activities, norms, interactions and sentiments that are commonly held and shared through the communication process as developed and operated by members of the organization. Therefore, organizational culture is the pattern of automatic assumptions, unconsciously held, operated and taken for granted by the employees of an organization. The necessary and major points of emphasis are that: the cultural backgrounds of library staff are quite fundamental and encompassing than the organizational culture; the organizational culture is naturally and often borne out of the value system which the staff of a library operate. By and large, the organizational culture determines the organizational climate which in turn influences management style and effectiveness. The cultural backgrounds of employee have enormous implications for organizational processes such as cooperation, communication, subscription or non-subscription to centrally held organizational value system and the decision-making process; and the attitudes and beliefs of employee influence their acceptance and commitment to organizational goals.

Culture as a Mediating Factor in Communication

Culture has attracted several definitions. In this discussion, we will define culture according to Samova et al (1971) and Markel (2009) as the accumulative deposit of knowledge, experience, meanings, beliefs, values, attitudes, religions, concepts of self, the universe, and self-universe relationships, hierarchies of status, role expectations, spatial relations, and time concepts acquired by large group of people in the course of generations through individuals arid group striving. Culture manifests itself both in patterns of language and thought and in form of activity and behaviour. These patterns become models for common adaptive acts and styles of expressive behaviour which enable people to live in a society within a given state of technical development. Culture is communication problem because it is not constant, it is a variable. And, as cultural variance increases, so do the problems of communication.

Culture has an overwhelming influence on the lives of its people. It develops institutions that enforce the prescribed set of conduct norms in a society. The process of effecting this is usually sanctioned by the culture as developed by the society itself, therefore, in any society according to Benedict, (1961). "No man ever looks at the world with pristine eyes. He sees it edited by definite set of customs and institutions and ways of thinking. Even in his philosophical probing, he cannot go beyond these stereotypes, his concepts of the true and the false will still have reference to his particular traditional customs." The members of a society are basically what their culture has made of them. This is

because (Benedict, 1961) "The life-history of the individual is first and foremost an accommodation of the patterns and standards traditionally handed down in his community through generations. From the moment of his birth the custom into which he is born shapes his experience and by the time he is able to take part in its activities, its habits are his habits, its beliefs are his beliefs, its impossibilities are his impossibilities. Every child that is born into this group will share them and no child born into one of the opposite side of the globe can ever achieve the one thousandth part."

In this regard, culture serves as a tool in understanding and predicting human behaviour in many ways. According to Bell (1961) and Essays (2010) a recognition and knowledge of the nature of culture is basic to the understanding of human behaviour. It gives us a tool for understanding and forecasting human behaviour. Knowledge of the cultural group a person belongs enables us to forecast his behaviour in many specific situations. The knowledge removes the mystery which surrounds the behaviour of people from other cultural groups.

In relation to what we have discussed so far, it is safe to state that culture influences the communicators and the way and manner they communicate. In this study, communication is regarded as the process through which people share information in their desire to making effective decisions in performing the various tasks and meeting various demands which their environment imposes on them. When employees from different cultures communicate officially and non-officially, they are doing so interculturally. This is usually the setting in which the employee in most libraries in Nigeria communicate. This situation arises because Nigeria is made up of many ethnic groups and by the Federal Government's employment policy, at least in principle; every Nigerian is free to take up a job anywhere in the country. The Nigerian Libraries provide ideal settings for intercultural communication. The Edo State Library provides an appropriate setting in which the Edo and Igbo cultural group members are interacting interculturally. This intercultural communication setting dovetails with the concept of intercultural communication in the studies of Samova and Porter (1971), Novinger (2008) and Lacham (2009).

According to Samova and Porter (1971) intercultural communication has evolved to describe the form of interaction that takes place when the communicators come from different cultures. Although intercultural communication is often used synonymously with cross-cultural communication and interracial communication, however, intercultural communication is most suitable term because it describes all of the situations that exist when two or more communicators came from different cultures. Intercultural communication, thus viewed, involves cultural differences that transcend racial or ethnic differences. Whenever the parties to communication act bring with them different experience, knowledge, and values, we have intercultural communication. It often involves racial or ethnic differences or both but we hold that intercultural communication also exists when there are gross socio-cultural differences without accompanying racial ethnic differences (Samova and Porter, 1971).

Culture appears to be the strongest singular factor that influences communication in a rather pervasive manner. According to Smith (1973) in an intercultural communications setting, "the communicators See themselves in a certain light and view their aspirations in a certain way. The views and aspirations of one group may be at odds with those, of another ... giving rise to suspicion, tension, and sometimes conflict. The collective eye of the group often becomes the vision by which the individual sees. Memories, aspirations, complaints, promises, and glories of the group are transferred to the individual communicator, who often unconsciously bears the burden of his group" (Smith, 1973).

Cultural experiences could influence the processes of message encoding and decoding. It could, thus have some relevance for our understanding other person's messages and the other person understands of our message. This is because communication is a process of selection and interpretation, an active process both in encoding messages and decoding messages. In this process, no matter how brief it may be, cultural assumptions play a central role. They enter the encoding and decoding process generally as unconsidered attitudes and orientations. Nevertheless, it is these cultural beliefs which

urge us to select one aspect rather than another for our messages, to see significance in X rather than in Y. In the same way, in the decoding process it is our culture which leads us to interpret particular messages in appropriate ways (or inappropriate) if viewing from sub-cultural perspectives. (Siterian, 1972).

Lachman (2009) notes that negotiations in an intercultural setting often find the process frustrating, as many times the two sides are speaking different languages in many ways than one. He wanders how people come up with conclusions than their counterparts when using the same facts and reasoning? In order words, could a line of reasoning that could be effective and persuasive in one culture be totally ineffective in another? With regards to this issue, Levine (2009) and Smith (1973), in their views of culture and personality studies, throw light on the reasons why everyman is in certain respect like all other man; like some other men and like no other man.

Lachman (2009) observes that many times this problem manifests itself in the way the issues are conceptualised. He also observes that the problem with different processes of reasoning and comprehension is extremely interesting but rarely studied in the field of negotiation. However, the fundamental question according to Lachman is "what effects do culture and may be language, have on how people put ideas together." Levine (2009) and Smith (1973) indicate in their studies that there is relationship between culture and personality traits exhibited in an intercultural communication event.

Psychological Factors that Mediate Communication Orientations in an Intercultural Setting

The communicators in an intercultural interpersonal communication setting are distinct personalities from different cultures. Personality, as a psychological construct makes the phenomenon of intercultural communication easy to understand. Similarity of personality and similarity of attitudes can engender congenial communication encounter. In other words, individuals with dissimilar "personality congruence" and dissimilar attitudes and beliefs are seldom attracted to each other and may not be able to sustain meaningful communication. Perhaps, this is why according to Smith (1973), we tend to have more tension in strange interaction situation than we do in familiar surroundings. Tension results because of anxieties and anxieties exist when we do not know what to expect from unknown situation.

The organization of an individual's predispositions to behaviour and his unique adjustments to his environment are largely dependent on his personality characteristics (or traits), emotions, motivation, values, goals, and ways of perceiving are all aspects of personality structure. The personality characteristics collectively predispose the communicator to effecting specific response tendencies or orientations in an intercultural communication setting. Communication response orientations are either positive trusting and supportive or are negative - suspicious and defensive. A communicator who is empathic will certainly endeavour to construct and send messages that are likely to engender a climate of trust unlike a communicator who is not empathic.

Conceptual Framework: Cultural Beliefs and Intercultural Communication and Development of Empathy

The culture of any group of people is based on knowledge, beliefs, art, law, morals, customs, religion, language and any capabilities or habits acquired as a result of being a member of a certain group (Markel, 2009). Therefore, according to Otite (2009) each ethnic group in Nigeria, precisely, Edo and Igbo ethnic groups have their own identifiable way of life, mode of dress, values, food habits, cultural predispositions for members to do or not to do certain things, and it shared mechanisms or patterns of socialising its members.

Belief in witchcraft or juju is widespread in Nigeria. Traditional ritual killings cure common in the nation—in the Muslim north and the Christian South (Sarki), 2005). Recently, there have been several reported cases of individuals who were kidnapped, killed, or had their bodies mutilated by ritualists in

Nigeria. The mass resort to myth, superstition and ritual killings in the search for solutions to economic questions of poverty, jobs, security, reveals the growing frustration and desperation among layers or the poor working class as living conditions become more and more terrible (http://www.liberiapastandpresent.org/Notonly-In liberian-Nigeria.htm)

This situation has created social tension of mutual distrust among the ethnic groups members who as a matter of fact hold different obnoxious religion beliefs. Such communication setting hardly engenders empathy needed for the achievement of communication fidelity in an intercultural communication encounter.

Empathy is supportive and engenders a climate of trust and enhances interpersonal communication. Empathy is, nevertheless, not a common occurrence in an intercultural communication setting. Rather, ethnocentrism prevails and breeds dogmatism in an inter-cultural interpersonal communication phenomenon. Ethnocentrism is a major source of cultural variance in attitudes. It is a tendency of one group of people to view those from another culture unconsciously as inferior people. They do this by using their own group and their groups' customs as the standard for all judgements. In this situation according to Porter (1973), Novinger (2008) Levine (2009), we are most likely to place ourselves, our racial, ethnic, or social group, at the center of the universe and rate all others accordingly. The greater the similarity to us, the nearer to us we place them. The greater the dissimilarity the farther away they are. We place one group above another. We tend to see our own groups, our own country, or own culture as the best, as the most moral.

Ethnocentrism engenders a climate of closed-mindedness and hostility because it results in dogmatism in an intercultural communication encounter. Rockeach defines dogmatism, quoted by McCroskey, (1971) as a relatively close cognitive organisation around a set of beliefs about reality; organised around a set of beliefs about absolute authority which in turn; and provides a framework for patterns of intolerance towards others. Ethnocentrism and dogmatism are psychological orientations that cause suspicion and defensiveness which have negative effects on interpersonal interactions.

Novinger (2009) posits that most of communicators assume that the culture's ways are the natural order of things and we tend to see cultures that are different as less evolved. They think people would all act the same way if they were behaving properly. When they come in contact with people from other cultures, they may experience indignation or irritation when appear to be uncooperative or rude. In this vein, Novinger (2009) concludes that cultural barriers are greater than language barriers and they frequently provide reactions that are both negative and emotional. Therefore, effective communication with people of different cultures is especially challenging. Cultures provide people with ways of thinking-ways of seeing, hearing and interpreting the world. (Wikipedia, 2010).

Intercultural Communication Response Orientations

Effective interpersonal intercultural communication encounter is a social interaction in which the participants (communicators) derive mutual benefits or achieve mutually desired goals. The outcomes of such social encounters are determined, to a very large extent, by the response orientations held and displayed by the communicators. Response orientations have intrinsic qualities that enable them to exert such decisive influence on a communication event. These orientations dictate, to a good extent, one's typical response behaviour as one reacts to and interacts with others (Brooks and Emert 1976). The response orientations are psychological in nature, as in Tables 1, 2, and 3 below:

Table 1. Response Orientations and their Opposites

Positive	Negative
Trust and Supportiveness Open-mindedness and Flexibility Attraction and Affection	Suspicion and Defensiveness Closed- mindedness and Dogmatism Alienation and hostility

In any intercultural communication setting, it is impossible for a communicator to effect positive and negative response orientations at the same material time. A communicator can either display communication behaviour that stimulates defensiveness or supportiveness to create either defensive or supportive climate as follows:

Table 2. Defensive and Supportive Climates

	Defensive	Supportive Climate
1.	Evaluative	Descriptive
2.	Control	Problem Orientation
3.	Strategy	Spontaneity
4.	Neutrality	Empathy
5.	Superiority	Equality
6.	Centrality	Provisionalism

Many variables in the communication process whose values are determined, at lest in part, by culture decisively influence communication response orientation in an intercultural communication encounter. This is because the variables influence the perceptions and affect the meanings which the communicators assign to communicative acts. The variables overlap and interact with one another. "In reality, they all work with and against one another in affecting our intercultural communicative behaviours" (Porter (1972).

Therefore, the attitudes of communicators predispose them to act in certain ways that have enormous influence on the communication encounter. Some attitudes that have grave consequences for intercultural communication are ethnocentrism, stereotypes, prejudices, and dogmatism. Essentially, an exhibition of any of the attitudes can result in "closed-mindness" response tendency as opposed to "open-mindedness" response orientation which engenders effective intercultural communication. These communication response orientations are explained in Table 3 as follows:

Table 3. Open and Closed Minded Orientations

	Open-mindedness	**Closed-mindedness**
1.	Evaluate messages objectively using data and logical consistency	Evaluates messages on the basis of inner drives
2.	Differentiates easily, sees the shades of gray etc	Thinks simplistically i.e. in black and white terms.
3.	Is content oriented	Relies more on the sources of messages than on its content
4.	Seeks information from a wide range of sources	Seeks information about other beliefs from his sources rather than other beliefs
5.	Is more provisional and willing to modify his beliefs	Rigidly maintains and defends his own belief system
6.	Seeks comprehension of messages inconsistent with his set of beliefs	Rejects, ignores, distorts and denies message that are inconsistent with his own belief system

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According to Porter (1972) some communication response orientations that are negative in nature impede effective intercultural communication. Such communication response-orientations are usually the results of stereotype and prejudice. This is because stereotypes and prejudices work in various ways to affect our communication. By predisposing us to behave in specific ways when confronted by a particular stimulus and by causing us to attach generalized attitudes to people whom we encounter, we allow stereotypes and prejudices to interfere with our communicative experience and limit their effectiveness. We spend our time looking for whatever reinforces our prejudices and stereotypes and ignore what is contradictory.

METHODOLOGY

Instrument

The subjects of this study were the entire 36 staff of the cataloguing Section of Edo State Public Library Benin City. Specifically, the Cataloguing Section was made up of 18 Edo (50%), out of which *9(25%)* were males, 5(13.8%) married and 4 (11.1 %) single; 9 (25%) were females, of which 5 (13.8%) married and 4(11.1%) single. The other component of the population, 18 (50%) were Igbos, of which 7 (19.4%) were males; 5 (13.8%) married, and 2 (5.5%) single; 11 (30.5%) /ere females, out of which 4 (11.1%) married, 6 (16.6%) single.

The Cataloguing Section of the Public Library was chosen for this study because it had many staff who had related work activities; had the greatest number of library professionals, paraprofessionals and professional secretariat staff; it served as the hub for all the professional activities for the entire library system; and was made up of staff from two dominant ethnic groups - Edo and Igbo. A validated and pretested questionnaire of 17 items with sub-headings was administered by the researcher himself on the staff of the Cataloguing Section.

Data Analysis

The data collected were subjected to simple descriptive analysis of frequency counts and percentages to determine responses to the items of the questionnaire and describe the characteristics of the responses vis-a-vis communication effectiveness in the multi-ethnic setting. Simple quantitative and qualitative analysis was done in this study.

RESULTS AND DISCUSSION

Research Question I. Do the employee of the Cataloguing Section of the State Public Library hold different Cultural beliefs?

Table 4. Cultural Beliefs of Respondents

Items of Cultural Beliefs	Edo		Igbo	
	Yes (%)	No (%)	Yes (%)	No (%)
Existence of an almighty God	18 (100)	_	18 (100)	_
Existence of lesser gods	16 (44.4)	2(5.5)	3(8.3)	15(41.6)
Belief in reincarnation	15(41.6)	3(8.3)	4(11.1)	14(38.8)
Existence of witches & wizards	16(44.4)	2(5.5)	5(13.8)	14(28.8)
Illnesses are caused by witches & wizards & ''medicine men'	13(36.1)	5(13.8)	1(2.7)	17(44.4)
Illnesses are caused by violation of social Sanctions	11(30.5)	7(19.4)	2(5.5)	16(44.4)
Illnesses are caused by biological Factors	9(25)	9(25)	15(41.6)	3(8.3)

In Table 4, items of cultural beliefs and responses by the Edo and Igbo ethnic groups members are presented. The two ethnic groups member have common belief in the existence of an Almighty God,

but differ considerably on all other items of cultural beliefs. This is an indication that the Edos and the Igbos belong in two different cultures, therefore, are two distinct ethnic groups.

The data in Table 4 indicate that 16(44.4%) Edos and 3(8.3%) Igbos believe in the existence of lesser gods; 15(41.6%) Edos and4(11.1%) Igbos believe in reincarnation; 16(44.4%) Edos and 5(13.8%) Igbos believe in the existence of witches and wizards; 13(30.5%) Edos and 1(5.5%) Igbo believe that illnesses are caused by wizards and witches and "medicine men"; 11 (30.5%) Edos and 2(5.5%) Igbos believe that illnesses are cause by violation of social sanctions; and 9(25%) Edos and 15(41.6%) Igbos believe that illnesses are caused by biological factors.

The Edos and Igbos are different ethnic groups and therefore are involved in intercultural communication in the Edo State Public Library. The communication encounter can be influenced by the cultural beliefs and values held by the communicators. It is, therefore, the contention here that intercultural communication can best be understood as cultural variance in the perception of social objects and events. This barriers to communication caused by this perceptual variable can best be lowered by a knowledge and understanding of cultural factors that are subject to variance coupled with an honest desire to communicate successfully across cultural boundaries (Porter, 1972).

Research Question 2. Does the value system (cultural beliefs) held by the employee result in ethnocentrism or stereotype and or dogmatism ?

Table 5. Ethnic Groups Scores on the Manifestations of Response Tendencies

Manifestations of Response Tendencies	Scores in %: Edo			Igbo			
	Always (%)	Occasiona lly (%)	Never (%)	Alway s (%)	Occasionall y (%)	Never (%)	Not San (%)
Are you proud of your ethnic cultural background and beliefs?	8(22.8)	6(16)	4(11.1)	8(22.2)	9(25)	1(2.7)	-
Do you feel superior to people from other ethnic groups?	11(30.5)	5(13.8)	2(5.5)	9(25)	7(19.4)	2(5.5)	-
Do you bear others' cultural characteristics in mind while communicating with them?	9(25)	6(16.6)	3(8.30)	1(2.7)	10(27.7)	6(16.6)	2(5.5)
Do you resort to searching for the meanings of interpersonal communication experiences in your cultural background?	5(13.8)	9(25)	4(11.1)	3(8.3)	9(25)	5(13.8)	1(2-7)

Note: Not Sure % Score in Edo - Nil.

Table 5 consists of data on manifestations of response tendencies of the respondents-- the Edos and Igbos. Certain attitudes of respondents towards ourselves as communicators; others from different cultures, and attitudes towards the communication setting have definite implications for communication effectiveness and organizational success in a multi-ethnic setting. Such attitudes as pride, a feel of superiority to people from other cultures, assessment of other people against their "inferior" cultural background using our culture as the point of reference could predispose us to effecting negative response tendencies which do not enhance good human relationship and effective communication.

The data in Table 5 indicate that the Edo and Igbo respondents have cultivated response tendencies that are indicative of ethnocentric or stereotype attitudes. This is because, as the data analyses indicate, they (Edo and Igbo) are proud of their cultural beliefs; 8 (22.2%) Edos, 8 (22.2%) Igbos

always and 6 (16.6%) Edos, 9 (25%) Igbos occasionally are proud of their cultural beliefs; 11(30.5%) Edos, 9 (25%) Igbos always; and 5 (13.8%) Edos and 7 (19.4%) Igbos occasionally feel superior to people from other cultures. On the item of reference to others', cultural background while interacting with them; 9 (25%) Edos, 1(2.7%) Igbos always and 6 (16.6%), Edo, 10 (27.7%) Igbo occasionally make reference to others' culture while interacting with them. However, 3(8.3%) Edo and 6(16.6%) Igbos never make such reference; finally, 5 (13.8%) Igbos 3 (8.3%) Edos Always, and 9 (25%), Edos 9 (25%) Igbos occasionally refer to their own cultures in search of meanings to their communication experiences, while 4(11.1%) Edos and 5(13.8%) Igbos, Never do that.

As initially noted, the response tendencies manifested as per the results of data analysis, in Table 5 could inhibit effective communication. These communication response orientations can create "defensive climate of evaluation, control strategy formulation, neutrality, superiority and centrality in communication responses". This is possible because of the overwhelming nature of the relationship between culture and communication. Thus, many variables which are culture bound influence communication response orientations and are responsible for the communicators' perceptions. In this way, they affect the meanings which people assign to communicative acts. These variables are attitudes, social organization, patterns of thought, roles and roles prescriptions, language, use and organization of space; time conceptualization and nonverbal expression. These variables cannot in any way be arbitrarily and artificially be isolated because they overlap and interact with one another to create communication response orientations or tendencies.

The nature of the communication response tendencies manifested by the Edo and Igbo group members would lead to the conclusion that they are ethnocentric and prejudiced, therefore, are stereotyped and dogmatic.

Research Question 3. Does ethnocentrism or stereotype or dogmatism negatively affect the employee interpersonal communication?

Table 6. The Nature of Interpersonal Communication and Human Relationships amongst the Ethnic Groups

Interpersonal Communication and Human Relationships	Edo			Igbo		
	Yes (%)	No (%)	Not Sure (%)	Yes (%)	No (%)	Not Sure (%)
Do you feel upset when other people's (from other culture) messages contradict your own?	11(30.5)	7(19.4)		14(38.8)	4(11.1)	-
Do you find it difficult to communicate with 'superior officer(s)' from other ethnic group(s)	7(19.4)	8(22.2)	3(8.3)	9(25)	4(11.1)	5(13.8)
Do you find it difficult to communicate with your subordinate^) from other ethnic ground(s)?	2(5.5)	5(13.8)	11(30.5)	2(5.5)	2(5.5)	14(38.3)
Have you ever had any mis-understanding on any matter in your place of work with people from other ethnic group	11(30.5)	6(16.6)	1(2.7)	10(27.7)	5(13.8)	3(8.3)
Is there anything that can be done to improve upon the existing interpersonal relation-ships among the employees?	14(38.3)		4(11.1)	11(30.5)	1(2.7)	6(16.6)

The dominance of ethnocentrism or stereotype or dogmatism in an interpersonal communication setting in any human organization is detrimental to cordial human relations vis-a-vis effective communication. The feeling of being superior to people from other cultures, the sense of pride and an unbridled reference to cultural values or beliefs are also detrimental to cordial human relations and effective communication.

In Table 5 we noted that relationships exist between communication attitudes and response tendencies and orientations. The data in Table 6 indicate the nature and outcomes of interpersonal communication and human relationships between the members of the two ethnic groups-Edo and Igbo: 11 (30.5%) Edos, 14(38.8) Igbso respondents are upset when messages of people from other cultures contradict their own; 7 (19.4) Edos, 9 (25%) Igbos find it difficult to communicate with superior officers from other ethnic groups. However, 3 (8.3%) Edos and 5 (13.8%) Igbos are not sure if they have such difficulty; 11 (30.5%) Edos and 14 (38.3%) Igbos are not sure if they have any difficulty in communicating with from other ethnic groups; only 5 (13.8%) Edos and 2 (5.5%) Igbos do not have any problem in communicating with members of other cultural group in their place of work. 14 (38.8%) Edos and 11 (30.5%) Igbos recognize that something can be done to improve upon the existing interpersonal relationship between the members of the two ethnic groups while4 (11.1) Edos and 6 (16.6%) Igbos recognize that nothing positive can be done to improve the existing interpersonal relationships amongst the employee.

A relationship exists between the results of data analysed in Tables 5 and 6. The relationship is the indication that a link exists between cultural beliefs, attributes and communication behaviour. This is because, according to (Daryl, 1970): An individual appears to hold certain beliefs and attitudes primarily to fulfill his own unconscious needs or to protect himself against unconscious threats to his own self-esteem. Thus, in such a situation, the communicator could be said to be predisposed to bias or prejudice. In this case, prejudice might be regarded as individual's reflection of his 'insecurities', the highly prejudiced person, therefore, could be regarded or seen as someone who is denying or repressing his individual weaknesses. This he does by projecting them into the immediate recipient of his actions

Perhaps, this is the situation which often frustrates library managers and consequently their failure to effect change in their libraries even though they "seem to have taken all the right steps - from involving staff in decision-making and recruiting skilled employees to setting performance standards and providing regular feedbacks..." The only solution to this serious problem could be improvement on the existing interpersonal intercultural communication and relationships among the employee.

Suggestions on how to Improve the Existing Interpersonal Intercultural Communication and Relationships amongst the Employee

Then data in Table 3 indicate that 14(38.8%) Edos and 11(30.5%) Igbos group members said that something can be done to improve the existing interpersonal relationships amongst the employee. A critical analysis of the suggestions indicates an intercultural interpersonal communication setting that has constraints, pressure and conflicts - a situation of strained human relationships. Therefore, respondents' suggestions on how the situation can be improved are given in Table 7 and Table 8 as follows:

Table 7.   Edo Ethnic Group Respondents suggestions

Respondents' Suggestions *(Reported Verbatim)*
1. The Junior staff should be given opportunity to say views about what they think.
2. Praise should be given to those that merit it, that is what my culture says
3. First, everybody should be seen as equal before God. Relationship should improve through mutual respect.
4. Co-operation and love for one another is highly needed more knowledge of other cultural group will help us to be interested in each other

Table 8:   Igbo Ethnic Group Respondents 'Suggestions

Respondents' Suggestions *(Reported Verbatim)*
1.   The senior staff should listen carefully to the junior staffs complaints and reason with them. It does not matter if I am Igbo or Edo
2.   Regular meetings of the section. Ability of the superiors to meet the demands of the juniors half-way. Eradication of punitive measures
3.   Creating-mutual relationship between the senior and junior staff from different cultures will help
4.   Workers especially of different ethnic groups should try to learn to accommodate others.

The information in Tables 7 and 8 indicate that there is need to be improve the communication in the cataloguing section of the Edo State Public Library, among the ethnic groups and management.

SUMMARY

The results of data analysis in Tables 4, 5 and 6 sufficiently indicate that culture has a strong influence on the communication behaviour of the staff of the Cataloguing Division of the Edo State Public and Library. This observation is buttressed by the facts that the respondents have clearly defined cultural beliefs to which they obviously subscribe. As specifically indicated in Table 5, the manifestations of the respondents repose tendencies in interpersonal communication, would seem to have been strongly influenced by their cultural values. This conclusion is made because the groups indicate that they are proud of their cultures, feel superior to people from other cultures and have unhealthy interpersonal communication encounters in their place of work (see Table 6).

In view of the preceding discussion, it is safe to state that cultural beliefs influenced communicators by predisposing them to effecting some response tendencies and orientations which can be categorized as psychological orientations. The point of emphasis here is that cultural beliefs can be responsible, to some good extent, for our psychological state and thus our behavioural patterns. For example the Edo ethnic group members believe in the existence and influences of witches and wizards. The implication of this is that according to Hollowell (1972) "A belief in sorcery is based on the assumption that human individuals (may possess, and exercise at will malevolent powers against other individuals. Such a belief is found in many human societies (Hollowell, 1972).

Therefore, in "many human societies", belief in witchcraft or sorcery; existence of lesser gods; and that illness are caused by "medicine men" (see Table 4) etc. determines the patterns and outcomes of interpersonal intercultural communication in very specific ways. This is because in such a communication setting particularly in Africa, according to Hallowell (1972)

> *Men in particular are weary of one another; they cannot fully trust each other. For sorcery is always a potential threat to the central value of these people " Interpersonal relations are effectively toned by suspicious that may arise from the manner, tone, facial expression, gestures, attitudes, and conduct of persons with whom an individual is associated in daily life. There is always a content anxiety that can be easily aroused because sorcery is believed to exist and may [used to hurt others in life]. If I fall ill my anxiety increases, because someone may have bewitched me. In consequence I am highly motivated to reflect upon the whole matter, my purpose being to discover who it might be. To arrive at a satisfactory answer I have to have some evidence on the basis of which I can make a judgement. So I appeal to the "evidence of my senses". Where else, indeed, could I turn?*

Culture is thus seen as playing vital role in the structuralization of communication perceptions. Culturally determined perceptual sets do not only influence which stimuli reach the communicators' awareness, but more importantly they have strong influence on the judgement aspect of perception-- the attachment of meanings to these stimuli.

CONCLUSION

The employees of the Cataloguing Division of the Edo State Public Library belong to Edo and Igbo ethnic groups. The groups members have long established cultural value systems to which they subscribe and operate in their daily lives. They have subsequently developed communication orientations or attitudes that are essentially psychological and inimical to cordial relationships and effective communication. These psychological manifestations in the form of social behaviour can be referred to as ethnocentrism and stereotype. These psychological orientations are of particular significance to interpersonal communication. They can lead to a more serious state of dogmatism. The communication response orientations adversely effect interpersonal communication and relationships in the Edo State Public Library. According to (Barma, 1972), in order to overcome destructive response orientations, in an interpersonal intercultural communication setting the communicator should not stop at knowing that the people he is working with have different customs, goals, and thought patterns from his own. He must be able to feel his way into intimate contact with these alien values, attitudes, and feelings. He must be able to work with them and within them, neither losing his own values in the confrontation nor protecting himself behind a wall of intellectual detachment.

REFERENCES

African Traditional Religion Comes Back with a Bang! Oba of Benin Leads Traditional Worshippers to Cure Criminals as a Real African Solution to a Problem Caused by White Colonial Institutions that don't work (2010). http://yeyelade.wordpress.com/2010/07/02/african-traditional-religion .. (Accessed 12/12/10).

Barker, Larry C, and Robert Kibler J. (eds) (1971) *Speech Communication Behaviour: Perspective and Principles.* New Jersey. Prentice-Hall, Inc. Englewood.

Barma, LaRay M. (1972) Stumbling Blocks in Interpersonal Intercultural Communications *Intercultural Communication: A Reader* (ed) Larry A. Samover and Richard E. Porter, Wadsworth Publishing Company, Inc. California.

Bell, Earl H. (1961) *Social Foundations of Human Behaviours* New York. Harper and Brother Publishers.

Benedict, Ruth. (1961) *Patterns of Cultures.* London. Routledge and Kegan Paul.

Bradbury, R. E. (1959). *The Benin Kingdom and the Edo Speaking Peoples of Southwestern Nigeria: Ethnography Survey of Africa* (ed.) Daryll Forde.

Brooks, D. William and Emart Philip (1976) *Interpersonal Communication.* Iowa. Wm C. Brown Company Publishers.

Chordia, Guarav (2009). How does Culture Influence Communication in Multicultural Teams in China and India.

Cross-cultural Communication. http://en.wikipedia.org/wiki/cross-cultural_communication (Accessed 11/12/2010).

Cross-cultural Communication. http://www.beyondintractability.org/essay/cross-cultural-communication (Accessed 17/12/2010).

Croucher, Roland and Others (2003). Communication and Culture. http://jmm.aaa.net.au/articles/85htm Accessed 11/12/10).

Cultural and Communication: The Interplay in the New Public Commons-usenet and community Networks. http://www.colombia.edul-hauben/cs/usenet-culture.txt (Accessed 11/12/2010)

Daryl, Bern J. (1970) *Beliefs, Attitude, and Human Affairs.* California: Brooks Cole Pub. Co. Inc.

Ethics of Nigeria- Wikipedia.the free encyclopedia (2010). http://en.wikipedia.org/wiki/Demorphics_of_Nigeria (Accessed 12/12/10).

Ethnicity in Nigeria: African Postcolonial Literature in English in the Postcolonial Web. http://www.postcolonialweb.org/nigeria/ethnicity.html (Accessed 12/12/2010).

Forman, Rick B. (1990) Incorporating Organizational Values into the Strategic Planning Process. *The Journal of'Academic Librarianship.* Vol. 16 No. 3.

George, A. Borden and John D. Stone, Borden (1976) *Human Communication: The Process of Relating.* California. Cunnming Publishing Co,

Hall, Calvin S. and Gardner Linzey (1970) *Theories of Personality.* New York. John Wiley & Sons.

Hallowell, A, I. (1972) Cultural Factors in the Structuralization of Perception. *Intercultural Communication: A Reader,* (ed) by Larry A. Samova and Richard E. Porter. Wadsworth Publishing Company. Inc. Belmonth California.

Hamdelman, Don (1977) *The Organization of Ethnicity, Ethnic Groups* (ed.) Ruffa, Anthony L and Savishnisky, Joel S. Savishinsky.

Hauben, Michael Culture and Communication: The Interplay in the New Public Commons-Usenet and Community Networks. http://www.columbia.edu/-hauben/CS/usenet-culture.txt

Henry A. Murry and Clyde Kluckhohn (1953). Personality in Nature, Society Culture. http://www.panarchy.org/Kluckhohn/personality.1953.html

Igwe, Leo (2005). Ritual Killing and Pseudoscience in Nigeria. http://www.earthward.org./nrituals.shtm

Importance of Culture and Communication in Leadership. http://ezinearticles.com/?Importance-of-culture-and-communication-i... (Accessed 12/11/2010).

Intercultural Communication and Cultural Differences: How people are the same and how they are different. http://www.associatedcontent.com/article170921intercultural-communi..(Accessed 17/12/2010).

Kluckhohn, Clyde and Henry A. Murray (1953). Personality in Nature, Society and Culture New York. Alfred A. Knopf.

Lachman, Gary (2009). How Culture can affect communication. http://www.hurriyefdailynews.com/n.php?n=how-culture-can-affect-... (Accessed 11/12/2010).

Lebaron, Michelle (2003). Cross-Cultural Communication. http://www.beyondintractability .org/essay/cross-cultural_communication

Levine, Rober A. (2009). Culture, Behaviour and Personality: Introduction to Comparative Study of Psychological Adaptation. Chicago. Aldine.

Lloyd-Johns, Esther M. and Rosnau Nova (eds). (1960) *Social and Cultural Foundations of Guidance.* New York: Holt Rinchart and Winston Inc.

Markel, Paulette (2009). Cultural Differences Impact Workplace Communication http://www.alliancetac.com/?PAGE_ID=2560

McCroskey, James C, and Carl E. Larson and Knapp Mark L., (1971) *An Introduction to Interpersonal Communication.* New Jersey: Prentice-Hall Inc.

Michell, G. D. (ed) *Dictionary of Sociology.* London: Routledge and kegan Paul.

MLL 605: The Field of Intercultural Communication. http:spaces.umbc.edu/display/~9/6/MLL+605+The+Field+Interc… (Accessed 17/12/2010).

Nigeria: Country Profile. http://cultural.profiles.spirasi.ie/countries.Nigeria.shtml (Accessed, 12/12/10).

Nigeria's Identifiable Ethnic Groups. http://www.onlinenigeria.com/tribes/tribes.asp (Accessed 12/12/2010).

Not only in Liberia Ritual Killing Nigeria. http://www/liberiapastandpresent.org/NotOnlyInLiberia_Nigeria.htm (Accessed 12/12/2010).

Novinger, Tracy (2008). Intercultural Communication: How Culture Affects Communication. http://culturespan.blogspot.com/2008/01/how-culture-affects-communic... (Accessed 11/12/2009).

Nwoko K.C. (2009). Traditional Psychiatric healing in Igbo land, Southeastern Nigeria. AJHL Vol. 1 (2) http://www.academicjournals.org/AJHC . Accessed

Ogundeji, Olusegun (2001). Religion and Culture: The Adverse Influence of Traditional Religious Beliefs and Superstition. http://thirdwordorphans.org/gpage38.html

Okwilagwe, Oshiotse Andrew (1979). An Observation and Analysis of Communication Behaviour in an Organizational Setting with Special Reference to Cultural Backgrounds as Mediating Factors. Unpublished M.A. Project., Department of Communication and Language Arts, University of Ibadan.

Ongwatana Pongranod and Chordia, Gaurav (2009). How Does Culture Influence Communication in Multicultural Teams in China and India. http://www.essay.se/essay/bbb5ebe452/ (Accessed 11/12/2010).

Otite, O (2010). Nigeria Identifiable Ethnic Group. http://www.onlinenigeria.com/tribe/tribes.asp

Porter, Richard E. (1972) An Overview of Intercultural Communication *Intercultural Communication: A Reader* (ed) by Larry A. Samovar and Richard E. Porter. California Wadsworth Publishing Company Inc. Belmont California.

Prosser, Michael H. (1976). *The Culture Communicator: International and Intercultural Communicator.* Edited with Introductory Notes and Suggested Readings by Heniz-Dietrich Fischer and John Calhoun Merril.

Religion and Culture. http://thirdworldorphans.org/spage38.html (Accessed 12/12/2010).

Religious beliefs in Nigeria. http://www.spainexchange.com/guide/NG-religion.htm (Accessed 12/12/2010).

Rich, Andrea L. and Ogawa Denis M. (1971). Intercultural Communication. A *Model of Intercultural and Interracial Communication.* Arizona. Intercultural Division, International Communication Association.

Riggs, N. (1991) Library Communication: *The Language of Leadership.* Chicago American Library Association.

Ritual Killing and Pseudoscience in Nigeria. http://www.earthward.org/inrituals.shtml (Accessed 12/12/2010).

Rogers, Everrett M. (1960) *Social Change in Rural Sociology: A Textbook in Rural Sociology.* New York; Appleton-Century Crofts Inc.

Rokov, Vassar (1990). Ethnicity in Nigeria. http://www.postcolonialweb.org/nigeria/ethnicity.html

RRT Research & Information 2009, Research Response NGA34830, 4 May.

Samova, Larry A. and Richard E. Porter Editors (1971) Intercultural Communication: A Reader. Wadsworth Publishing Company, Inc. Belmonth California.

Sensening, Jones and Ashmore Richard A (1973) Systems of Values and their Multidimensional Representations. *Multivariale Behavioural Research* ed. by Benjamin Fruste 3 Vol. 13,13.

Shobem, Shaffer (1976) *The Psychology of Adjustment.* New York: International University Press Ltd.

Shoughnessy, Thomas W. (1988) Organizational Culture in Libraries: Some Management Perspective, *Journal of Library Administration* Vol. 9. No. 3.

Siollun, Max (2009). Do You Believe in Juju? http://234next.com/csp/sites/next/News/5498325-183/story.csp (Accessed 12/12/2010)

Siollun, Max (2010). Nigerians in America: Do You Believe in Juju? http://www.nigeriansinamerica.com/articles/3891/1/Do-You-Believe- (Accessed 12/12/2010)

Sitaram, K. S. (1972). *What is Intercultural Communication?* Intercultural Communication: A Reader, ed. by Larry A. Samova and Richard E. Porter. Wadsworth Publishing Company, Inc. Belmonth California.

Smith, Arthur L. (1973).. *Transracial Communication.* New York: Prentice-Hall. Inc.

Smith, Asante (1973). "Speech Communication 619" *Seminar in Cross Cultural Communication.* New York University.

Stein, David D. (1966). The Influence of Belief Systems on Interpersonal Preference: A Validation Study of Rokeachs Theory of Prejudice. *Psychological Monographs General and Applied.* Ed. by Gregory A Kimble. American Psychological Association, Inc.

The Internet as Mass Medium: Morris and Ogan. http://jcmc.indiana.edu/vol1/issue4/morris.html (Accessed 16/10/2010).

The Yoruba People And Voodoo (Juju) culture. http://www.naira/and.com/nigeria/topic-282439.0.html (Accessed 12/12/2010).

Tusubira, F.F. and Kyeyune, A. (2001). Tutorial Paper: what is Information and Communication Technology? Makerere University Library ICT Awareness Workshop 6-7 July.

Webster, Frank (1980). *The New Photography Responsibility in Visual Communication.* London. John Calder.

What is intercultural communication? http://www.lwintessential.co.uk/articles/definition-of-intecultural-C... (Accessed 17/12/2010)

Why Cross Cultural Awareness? http://www.kwintessential.co.uk/cross-cultural/cross-cultural-awareness… (Accessed 17/12/2010).

Wikipedia (2010) http://www.en.wikipedia.org/wiki/Crosscultural-communication,modified

Wikipedia, the free encyclopedia (2010) Nonverbal communication. http://en.wikipedia.org/wiki/Nonverbal_Communication (Accessed 11/12/10).

Wikipedia, the free encyclopedia (2010) Religion in Nigeria. http://en.wikipedia.org/wiki/Religion_in_Nigeria (Accessed 12/12/10).

Wikipedia.thefree encyclopedia Religion in Nigeria http://en.wikipedia.org/wiki/Religion_in_Nigeria

ANALYSIS OF PHYSICAL FITNESS OF FEMALE UNDERGRADUATE STUDENTS OF EDUCATION MANAGEMENT, UNIVERSITY OF PORT HARCOURT

Dr. T. Tammy Orunaboka
Faculty of Education
University Of Port Harcourt
NAEGIRIA
tamyorus@yahoo.com

Dr. C.B. Ogulu
Faculty of Education
University Of Port Harcourt
NAEGIRIA

ABSTRACT

The primary focus of this paper is to present participation in sports and exercise as a prerequisite for enhancing the physiological and socio-psychological fitness of female students. In other to achieve this aim, this study examined and analyzed the physical fitness of two hundred and twenty three (223) female undergraduate students in the department of education management, University of Port Harcourt. Fait (1978) physical fitness testing battery was used to text the subjects physical fitness level. Data collected were subjected to descriptive statistics. The results showed a significant difference between older female students of 20-21 years old to that of younger female students of 18-19 years old. Conclusion was drawn that people can become involved in purposeful physical activity every early in life and can continue to pursue these interests throughout their lives. Based on this, it was recommended that participation in all forms of sports and exercise should be regular. Students should be exposed to the benefits of physical fitness exercises.

Key words: Physical fitness, exercise, physiology, emotional health, Test battery.

INTRODUCTION

The struggle for individual to live a healthy and keep fit has been matter of great concern throughout the world. Man has to be fit and healthy to survive in his environment and enjoy his existence. Man has always battled with the diverse nature of his environment-poor weather conditions, shortage of food, flood, earthquake, volcano, and tsunami among others in order to survive.

Fitness means different things to different individuals. To many individuals fitness may be regarded as having the power to carryout daily activities, to the absence from disease. Even among the educated physical educators, there is no concensus means and definition of what fitness is all about. Physical fitness has been used to connote a variety of conditions ranging from the absence of diseases, illness to the condition exhibited by a truck pusher. According to Clarke (1976) physical fitness is the ability to carry out tasks with vigour without undue fatigue and with ample energy to enjoy leisure time pursuits and to meet emergencies.

Siedentop (2001), Bucher and Krotee (2002), and Parkhouse (2005), they respectively talked of fitness as the ability of a person to live full and balanced existence, and of physical fitness as soundness of such body organs as the heart and lungs, a human mechanism that performs efficiently under exercise or work conditions. While Nixon and Jewett (1980) referred physical fitness as the organic capacity of the individual to perform normal tasks of daily living without undue tiredness or fatigue having a reserved of strength and energy available to meet satisfactory efficiency and emergency demand that required suddenly arising.

The Role of Physical Activity to Health

It is on medical records today, that cardiovascular diseases have posed the largest and most serious health problems in modern life. That is why physical fitness and physical activity have become so important as individual understanding of the prevention and remediation of these disease increase.

The relationship between physical activity and health has been known for some time among medical personnel and physical educators. But the general public is now in the midst of a further evolution of our understanding of that relationship. For all of the twentieth and future centuries, physical education promoted and will promote physical fitness as a primary goal. Scientists, physicians, and health professionals in Nigeria came to adopt that view also, particularly as it relates to *hypokinetic* diseases, those ailments and problems that are not caught, as are infections disease, but instead develop through inappropriate diet, lack of exercise, and a generally sedentary lifestyle. Corbin and Lindsey (1983) referred to these as "hypokinetic diseases", meaning those caused by or related to a lack of appropriate physical activity illness that are typical of the hypokinetic or degenerative group are coronary artery disease, high blood pressure, lower-back pain, obesity, diabetes and osteoporosis. The above was supported by the words of Corbin (1987)

> *"There is now little doubt that regular physical activity of the appropriate frequency, intensity, and duration produces significant health benefits. Most important is the achievement of those specific fitness components which help reduce the risk of hypokinetic conditions including heart disease, back pain, diabetes, osteoporosis, and obesity.*

As the preceding quote indicates, physical educators and other members of society must now ask what kinds of physical activity, at what frequency, for what duration, and at what intensity will be needed to enhance health.

It has been proved experimentally by studies that many ailments are as a result of lack of physical activity. For instance, Krus and Robb (1961) reported that 80% of lower back pain was due to lack of adequate physical activity. That physical activity encourages better adaptability to stress, less neuromuscular tension, and lesser fatigability, no relative overweight, stronger, with more flexibility, have greater breathing capacity and standard pulse rate.

Components of Physical Fitness

The different opinions regarding what physical fitness was have influenced the component. Some scholars listed it as; strength, power, agility, flexibility and cardiovascular endurance. Others add coordination, speed and accuracy.

Fait (1978) opined that, physical fitness level is determined by the development of each of several different components. According to him, the main components were identified as; coordination, balance muscular strength, flexibility, cardio-respiratory and muscular endurance. Fait (1978) further explained that because some of these components are more closely related to physiological capacity and others to neurological aspects (skill mastery), physical educators have found it desirable to classify them separately into physical fitness and motor fitness components. Readers Digest (2007) listed the following ten factors as the components of physical fitness;; Resistance to disease, muscular strength and muscular endurance, cardiovascular-respiratory endurance, muscular-power, flexibility, speed, agility, coordination, balance and accuracy. This listed ten factors above by Readers Digest (2007) corroborated with Larson and Vocom (1958) surveyed physiological research.

It is observed by researchers of physical fitness component that their differences in definitions which are obvious, but numerous points of agreement are equally apparent. Practically, everyone agrees of them that physical fitness is more than freedom from disease.

Ross and Pate (1987) presented a number of case studies of boys and girls at Nathaniel Hawthrown Junior High School, Yonkers, N.Y. studies of "bright kids" and low physical fitness Index (PFI) of pupils were conducted. In many instances, improvement in physical fitness were accompanied by improved scholastic success with age.

Physical educators should not claim that physical fitness is their responsibility alone. The attainment by a student of an optimal level of physical fitness is not only a question of sufficient vigorous exercise. Fitness depends on many other factors as well, such as freedom from disease, well-balanced nutrition, correction of remedial defects, state of positive mental and emotional health, and other elements that are the concern of the family, school physician, the school nurse, counselor, administrators, teachers as well as parents. The human being who is physically fit is strong and enduring and thus able to function as a productive member of the society. (Anspaugh, Dignan & Anspaugh 200; Cureton 1994; Corbin 1981).

Physical Fitness Test Batteries

There are a lot of traits of physical fitness that are not related. The differences of scholarly opinions regarding physical fitness were bound to influence the nature of tests tool used to measure the concept. Some tests measure one or two components of fitness, while others are more inclusive. Researchers may select test batteries from AAPHER 1956, Clarke 1976, Fait 1978 among others.

According to Fait (1978), the Youth Fitness Test Manual by American Alliance for Health, Physical Education and Recreation (AAHPERD) (1962), composed of the following test items; 50 metres Dash-for speed; 10 metres shuttle race-for Agility; 100 metres shuttle Race-for cardio-respiratory endurance; 200 metres-for cardio-Respiratory endurance; standing Broad Jump-for Muscular power; sit-up for muscular Endurance; Touch fingers to floor without flexing the knee-for Dynamic flexibility; Bass stick length-wise, for Balance; Rope skipping for co-ordination.

STATEMENT OF THE PROBLEM

The author is a volleyball lecturer (EDU 103.2) to first year undergraduate students of department of Education Management of University of Port Harcourt. He has taught this course for about six years now. Each year he is faced with students complaining how they do not want any physical activity courses. They do not need jumping, running, playing of any game.

This study sets out to test and analyze their physical fitness level. Having review some importance of physical fitness to man, three major physical fitness components according to Fait (1978) was applied to measure 223 students (girls) as to answer the following two obvious question stated thus:

    (a)   Are the 223 undergraduate students (girls) physically fit?

    (b)   Is age a factor in the physical fitness of these 223 undergraduate female students?

This study attempts to answer the above two questions.

METHODOLOGY

Two hundred and twenty three first year undergraduate female students from the Department of Education Management, University of Port Harcourt, (age between 18-21 years) were used for this study. All the students were in the second semester and offering this compulsory physical education course (Physical Activity course – EDU 103.2 Volley ball) during the measurement period. The measurements took place during physical activity class on the volley ball court.

Hypothesis

The main hypothesis of this study was older female first year undergraduate students of Education management will not be physically fit than the younger ones.

Measurement Techniques

The age, height and weight, sex, were determined. Fait (1978) Physical Fitness Test Battery, (base on nine components of physical fitness) was used for this measurement. General descriptive statistics was used to analyze the results.

Subjects (females) by age		
Age in years	**Group**	**No of subjects**
18	younger ones	40
19		52
20	older ones	72
21		59
Total		**223**

RESULTS AND DISCUSSIONS

Table 1. Table of means, standard Deviations and sums of ages 18-19 and 20-21

S. N0	Tests items	$\overline{X}$	SD	$\sum x$	$\overline{X}$	SD	$\sum x$
1	50 metres dash	14.659	2.09	1334	12.077	3.24	1099
2	10 metres shuttle race	14.813	2.13	1348	12.769	1.13	1162
3	100 metres race	43.33	16.36	5759	66.95	28.81	6093
4	Standing broad jump	1.16	0.33	155.13	1.5	0.19	137.02
5	Sit-up	10.04	5.10	336	20.47	9.04	1863
6	Hockey ball throw	15.47	6.49	2058.3	24.25	6.73	2206.89
7	Touching fingers on floor	17.67	4.89	2351	18.53	6.43	1687
8	Bass stick	3.54	2.84	471	8.59	10.94	782
9	Rope skipping	6.63	2.99	882	8.36	2.6	761

The table above shows means, standard deviations, and sums of the test items by the two groups age 18-19 and 20-21 years

Table 2. "t" test result of the two groups with 8 items.

S/N	Items	"t" value	P	df
1	50 metres dash	6.373	<.001	180
2	10 metres shuttle race	8.050	<.001	180
3	Standing broad jump	9.135	<.001	180
4	Sit-up	10.502	<.001	180
5	Hockey ball throw	9.607	<.001	180
6	Bass stick	1.685	<.005	180
7	Rope skipping	4.388	<.001	180
8	Touching finger on floor with flexing bones	2.604	<.001	180

This table 2 above showed the results of the "t" test of eight variables tested. The results of 100 meters and 200 meters were not included because the University team was on the training section, hence the facility was occupied.

Table 3. "T" scale of the two groups (50 meters Dash)

S/N	Aged 18-19 years Test score		Standard Score	Aged 20-21Test Score	
1	8.3	seconds	100%	2.3	seconds
2	9.9	"	95	3.3	"
3	9.6	"	90	4.2	"
4	10.3	"	85	5.2	"
5	10.9	"	80	6.2	"
6	11.5	"	75	7.1	"
7	12.1	"	70	8.1	"
8	12.9	"	65	9.1	"
9	13.4	"	60	10.0	"
10	14.0	"	55	11.1	"
11	14.7	"	50	12.1	"
12	15.3	"	45	13.1	"
13	15.9	"	40	14.0	"
14	16.6	"	35	15.0	"
15	17.2	"	30	15.1	"
16	17.8	"	25	16.9	"
17	18.4	"	20	17.9	"
18	19.1	"	15	18.9	"
19	19.7	"	10	19.9	"
20	20.3	"	5	20.8	"
21	21.9	"	0	21.8	"

The above table 3, showed "T" scale of the two group of female, tested on 50 meters dash for speed.

DISCUSSION

The findings showed that older females undergraduate students of Department of Education Management of University of Port Harcourt, 2009/2010 academic session are more physically fit than the younger females of the same year and Department.

The tables showed that there was a significant difference in the mean between the two groups. The older females (20-21 years old) as shown on table 2 of "t" test results on variables 1, 2, 3, 4, 5, 7 and 8 at .001 and on variable 6 at .05 in favour of older females of the department.

Table 1, presented the mean scores under each variable for the two groups which reveals that, older subjects are superior to the younger ones on physical fitness. A glance through other items on this table shows better performances by the older group although in some cases, the differences are not much, like in standing broad jump.

Table 3, showed performances of individuals in percentile. However, the high degree of flexibility in female may be associated with their physiological structure. This study agrees with the observation of Fait (1978), who pointed that physical fitness level is determined by the individual development and with the support of age. The results also showed serious encouragement by the female students to show that they are physically fit. According to Ross and Pate (1987) in their study report stated, in many instances, improvements in physical fitness were accompanied by improved scholastic success and age. More complex skills are acquired and applied as one grows and develops. This study showed that most of the female students used for this study are physically fit, this result corroborated with the studies of Clarke (1976), Siedentop (2001), Bucher and Krotee (2002), Parkhouse (2005) among other scholars.

CONCLUSION AND RECOMMENDATIONS

It is now clear that lifespan involvement in sport, fitness, and physical education is possible and desirable. People can become involved in purposeful physical activity very early in life and can continue to pursue these interests throughout their lives. The 223 female students used for this study are similar as far as body weight, height, lean body. This could be due to similarities of body movements during this course.

However, the two categories are different in their level of performances during the test. The older females showed a great sense of maturity and superior in their task performances than the younger ones. This is an indication that physical fitness in youth improves according to age. This study has shown that everybody need some degree of physical activities as to be physically fit, that physical fitness enables individual to overcome some hypo kinetic diseases.

Based on the results of the finding, the following were recommended:

- University students should undergo periodical physical fitness test.

- A separate study on boys should be conducted to determine their level of physical fitness.

- Lecture free period of every Wednesday 3pm meant for   sports should be observed through adequate enforcement

- Students should be exposed to the benefits of physical fitness exercise

- Participation in all forms of sports and exercise on regular basis (30 minutes for about four times weekly) is recommended for health existence.

REFERENCES

American Alliance for Health, Physical Education, Recreation (AAHPER) (1962). *Journal* 50, 22-23.

American Alliance for Physical, Health Education, and Recreation (1956). *Journal* 4, 6-8

Anspaugh, D.J., Dignan, B.M., & Anspaugh, L.S. (2000). *Developing health promotions programs.* New York: McGraw-   Hill

Bucher, A.C. & Krotee, L.M. (2002). *Management of Physical   education   and   Sports.* (12th Ed.). New York: McGraw-Hill   Higher Education.

Clarke, H.H. (1976). *Application of measurement to health and   physical   education.* (5th   Ed.). Princeton.

Corbin, C. (1981). First things first, but don't stop there. *Journal of physical Education; Recreation, and dance.* 52, 36-38

Corbin, C. (1987). Physical fitness in the K-12 curriculum: some defensive solutions to perennial problems. *Journal of   Physical Education, Recreation, and Dance 58(7), 49-54*

Corbin, & Lindsey, R. (1983). *Fitness for life.* Glenview, IL: Scott, Foresman.

Cureton, K. (1994). Physical fitness and activity standards for youth. In R. Pate & D. Hohn (Eds.), *Health and fitness through physical education.* Champaign, IL; Human kinetics. 129-136

Fait, H.F. (1978). *Special physical education adapted, corrective, developmental.* (4th Ed.) Washington DC., Saunders.

Kroaus, H., & Rabb, H. (1961). *Hypokinetics disease.* Charles Thomas, Springfield.

Larson, L. & Yocom, R. (1951). *Measurement and evaluation in physical health, and recreation education.* St. Louis: Mosby.

Nixon, E.J. & Jewett, E.A. (1980). *An introduction to physical education* (6th Ed.). Washington DC. Saunders.

Parkhouse, L.B. (2005). *The management of sports, Its foundation and application.* (4th Ed.) Toronto: McGraw Hill Higher Education

Readers Digest (January, 2007). *New Breakthroughs weight Loss: What Really works.* Britain: Reader's Digest Association.

Ross, J., & Pate, R. (1987). A summary of findings. *Journal of Physical Education, Recreation, and Dance,* 58 (9), 51-56.

Siedentop, D. (2001). *Introduction to Physical education, fitness and sport.* (4th Ed.). California: Mayfield Pub. Comp.

APPENDIX

17th National Sport Festival, 2011,

University of Port Harcourt,
Game Village.

SPORT HEALTH QUESTIONNAIRE

Dear Respondent,

We care about your health condition as you partake in the 17th national sport festival taking place in Rivers State.

Your maximum cooperation, honesty and objectivity in completing this questionnaire are solicited.

All information given shall be strictly confidential and used for research purpose only. Your name is not needed.

Thank you for your anticipated cooperation.

Yours faithfully,
Dr. Orunaboka, T &
Jonathan B.N.

SECTION A: (DEMOGRAPHIC DATA)

INSTRUCTION: Please complete the following as they apply to you by ticking (√) and writing in the appropriate box below.

1.   Gender: Male (   ) Female (   )

2.   Age: _____

3.   Marital Status: Married (   ), Divorced (   ), widowed (   )

4.   Educational Status: FSLC (   ) SSCE, WASC/NECO (   ) OND (   ) HND (   ) First

Degree (   ) Post Graduate (   ) PhD (   )

5.   What is your sport? _____

6.   What is your height? _____

7.   What is your weight? _____

8.   How long have you been involved in sports? _____

9.   What is your state of origin? _____

10.   Where do you live? _____

SECTION B: HISTORY OF INJURY/INJURIES

11.   What type of injury did you have previously? _____

12.   What type of treatment did you receive at that time?

Traditional (   )   Medical (   )

13.   What type of injury do you have now? _____

14.   What type of treatment have you received/receiving?

Traditional (   )   Medical (   )

SPONSORSHIP OF TREATMENT

15.   Did you get assistance during this period? Yes (   ) No (   )

16.   Who sponsored your treatment? Self (   ) company (   )

Government (   ) others (   )

17.   Where were you treated? Hospital (   ) Game village clinic (   )

On the spot (   )

18.   How long did the injury last? Days (   ) weeks (   ) months (   )   years (   )

REHABILITATION PROGRAMME FOR THE INJURED/DISABLED

19.   Did you stop training because of your injury? Yes (   ) No (   )

20.   Did you get rehabilitated for the injury? Yes (   ) No (   )

21.   Did you take part in this competition despite your injury?

Yes (   ) No (   )

22.   Do you have any disabilities due to your injury? Yes (   ) No (   )

INSURANCE MEASURES

23.   Have you discussed any insurance in your sports? Yes (   ) No (   )

24.   Were you given any form for insurance? Yes (   ) No (   )

25.   Are you paid any insurance allowance during any injury?

Yes (   ) No (   )

26.   Are you insured for this completion? Yes (   ) No (   )

SAFETY EDUCATION/TRAINING

27.   Did you receive any safety training for your sports? Yes (   ) No (   )

28.   Do you know the health risk/hazard of your sport? Yes (   ) No (   )

29.   Do you have safety measures in your sport? Yes (   ) No (   )

30.   To what extent is the safety measure in place?

Not adequate (   ) adequate (   ) very adequate (   )

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Part II

INVESTIGATION AT GLOBAL AND MEDITERRANEAN SCALES OF MEAN SEA LEVEL HEIGHT VARIABILITY BY SINGULAR SPECTRUM ANALYSIS

Mahdi Haddad
Centre of Space Techniques
BP 13 Arzew. Oran
ALGERIA
Haddad_mahdi@yahoo.fr

Mohamed Faouzi Belbachir
University of Science and
Technology of Oran
ALGERIA
mf_belbachir@yahoo.fr

Salem Kahlouche
Centre of Space Techniques
BP 13 Arzew. Oran
ALGERIA
s_kahlouche@yahoo.fr

ABSTRACT

The spatial sampling offered by satellite altimetry and its continuity during the last years are major assets to provide an improved vision of the oceanic variability. In this paper, the seasonal and interannual variability of global and Mediterranean mean sea level height variability are studied through the maps of sea level anomalies (MSLAs) that extend back to 1993. The singular spectrum analysis (SSA) method is applied to the averaged MSLAs time series on global and Mediterranean scale separately. The SSA technique shows that the global mean sea level variability is dominated by an increasing trend, which represents 91.52% of the initial MSLAs time series. The rate of the global long-term trend as seen by SSA appears to be about 2.8 mm yr^{-1}. Also, the SSA shows that the global mean sea level is object of significant harmonic components: annual signal, semi-annual signal and 4 months signal. The amplitude of the grouped seasonal components varies between -0.83 and 1.04 cm. Likewise, the first harmonic components in the Mediterranean sea are: annual signal, semi-annual signal and 7 months signal, where the annual frequency signal is particularly strong. Its contribution represents 72.38 % of the initial averaged MSLAs and its amplitude is of 14.4 cm. The rate of mean sea level height variability over the Mediterranean sea is estimated of 1.72 mm yr^{-1}.

Keywords: mean sea level variability; global and Mediterranean scales; maps of sea level anomalies (MSLAs); singular spectrum analysis; harmonics and trend extraction.

INTRODUCTION

Long-term mean sea level change is a variable of considerable interest in the studies of global climate change. It can provide an important corroboration of predictions by climate models of warming. The purpose of this paper is to give a detailed description of the changes in global and Mediterranean mean sea level variability through the averaged sea level anomalies time series at the two scales by using the SSA technique. Thus, the result of the SSA processing is a decomposition of these two time series into several components, which can be identified as trend, seasonalities and other oscillatory series or noise components.

SSA originated between the late 70s and early 80s. In some cases, the names Caterpillar approach, Principal Component Analysis for time series or Karhunen-Loeve decomposition of time series are also used. SSA technique is a powerful technique of time series analysis incorporating the elements of classical time series analysis, multivariate statistics, multivariate geometry, dynamical systems and signal processing. The possible application areas of SSA are diverse: from mathematics and physics to economics and financial mathematics, from meterology and oceanology to social science and market research. Several book chapters, papers and softwares about SSA technique are available at the SSAwiki website. For variety of the application of SSA see Hassani et al. (2007, 2009 and 2010), Ghodsi et al. (2009, 2010), Hassani and Zhigljavsky (2009), Hassani and Thomakos (2010), Haddad et al. (2010) and references therein.

Note that we are motivated to use SSA because it is a nonparametric technique that works with arbitrary statistical processes, whether linear or nonlinear, stationary or non-stationary, Gaussian or

non-Gaussian. Moreover, contrary to the traditional methods of time series analysis, SSA makes no prior assumptions about the data (Hassani, 2010, Hassani and Thomakos, 2010).

The outline of this paper is as follows. Section 2 presents a brief introduction to singular spectrum analysis. Section 3 describes the altimetric datasets used in our study. Section 4 uses the SSA technique to analyze the global and Mediterranean mean sea level height variability. A summary is given in section 5.

DESCRIPTION OF THE SSA

The main idea of SSA is performing a singular value decomposition (SVD) of the trajectory matrix obtained from the original time series with a subsequent reconstruction of the series. The basic version of SSA consists of five steps, which are performed as follows (Golyandina et al., 2001 and Hassani, 2007):

Step 1. (Computing the trajectory matrix): this transfers a one-dimensional time series $Y_T = (y_1, \ldots, y_T)$ into the multi-dimensional series $X_1, \ldots, X_K$ with vectors $X_i = (y_i, \ldots, y_{i+L-1})' \in \mathbb{R}^L$, where $K = T - L + 1$. The single parameter of the embedding is the window length L. The result of this step is the trajectory matrix $X = [X_1, \ldots, X_K]$:

$$X = (x_{ij})_{i,j=1}^{L,K} = \begin{bmatrix} y_1 & y_2 & y_3 & \cdots & y_K \\ y_2 & y_3 & y_4 & \cdots & y_{K+1} \\ \vdots & \vdots & \vdots & \ddots & \vdots \\ y_L & y_{L+1} & y_{L+2} & \cdots & y_T \end{bmatrix}$$

The trajectory matrix X is a Hankel matrix, which means that all the elements along the diagonal $i + j = const$ are equal.

Step 2. (Constructing a matrix for applying SVD): compute the matrix XX^T.

Step 3. (SVD of the matrix XX^T): compute the eigenvalues and eigenvectors of the matrix XX^T and represent it in the form $XX^T = P\Lambda P^T$. Here $\Lambda = diag(\lambda_1, \ldots, \lambda_L)$ is the diagonal matrix of eigenvalues of XX^T ordered so that $\lambda_1 \geq \lambda_2 \geq \cdots \geq \lambda_L \geq 0$ and $P = (P_1, P_2, \ldots, P_L)$ is the

corresponding orthogonal matrix of eigen-vectors of   .

Step 4. (Selection of eigen-vectors): select a group of $l\ (1 \leq l \leq L)$ eigenvectors $P_{i_1}, P_{i_2}, \ldots, P_{i_l}$.

The grouping step corresponds to splitting the elementary matrices X_i into several groups and summing the matrices within each group. Let $I = \{i_1, \ldots, i_l\}$ be a group of indices $i_1, \ldots, i_l$. Then the matrix X_I corresponding to the group I is defined as $X_I = X_{i_1} + \cdots + X_{i_l}$.

Step 5. (Reconstruction of the one-dimensional series): compute the matrix

$$\tilde{X} = \|\tilde{x}_{i,j}\| = \sum_{k=1}^{l} P_{i_k} P_{i_k}^T X$$

as an approximation to X. Transition to the one-dimensional series can now be achieved by averaging over the diagonals of the matrix $\tilde{X}$.

Data used

The two datasets distributed by AVISO (Archiving, Validation and Interpretation of Satellite Oceanographic data) are used here:

- the global merged and gridded of Delayed-Time MSLA (Maps of Sea Level Anomaly): These datasets cover all oceans and seas and go from the beginning of 1993 to the end of 2009 with a sampling rate of seven days (one week). The latitude and longitude resolutions of these maps are 1/3 x 1/3 degrees.
- the Mediterranean D-T MSLA: These datasets over the Mediterranean basin (30°N-46°N, 5°W-36°E) go from the beginning of 1993 to the end of 2009, with 1/8 x 1/8 degrees of latitude and longitude resolutions and a sampling rate of seven days (one week).

The main input data for the DT processing are the Geophysical Data Records produced by NASA or CNES (T/P, Jason-1, Jason-2), ESA (ERS-1, ERS-2, ENVISAT), or NOAA (GFO, Geosat) which are therefore of the highest quality, notably in terms of orbit determination. All of the standard corrections to the altimeter data were applied including removal of ocean tides and an inverted barometer correction.

Note that the sea level anomaly (SLA), define as variations of the sea surface height with respect to the mean sea surface, is generally used as precious and main indicator for development of scientific applications which aims to study the ocean variability (mesoscale circulation, seasonal variation, El Niño...).

For each dataset, a temporal series of averaged MSLAs (one mean value per week) is computed on each individual map from an average of all the grid values. The two obtained series with a length of $T = 887$ are used separately when applying the SSA technique. Figures 1 and 2 represent the temporal series of averaged MSLAs at global scale and in the Mediterranean sea respectively.
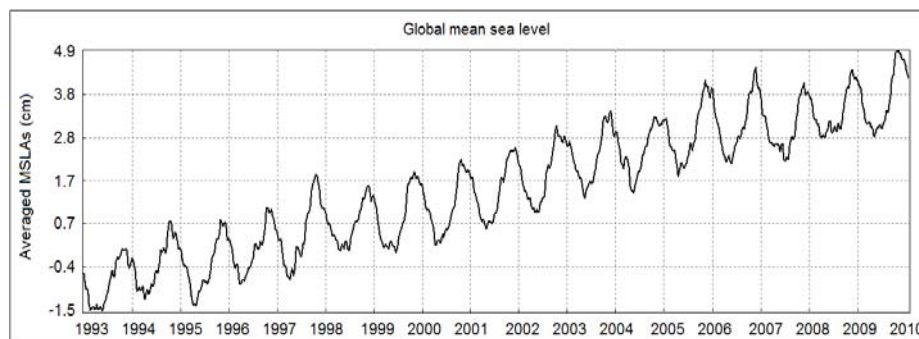

Figure 1: Temporal series of averaged global MSLAs during the period 1993-2009.
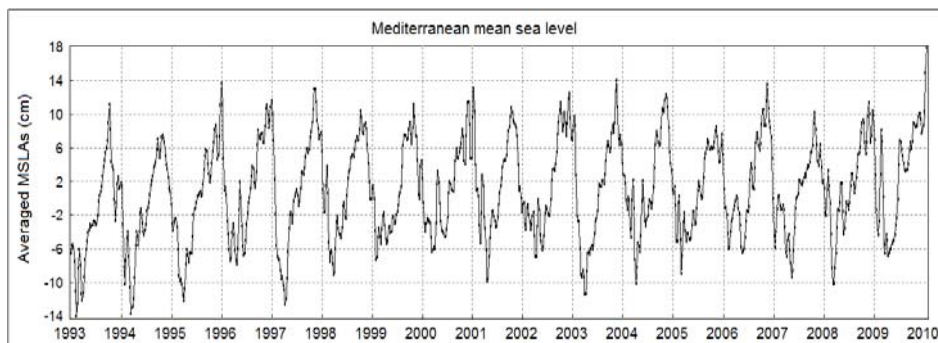

Figure 2: Temporal series of averaged MSLAs in the Mediterranean Sea.

DATA ANALYSIS

In order to extract the mean characteristics of global and Mediterranean sea level height variability, we apply the SSA technique to the two temporal series of averaged MSLAs computed at global and Mediterranean scale respectively.

All of the results and figures in the following two applications are obtained by means of the CaterpillarSSA 3.40 software available at GistaT Group website. This program performs extended analysis, forecasting and change-point detection for one-dimensional time series and analysis/forecast of multi-dimensional time series.

Global mean sea level variability analysis

Decomposition: Window length and SVD

The window length L is the only parameter in the decomposition stage. Selection of the proper window length depends on the problem in hand and on preliminarily information about the time series. Theoretical results tell us that L should be large enough but not greater than $T/2$. Furthermore, if we know that the time series may have a periodic component with an integer period (for example, if this component is a seasonal component), then to get better separability of this periodic component it is advisable to take the window length proportional to that period (Hassani, 2010). Using these recommendations, we take $L = 108$. So, based on this window length and on the SVD of the trajectory matrix $(108 \times 1 \square 8)$, we have 108 eigentriples. Figure 3 represents the plot of logarithms of the 108 singular values.
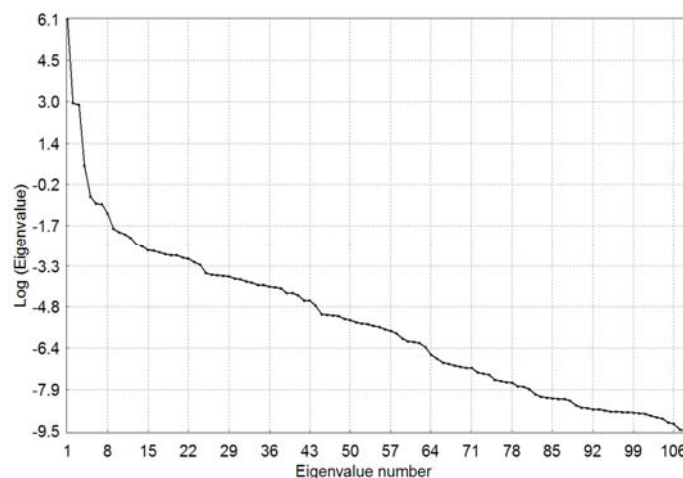

Figure 3: Logarithms of the 108 eigenvalues.

Harmonic components identification

A natural hint for grouping is the matrix of the absolute values of the w-correlations, corresponding to the full decomposition (in this decomposition each group corresponds to only one matrix component of the SVD). If two reconstructed components have zero w-correlation it means that these two components are separable. Large values of w-correlations between reconstructed components indicate that they possibly should be gathered into one group and correspond to the same component in SSA decomposition (Hassani, 2010). Figure 4 shows the w-correlations for the 108 reconstructed components in a 20-grade grey scale from white to black corresponding to the absolute values of correlations from 0 to 1. Here zero w-correlation values occur around component 15. Based on this information, we select the first 15 eigentriples for the identification of the harmonic components and consider the rest as noise.
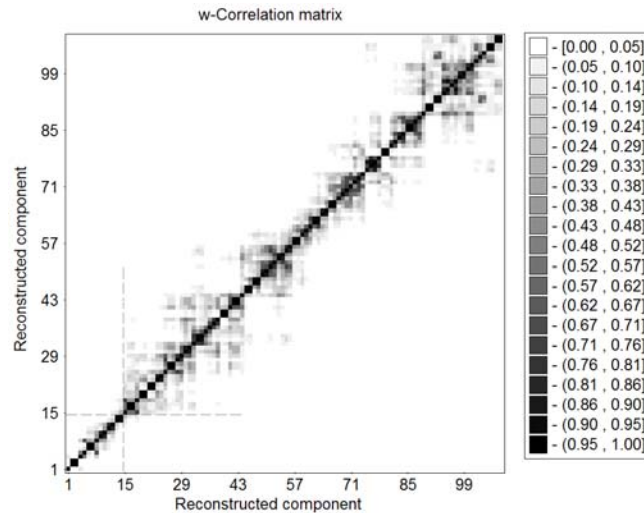
Figure 4: Matrix of w-correlations for the 108 reconstructed components.

In practice, the singular values of the two eigentriples of a harmonic series are often very close to each other, and this fact simplifies the visual identification of the harmonic components. Therefore, explicit plateau in the eigenvalue spectra prompts the ordinal numbers of the paired eigentriples of harmonic components. Another way to identify the harmonic components of the series is to examine the pairwise scatterplots of the singular vectors. Pairwise scatterplots like spiral circles, spiral regular polygons or stars determine periodic components of the time series provided these components are separable from the residual component. Figure 5 and 6 represent the first 16 pairwise scatterplots and the first 16 principal components respectively, ordered by their contribution in the decomposition.

Figure 5: Scatterplots of the first 16 paired eigenvectors and its contribution.

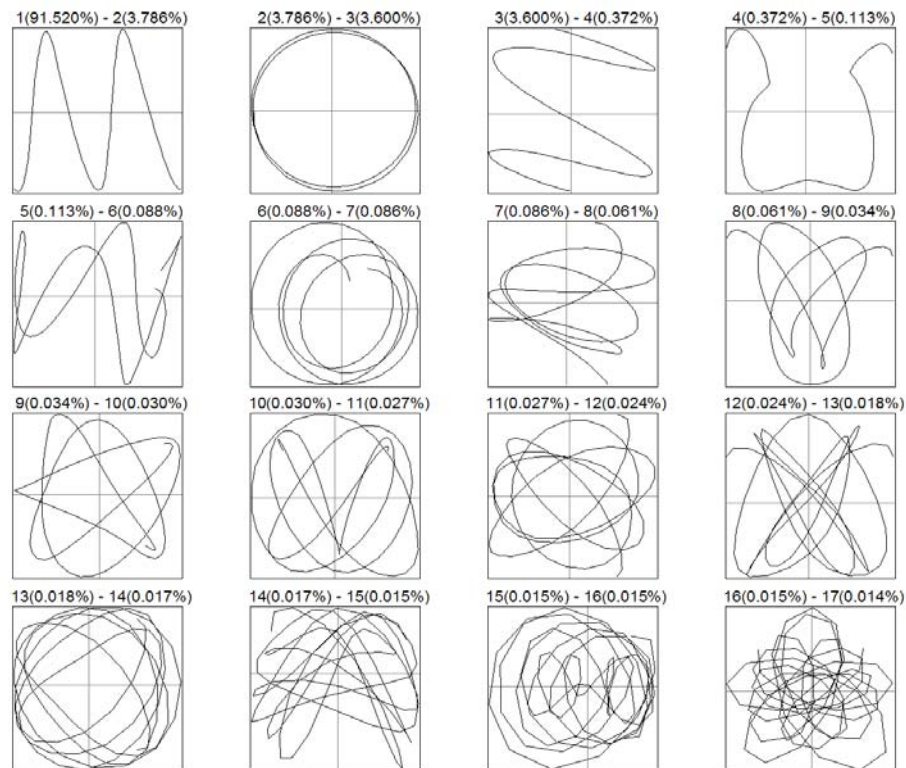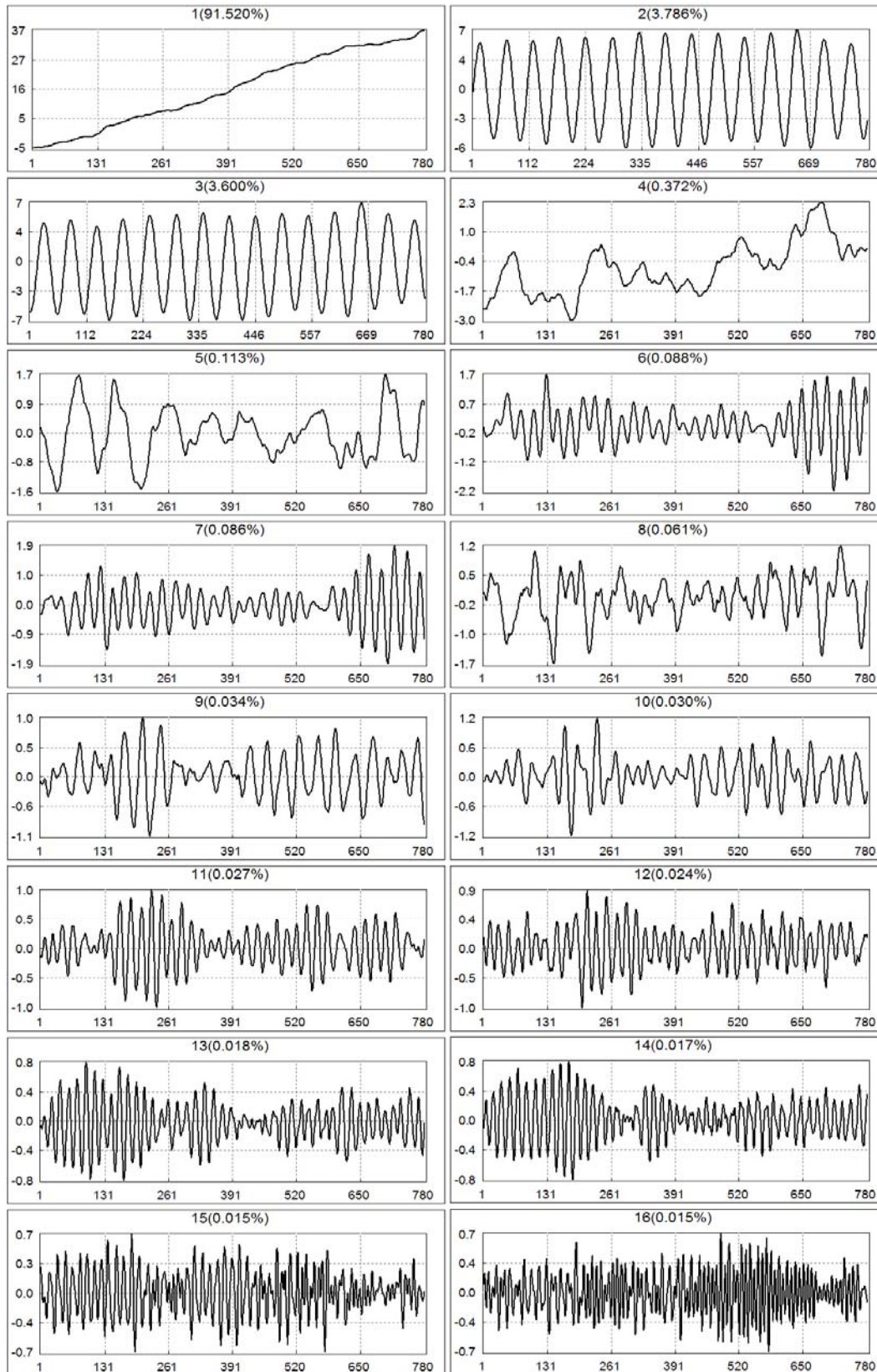Figure 6: Principal components related to the first 16 eigentriples and its contribution.

It can be seen from Figure 3 and 5, that there are three evident pairs with almost equal leading singular values, correspond to three harmonic components in the averaged MSLAs series: eigentriple pairs 2-3, 6-7 and 13-14. The contribution these paired harmonic in the original averaged MSLAs temporal series are: 2(3.786%)-3(3.600%), 6(0.088%)-7(0.086%) and 13(0.018%)-14(0.017%) respectively.

Figure 7 represents the periodograms of initial averaged MSLAs series and identified harmonic components (eigentriple pairs 2-3, 6-7 and 13-14). It can be seen from the periodogram analysis that the frequencies of the 2-3, 6-7 and 13-14 components agree well with the frequencies of the initial averaged MSLA series. The periodicities of these three identified harmonics are of 52.69 weeks (annual signal), 27.05 weeks (semi-annual signal) and 16.97 weeks (four months signal) respectively.
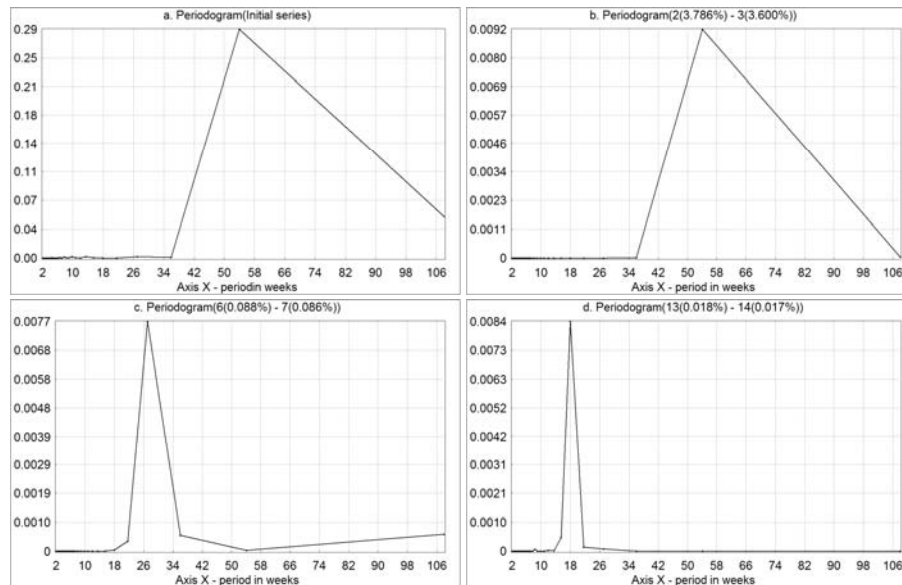

Figure 7: Periodograms: (a) initial MSLA serie, (b) eigentriple pair 2-3,
(c) eigentriple pair 6-7, (d) eigentriple pair 13-14.

Trend identification

Assume that the time series itself is such a component alone. Practice shows that in this case, one or more of the leading eigenvectors will be slowly varying as well. We know that eigenvectors have (in general) the same form as the corresponding components of the initial time series. Thus we should find slowly varying eigenvectors. It can be done by considering one-dimensional plots of the eigenvectors. It can be seen from Figure 6, that the trend is obtained from the first eigentriple which represents a contribution of 91.52 % of the initial averaged MSLAs series.

Reconstruction and residuals series

The SSA allows assessing the noise affecting the time series by extracting the trend and identified seasonal components from the initial series. Therefore, we select the 1, 2, 3, 6, 7, 13 and 14 eigentriples for the reconstruction of the initial averaged MSLAs series and consider the rest as noise (residuals series). Figure 8.a shows the extracted trend (represented in solid line) which is obtained from the first eigentriple and the initial averaged MSLAs series (represented in dashed line). The reconstructed trend clearly follows the main tendency in the averaged MSLAs series. It can be seen that the trend of global mean sea level is subject to significant rise, from -0.5 to 4 cm during the period 1993-2009. The trend exhibits a linear slope of 2.80 mm yr–1. Figure 8.b represents the grouping of the three harmonic components (eigentriple pairs 2-3, 6-7 and 13-14) and clearly shows the same pattern of seasonality as in the initial series. The amplitude of the grouped seasonal

components are between -0.83 and 1.04 cm. The dotted and the solid line in Figure 8.c correspond to the initial series and the reconstructed series from the trend and the three harmonic components. Figure 8.d shows the residuals obtained from grouping of the eigentriples, which do not contain elements of trend and oscillations. The residuals represent 0.88% of the initial series, and its amplitude is about 0.8 cm.
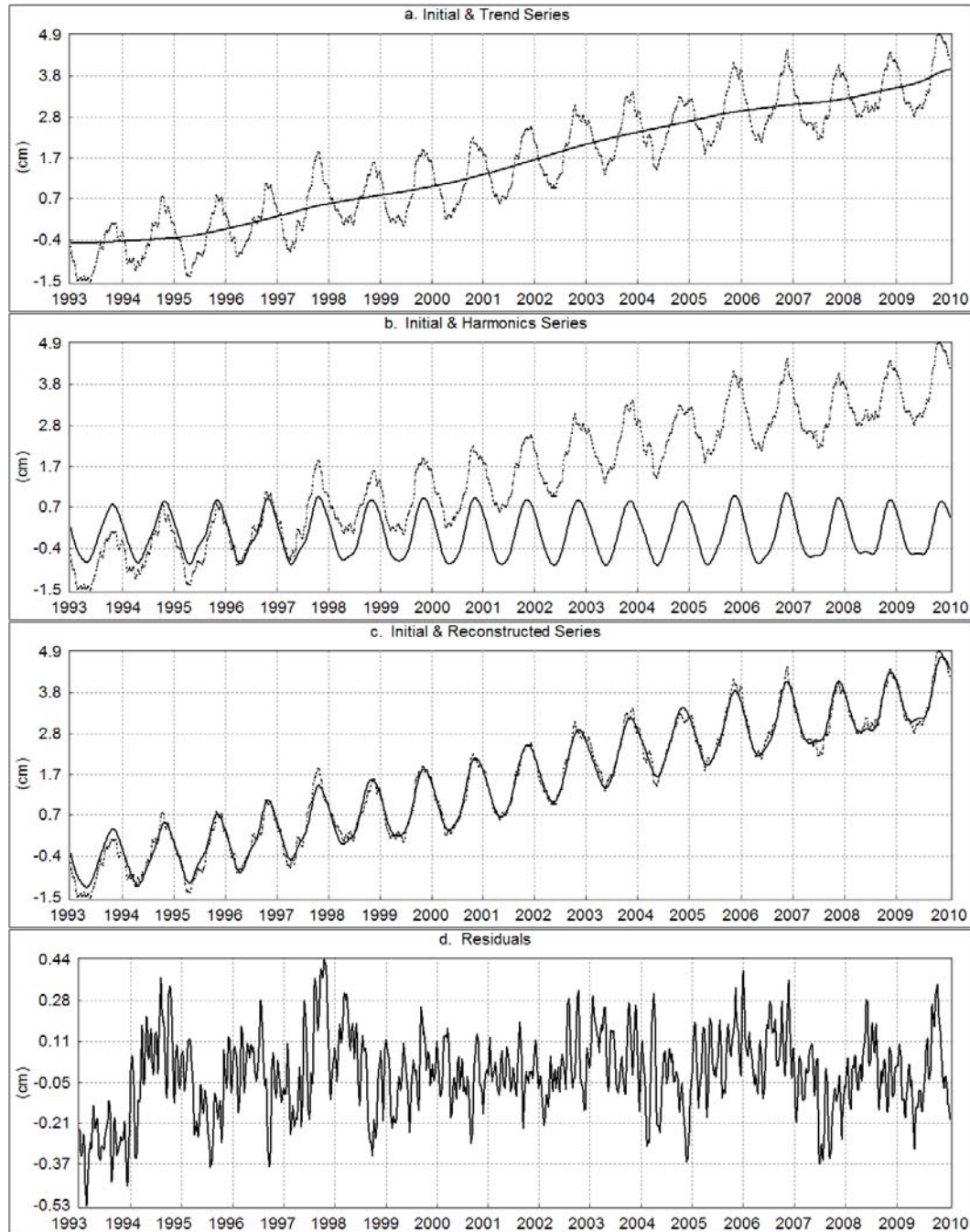
Figure 8: Reconstruction: (a) trend, (b) harmonics, (c) reconstructed series, (d) noise.

Mediterranean mean sea level variability analysis

Here, we take the window length $L = 4\bar{4}4$. So, based on this window length and on the SVD of the trajectory matrix $(444 \times 4\bar{4}4)$, we have 444 eigentriples. Figure 9 shows the w-correlations for the 444 reconstructed components in a 20-grade grey scale. Here zero w-correlation values occur around component 20. Based on this information, we select the first 20 eigentriples for the identification of the harmonic components. Figure 10 represents the plot of logarithms of the first 20 singular values.
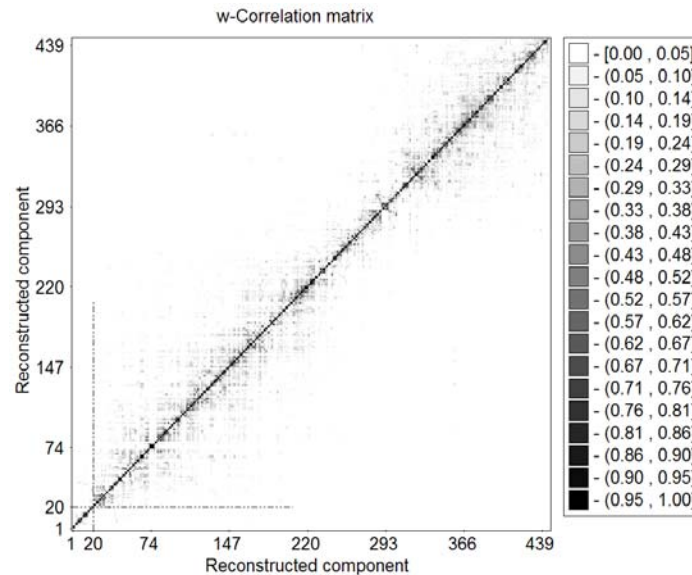
Figure 9: Matrix of w-correlations for the 444 reconstructed components.
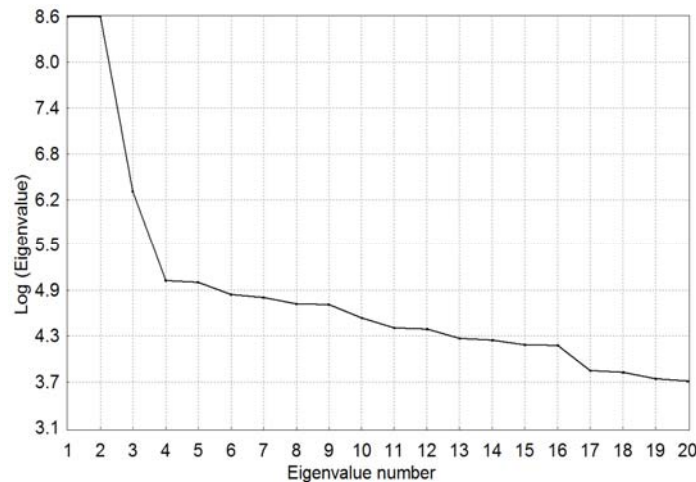
Figure 10: Logarithms of the first 20 eigenvalues.

It can be seen from Figures 4 that there are several paired harmonic eigenvectors. The first three evident paired harmonic eigenvectors are 1-2, 4-5 and 8-9. The contribution these paired harmonic in the original averaged MSLAs temporal series over Mediterranean sea are: 1(36.205%)-2(36.171%), 4(1.058%)-5(1.034%) and 8(0.772%)-9(0.772%) respectively. The periodogram analysis indicates that the periodicities of the three first identified paired harmonic eigenvectors (1-2, 4-5, and 8-9) are: 51.99 weeks, 26.00 weeks and 31.63 weeks respectively.

A model for the Mediterranean Sea level variability is computed using the three identified spectral components by the SSA. Therefore, we select the 1-2, 4-5 and 8-9 eigentriples for the reconstruction of the initial averaged MSLAs series and consider the rest as noise (residuals series). The grouped 1-2, 4-5 and 8-9 eigentriples represents 76.012% of the original series.

The long-term trend is estimated by least-squares fitting of the residuals after elimination of this model. The global analysis shows a trend in the Mediterranean Sea of 1.72 mm yr^{-1}.

Figures 11.a, 11.b and 11.c represent the three reconstructed harmonic components of the MSLAs series, given by the eigentriple pairs 1-2, 4-5 and 8-9 respectively. The amplitudes of these components appear to be about: 14.4 cm, 3.8 cm and 1.96 cm.

The dotted and the solid line in Figure 12.a correspond to the original series and the reconstructed series from the three harmonic components (1-2, 4-5 and 8-9 eigentriples). The reconstructed series clearly shows the same pattern of seasonality as in the initial averaged MSLA series. Figure 12.b shows the residuals used for trend estimation.

Figure 11: Reconstruction of the three identified harmonics.
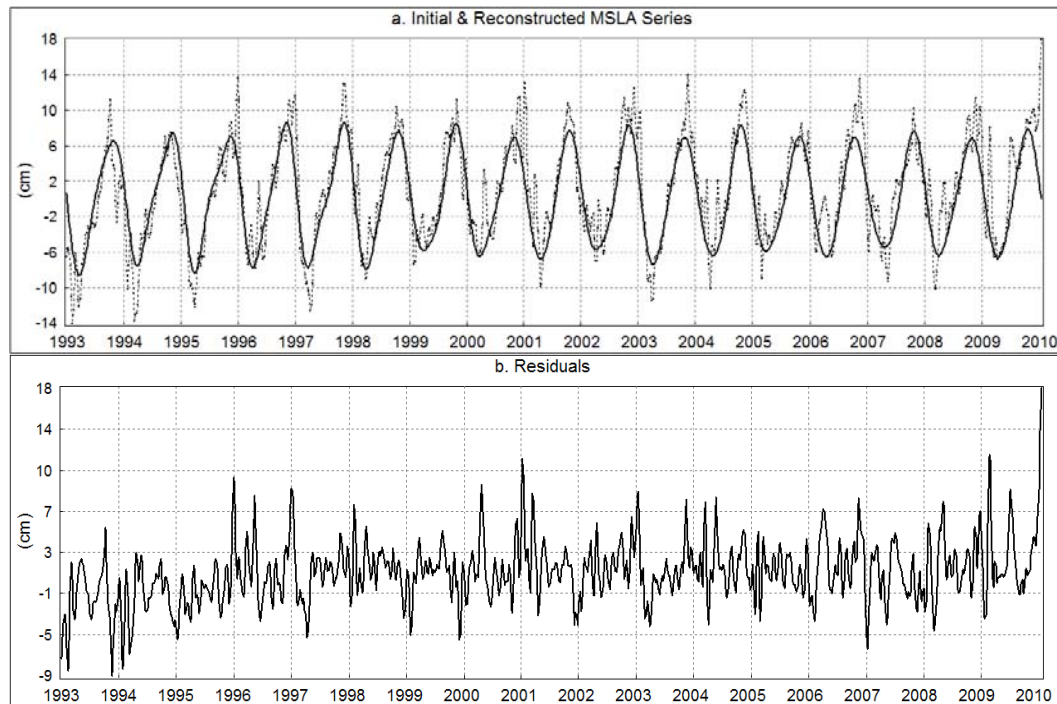
Figure 12: Reconstruction: (a) harmonics, (b) noise.

CONCLUSION

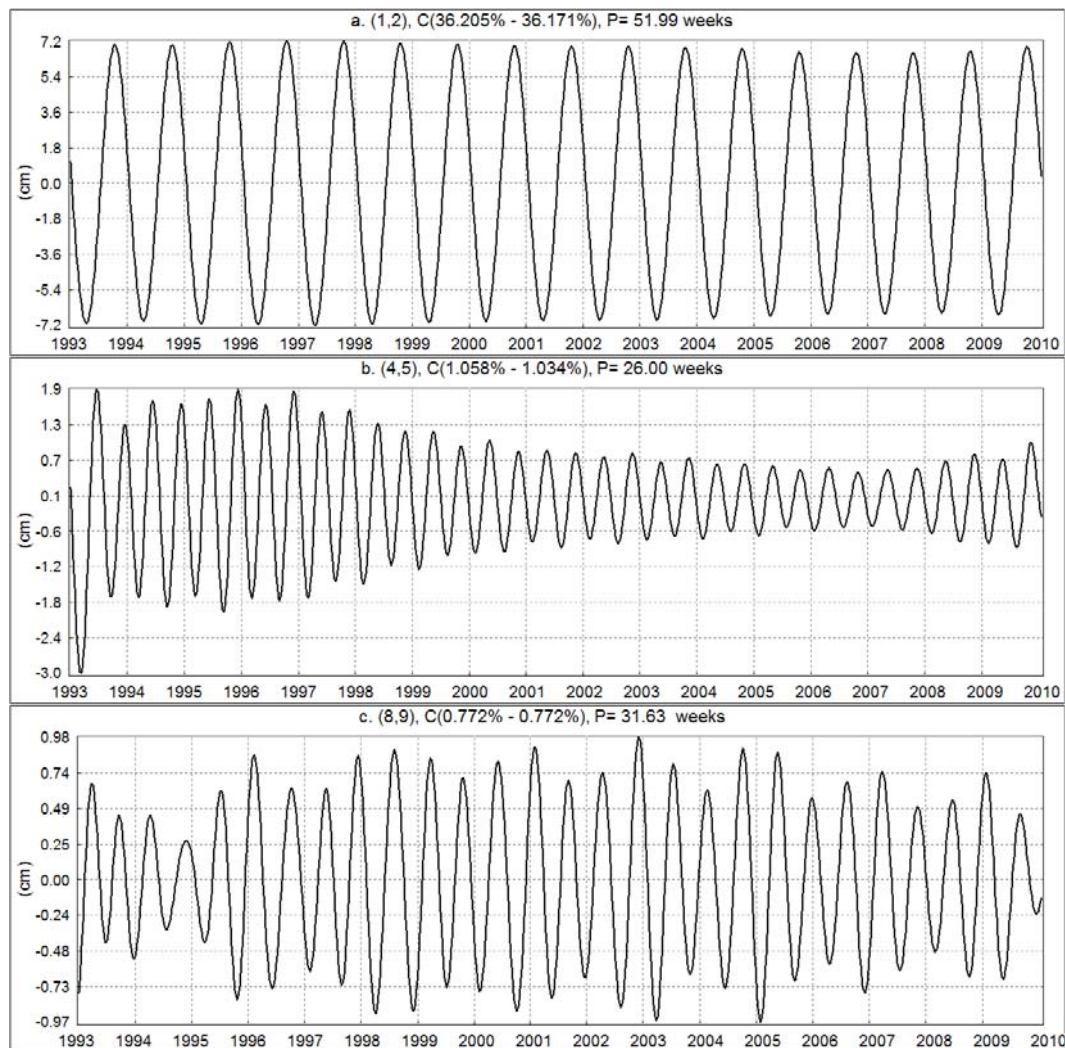By considering a temporal series of averaged maps of sea level anomalies (MSLAs) at global scale (1993-2009) issue from altimetry satellites, SSA shows that the global mean sea level variability is dominated by an increasing trend which represents 91.52% of the initial time series and by three harmonics: annual signal (a periodicity of 52.69 weeks), semi-annual signal (a periodicity of 27.05 weeks) and four months signal (a periodicity of 16.97 weeks). The contribution of these three harmonics in the initial time series appears to be about 7.39%, 0.18% and 0.04% respectively. The amplitude of the grouped harmonic components fluctuate between -0.83 and 1.04 cm.

The rate of global mean sea level rise, as seen by SSA, is estimated as 2.8 mm yr^{-1} during the last seventeen years (1993 to 2009). This result agrees with the recent study of Aviso Altimetry (2010), which suggested a rate of sea level rise of 2.92 mm yr^{-1} over 1993 to mid-2009 (no glacial isostatic adjustment correction). If present trend continue, it will dramatically impact the land, flora, fauna, and people activities established along the coastlines.

Moreover, the analysis by the SSA technique of the temporal series of averaged MSLAs over Mediterranean sea (1993-2009) shows that the Mediterranean mean sea level variability is dominated by several harmonics. The first three harmonics are: annual signal (a periodicity of 51.99 weeks), semi-annual signal (a periodicity of 26.00 weeks) and seven months signal (a periodicity of 31.63 weeks). The annual frequency signal is particularly strong in the Mediterranean sea. Its contribution represents 72.38 % of the initial MSLAs time series, while its amplitude is of 14.4 cm.

A model for the Mediterranean Sea level variability, computed using the first three identified spectral components, exhibits an amplitude of 17 cm. The long-term trend, estimated after elimination of the three periodic components identified by the SSA, show that the Mediterranean Sea level has been increasing 1.72 millimeters per year since 1993.

ACKNOWLEDGMENTS

REFERENCES

AVISO Altimetry (2010). Ssalto/DUACS reprocessed DT data set. pdf version available at: www.aviso.oceanobs.com/fileadmin/documents/data/duacs/duacs_DT_2010_reprocessing_impact.pdf

Ghodsi et al., (2009). *The Use of Noise Information for Detection of Temporomandibular Disorder*. Journal of Biomedical Signal Processing and Control, Volume 4, Issue 2, pp. 79-85.

Ghodsi et al., (2010). *Extracting Fetal Heart Signal From Noisy Maternal ECG by Singular Spectrum Analysis*. Statistics and Its Interface, 3(3) pp.399-411.

Golyandina, et al., (2001). *Analysis of Time Series Structure: SSA and related techniques*. Chapman & Hall/CRC.

Haddad et al., (2011). *Long-term global mean sea level variability revealed by singular spectrum analysis*. International Journal of Academic Research (IJAR), Vol 3, Issue 2, Part III, pp. 411-420.

Haddad et al., (2011). *Investigation of Mediterranean sea level variability by singular spectrum analysis*. Journal of Mathematics and Technology, Vol 2. No.1, pp. 45-53.

Hassani, H. (2007). *Singular Spectrum Analysis: Methodology and Comparison*. Journal of Data Science. Vol 5, No 2, pp. 239-257.

Hassani, H. (2010). *A Brief Introduction to Singular Spectrum Analysis*. Paper available in pdf version at: http://www.ssa.cf.ac.uk/a_brief_introduction_to_ssa.pdf

Hassani, H. & Zhigljavsky, A. (2009). *Singular Spectrum Analysis: Methodology and Application to Economics Data*. Journal of Systems Science and Complexity (JSSC), Vol 22, No 2, pp. 372-394.

Hassani, H. & Thomakos, D. (2010). *A Review on Singular Spectrum Analysis for Economic and Financial Time Series*. Statistics and Its Interface, 3(3). pp. 377-397.

Hassani et al., (2009). *The effect of noise reduction in measuring the linear and nonlinear dependency of financial markets*. Nonlinear Analysis: Real World Applications, 11(1), pp. 492-502.

Hassani et al., (2009). *Forecasting European Industrial Production with Singular Spectrum Analysis*. International journal of forecasting, Vol 25, Issue 1, pp. 103-118.

Hassani et al., (2010). *Filtering and Denoising in the Linear Regression Model*. Fluctuation and Noise Letters, 9(4), pp. 343-358.

Hassani et al., (2010). *Predicting Daily Exchange Rate with Singular Spectrum Analysis*. Nonlinear Analysis: Real World Applications, Volume 11, Issue 3, pp. 2023-2034.

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http://www.gistatgroup.com
http://www.math.uni-bremen.de/~theodore/ssawiki/

A UNIFIED DEFINITION OF CRM TOWARDS THE SUCCESSFUL ADOPTION AND IMPLEMENTATION

Khalid Rababah
Applied Science Division,
College of Arts & Sciences,
Universiti Utara Malaysia
MALAYSIA.
Khalid_Rababah@yahoo.com

Dr. Haslina Mohd
Applied Science Division,
College of Arts & Sciences,
Universiti Utara Malaysia
MALAYSIA.
haslina@uum.edu.my

Assoc. Prof. Dr. Huda Ibrahim
Applied Science Division,
College of Arts & Sciences,
Universiti Utara Malaysia
MALAYSIA.
huda753@uum.edu.my

ABSTRACT

Attempts to define Customer Relationship Management (CRM) have been varied and many, reflecting the diverse academic backgrounds of CRM scholars. The inexistence of a unified definition of CRM leads to undesired and unexpected outcomes from the adoption and implementation of CRM. Hence, this paper attempts to come out with a unified definition of CRM. Content-analysis is carried out to find out the main and most important facets of CRM definition from the existing literatures in the fields of marketing, management, and information system. From the content analysis, this paper proposes a unified definition of CRM. This definition could provide great help for researchers and practitioners in the field of CRM. In addition, this unified definition of CRM could enhance the successful adoption and implementation of CRM.

Keywords: Customer Relationship Management (CRM), Relationship Marketing (RM), Adoption, Implementation.

INTRODUCTION

Relationship Marketing (RM) is the origin of Customer Relationship Management (CRM) (Hung, Hung, Tsai, & Jiang, 2010; Wu & Wu, 2005). Harker (1999) defines RM as "An organization engaged in proactively creating, developing and maintaining committed, interactive and profitable exchanges with selected customers [partners] overtime is engaged in relationship marketing". Another definition of RM which is provided by Gummesson (2002) sounds "marketing based on relationships, networks and interaction, recognizing that marketing is embedded in the total management of the networks of the selling organization, the market and society. It is directed to long term win-win relationships with individual customers, and value is jointly created between the parties involved". Therefore, the RM concept is a basic theory of CRM that leads researchers to construct the terminology in order to relate the RM with customer management in the organization.

CRM was first developed in the middle of 1990s in Information Technology (IT) (Lo, Stalcup, & Lee, 2009). Then, CRM became one of the most discussed issues and dynamic topics in the information technology fields (Bose, 2002; Pedron & Saccol, 2009; Zhong Hong, 2008) and one of the fastest growing practices in today's business environment (Foss, Stone, & Ekinci, 2008; Langerak & Verhoef, 2003; Raman, Wittmann, & Rauseo, 2006). Zablah, Bellenger, and Johnston (2004a) point out that the global expenditure for the acquirement of CRM is a demonstration for its growing popularity among practitioners where according to Croteau and Li (2003) and Becker, Greve, and Albers (2009), CRM has become a top priority for organizations. In addition, according to Keramati, Mojir, and Mehrabi (2009), the successful investment in CRM has become very essential than ever before. Previously, Buttle (2004) articulated that there are defensive reasons and offensive reasons that motivate an organization to adopt CRM. The defensive reasons refer to an organization's fears of losing customers and revenues due to the successful CRM adoption among competitors while, the

offensive reasons refer to the desire to improve the profitability by reducing costs and increasing revenues through improving customer satisfaction and loyalty. Accordingly, Geib, Kolbe, and Brenner (2006) and Liou (2009) stated that because of the decreasing of customer loyalty in different industries, CRM started emerging as a response for this decreasing where, according to Wilcox and Gurau (2003) and Schierholz, Kolbe, & Brenner (2006) the implementation of CRM is very fundamental for increasing customer loyalty.

The main concern or focus of both RM and CRM is the longitudinal individual relationships between buyer and seller that will achieve benefits for both of them (Sin, Tse, & Yim, 2005). Among the differences between RM and CRM is that RM is relatively strategic in nature while, CRM is relatively more tactical in nature (Zablah, Bellenger, & Johnston, 2004b). In addition, RM focuses on bonding, empathy, reciprocity, and trust. So, it is considered as relatively more emotional and behavioral (Yau, Lee, Chow, Sin, & Tse, 2000). In contrast, CRM focuses on the management efforts for attracting, maintaining, and enhancing customer relationships so, it is considered as relatively more managerial (Sin et al. 2005).

Reviews of the current CRM literatures in marketing, management, and information system (IS) disciplines reveal many and various attempts to define CRM which could mean different things for different people (Buttle, 2004; Winer, 2001). It is viewed as a business philosophy (Huang & Wang, 2009; Ryals & Knox, 2001; Zablah et al. 2004b), a business strategy (Karakostas, Kardaras, & Papathanassiou, 2005; Parvatiyar & Sheth, 2001; Tarokh & Ghahremanloo, 2007), or a technological tool (Bose, 2002; Campbell, 2003; Zablah et al. 2004b). Many researchers have proposed different definitions for CRM from a balanced perspective (e.g. Hung et al. 2010; Lun, Jinlin, & Yingying, 2008; Payne & Frow, 2005). Hence, it becomes clearer that there is a little consensus about the nature and scope of CRM (Buttle, 2004; Caldeira, Pedron, Dhillon, & Jungwoo, 2008; Zablah et al. 2004b) as well as there is a little consensus about the meaning of CRM (Ngai, 2005; Winer, 2001; Woodcock & Starkey, 2001). This little consensus may refer to (1) the different academic backgrounds of the researchers and scholars, (2) CRM is still an emergent perspective and needs more time and studies to reach the consensus, and (3) the multidisciplinary nature of CRM where it is a combination of management, marketing, and IS disciplines.

As a result of the little consensus around the definition of CRM, many CRM initiatives have been ended up with failure (Injazz & Karen, 2003). The inexistence of clear and consistent definition of CRM makes it difficult to measure the success of CRM (Richards & Jones, 2008). In addition, it has been considered as one of the main causes of unsuccessful adoption and implementation of CRM (Pedron & Saccol, 2009). Therefore, this paper will try to develop a unified definition of CRM that could contribute in the successful adoption and implementation of CRM. The rest of the paper proceeds as follows. The next section describes the research methodology. The third section discusses the results of the paper. The final section presents the conclusion of the paper.

CONTENT ANALYSIS

In this study, a content-analysis based methodology has been used. It is a general qualitative research methodology. This methodology has been used and applied in marketing research and produce valuable results (Harker, 1999). Carlson (2008) states that "content analysis is a descriptive methodological technique". Earlier, Kolbe and Burnett (1991) pointed out that "content analysis is an observational research method that is used to systematically evaluate the symbolic content of all forms of recorded communications. These communications can be also analyzed at many levels (image, word, roles, etc.), thereby creating a realm of research opportunities".

In this paper, the communications are the CRM literatures and the level of analysis is by the perspectives of CRM definitions. The definitions of CRM are given based on three different perspectives, (i) a business philosophy, (ii) a business strategy, or (iii) a technology (Caldeira et al. 2008; Pedron & Saccol, 2009). Therefore, the unit of analysis is based on three perspectives;

philosophy, strategy, or technology. These perspectives represent the criterion for categorizing CRM definitions. The sample of this study is 23 definitions of CRM which are collected based on this criterion. These definitions are selected from different CRM literatures in IS, management, and marketing disciplines. All CRM definitions are listed in appendix A. A summary of the analysis of these definitions is provided in Table 1.

Table 1. Summary of the perspectives of CRM definitions

Perspective / Author(s)	Philosophy	Strategy	Technology
Ryals and Knox (2001)	√		
Newell (2003)	√		
Zablah et al. (2004b)	√		
Huang and Wang (2009)	√		
Croteau and Li (2003)		√	
Gupta and Lehmann (2003)		√	
Swift (2001)		√	
Kincaid (2003)		√	
Zikmund, McLeod, and Gilbert (2003)		√	
Ryals (2003)		√	
Payne (2006)		√	
Parvatiyar and Sheth (2001)		√	
Liou (2009)		√	
Karakostas et al. (2005)		√	
Tarokh and Ghahremanloo (2007)		√	
Bose (2002)			√
Peppers and Rogers (2004)			√
Campbell (2003)			√
Hsieh (2009)			√
Urbanskienė, Žostautienė, and Chreptavičienė, (2008)			√
Lun et al. (2008)	√	√	√
Hung et al. (2010)		√	√
Payne and Frow (2005)		√	√

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The following section discusses the results of the analysis and categorization of CRM definitions.

RESULTS AND CRM DEFINITION DEVELOPMENT

The divergence around the definition of CRM is quite clear. The categorization and analysis of the definitions of CRM reveals that divergence. Table 2 shows the percentage of the perspectives of CRM definition.

Table 2. The percentage of the perspectives of CRM definition

Perspective	Percentage
Philosophy (4)	17%
Strategy (11)	48%
Technology (5)	22%
Philosophy + Strategy + Technology (1)	4.3%
Strategy + Technology (2)	8.7%

It is clear from the analysis that about half of the definitions is indicated for CRM as a strategy of doing business while 17% of the definitions are associated for CRM as a philosophy and 22% as a technology. These results show that there is an agreement among researchers in defining CRM as a strategy. On the other hand, two definitions pointed out that CRM is a strategy enabled by technology and only one definition has combined the three perspectives. This definition is provided by Lun et al. (2008) who state that "CRM is the philosophy, policy and coordinating strategy mediated by a set of information technologies, which focuses on creating two way communications with customers so that firms have an intimate knowledge of their needs, wants, and buying patterns". This could be considered as the best definition because it is the most comprehensive one.

Pedron and Saccol (2009) provide an explanation for the link among the three perspectives. They claim that "CRM as a philosophy is the background for any strategy and IT application" where the philosophy is proposed to guide the strategies by which in their turn, are going to guide the IT applications for CRM. This explanation is very useful for the development of a general and unified definition of CRM. Figure 1 illustrates the link between the three CRM perspectives.
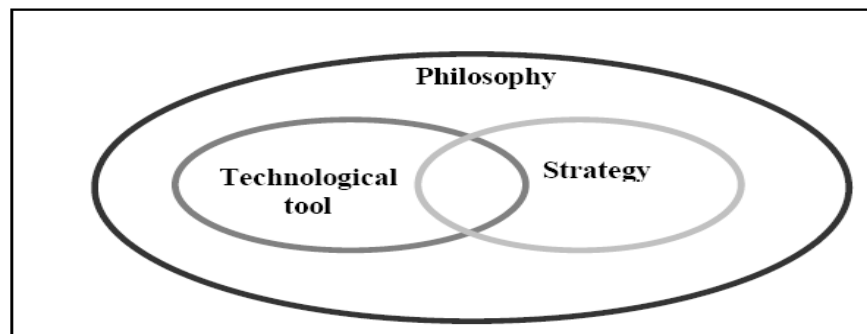

Figure 1: Links between different CRM approaches

Based on the links between CRM approaches as shown in Figure 1, it can be concluded that the definition the CRM must composed of these three perspectives: philosophy, strategy, and technology. Therefore, the following definition of CRM is proposed:

"CRM is the building of a customer-oriented culture by which a strategy is created for acquiring, enhancing the profitability of, and retaining customers, that is enabled by an IT application; for achieving mutual benefits for both the organization and the customers".

The proposed definition claims that to successfully adopt and implement CRM, you have to: 1) build the cultural orientation and communicate the needs of being customer-centric organization, 2) develop a strategy which defines the objectives of CRM, draws the plans for achieving these objectives, and imposes the commitment of being customer-centric organization, and 3) acquire a proper technology for enabling and achieving this strategy. This definition provides the base for an agreement around the main facets that constitute CRM. These facets are the essential pillars of CRM adoption and implementation.

CONCLUSION

This paper aims to come out with a unified definition of CRM that could be useful for the successful adoption and implementation of CRM. With the understanding that the existing definitions do not convey their credibility and generalization, a broader view and a holistic definition of CRM is needed. This paper proposes that it could be achieved through the combination of the perspectives discussed in the previous section; philosophy, strategy, and technology. The proposed definition can provide a proper platform for the top management of an organization to construct their strategic planning, adoption, and implementation in relation with CRM.

REFERENCES

Becker, J. U., Greve, G., & Albers, S. (2009). The impact of technological and organizational implementation of CRM on customer acquisition, maintenance, and retention. *International Journal of Research in Marketing, 26*(3), 207-215.

Bose, R. (2002). Customer relationship management: key components for IT success. *Industrial Management & Data Systems, 102*(1/2), 89.

Buttle, F. (2004). *Customer relationship Managemen: Concepts and Tools*: Oxford:Elsevier.

Caldeira, M., Pedron, C., Dhillon, G., & Jungwoo, L. (2008). *Applying EA Perspective to CRM: Developing a Competency Framework*. In proceedings of the Third International Conference on Convergence and Hybrid Information Technology, 2008. (ICCIT '08).

Campbell, A. J. (2003). Creating customer knowledge competence: managing customer relationship management programs strategically. *Industrial Marketing Management, 32*(5), 375.

Carlson, L. E. S. (2008). Use, Misuse, and Abuse of Content Analysis for Research on the Consumer Interest. *Journal of Consumer Affairs, 42*(1), 100-105.

Croteau, A., & Li, P. (2003). Critical success factors of CRM technological initiatives. *Canadian Journal of Administrative Sciences, 20*(1), 21-34.

Foss, B., Stone, M., & Ekinci, Y. (2008). What makes for CRM system success—Or failure? *Journal of Database Marketing & Customer Strategy Management, 15*(2), 68-78.

Geib, M., Kolbe, L. M., & Brenner, W. (2006). CRM collaboration in financial services networks: a multi-case analysis. *Journal of Enterprise Information Management, 19*(6), 591 - 607.

Gummesson, E. (2002). Relationship Marketing in the New Economy. *Journal of Relationship Marketing, 1*(1), 37.

Gupta, S., & Lehmann, D. (2003). Customers as assets. *Journal of Interactive Marketing, 17*(1), 9-24.

Harker, M. J. (1999). Relationship marketing defined? An examination of current relationship marketing definitions. *Marketing Intelligence & Planning, 17*(1), 13 - 20.

Hsieh, M. (2009). A case of managing customer relationship management systems: Empirical insights and lessons learned. *International Journal of Information Management, 29*(5), 416-419.

Huang, Y., & Wang, J. (2009). *Services-Oriented CRM System and Enabling Technologies for Insurance Enterprises.* In proceedings of the Second International Workshop on Knowledge Discovery and Data Mining, 2009. (WKDD 2009).

Hung, S.-Y., Hung, W.-H., Tsai, C.-A., & Jiang, S.-C. (2010). Critical factors of hospital adoption on CRM system: Organizational and information system perspectives. *Decision Support Systems, 48*(4), 592-603.

Injazz, J. C., & Karen, P. (2003). Understanding customer relationship management (CRM): People, process and technology. *Business Process Management Journal, 9*(5), 672-688.

Karakostas, B., Kardaras, D., & Papathanassiou, E. (2005). The state of CRM adoption by the financial services in the UK: an empirical investigation. *Information & Management, 42*(6), 853-863.

Keramati, A., Mojir, N., & Mehrabi, H. (2009). *Prioritizing Investment in CRM Resources to Improve Performance: An Empirical Investigation.* In proceedings of the International Conference on Information Management and Engineering, 2009. (ICIME '09).

Kincaid, J. (2003). *Customer relationship management: getting it right!* : Prentice Hall PTR.

Kolbe, R., & Burnett, M. (1991). Content-analysis research: an examination of applications with directives for improving research reliability and objectivity. *Journal of Consumer Research, 18*(2), 243-250.

Langerak, F., & Verhoef, P. (2003). Strategically embedding CRM. *Business Strategy Review, 14*(4), 73-80.

Liou, J. J. H. (2009). A novel decision rules approach for customer relationship management of the airline market. *Expert Systems with Applications, 36*(3, Part 1), 4374-4381.

Lo, A., Stalcup, L., & Lee, M. (2009). Customer Relationship Management for Hotels in Hong Kong. *International Journal of Contemporary Hospitality Management, 22.*

Lun, Z., Jinlin, L., & Yingying, W. (2008). *Customer relationship management system framework design of Beijing Rural Commercial Bank.* In proceedings of IEEE International Conference on Service Operations and Logistics, and Informatics, 2008. (IEEE/SOLI 2008).

Newell, F. (2003). *Why CRM doesn't work: how to win by letting customers manage the relationship*: Kogan Page.

Ngai, E. W. T. (2005). Customer relationship management research (1992-2002): An academic literature review and classification. *Marketing Intelligence & Planning, 23*(6), 582 - 605.

Parvatiyar, A., & Sheth, J. N. (2001). Customer Relationship Management: Emerging Practice, Process, and Discipline. *Journal of Economic & Social Research, 3*(2), 1.

Payne, A. (2006). *Handbook of CRM : Achieving Excellence in Customer Management.* Burlington, MA: Butterworth Heinemann.

Payne, A., & Frow, P. (2005). A Strategic Framework for Customer Relationship Management. *Journal of Marketing, 69*(4), 167-176.

Pedron, C. D., & Saccol, A. Z. (2009). What Lies behind the Concept of Customer Relationship Management? Discussing the Essence of CRM through a Phenomenological Approach. *Brazilian Administration Review (BAR), 6*(1), 34-49.

Peppers, D., & Rogers, M. (2004). *Managing customer relationships: A strategic framework*: Wiley.

Raman, P., Wittmann, C. M., & Rauseo, N. A. (2006). Leveraging CRM For Sales: The Role of Organizational Capabilities in successful CRM Implementation. *Journal of Personal Selling & Sales Management, 26*(1), 39-53.

Richards, K., & Jones, E. (2008). Customer relationship management: Finding value drivers. *Industrial Marketing Management, 37*(2), 120-130.

Ryals, L. (2003). Making customers pay: measuring and managing customer risk and returns. *Journal of Strategic Marketing, 11*(3), 165-175.

Ryals, L., & Knox, S. (2001). Cross-Functional Issues in the Implementation of Relationship Marketing Through Customer Relationship Management. *European Management Journal, 19*(5), 534.

Schierholz, R., Kolbe, L. M., & Brenner, W. (2006). *Mobilizing Customer Relationship Management; A Journey from Strategy to System Design.* In proceedings of the 39th Annual Hawaii International Conference on System Sciences, 2006. (HICSS '06).

Sin, L. Y. M., Tse, A. C. B., & Yim, F. H. K. (2005). CRM: conceptualization and scale development. *European Journal of Marketing, 39*(11/12), 1264 - 1290.

Swift, R. (2001). *Accelerating customer relationships: Using CRM and relationship technologies*: Prentice Hall:Upper Saddle River,NJ.

Tarokh, M. J., & Ghahremanloo, H. (2007). *Intelligence CRM: A Contact Center Model.* In proceedings of IEEE International Conference on Service Operations and Logistics, and Informatics, 2007. (SOLI 2007).

Urbanskienė, R., Žostautienė, D., & Chreptavičienė, V. (2008). The Model of Creation of Customer Relationship Management (CRM) System. *Ryšių su klientas valdymo (crm) sistemos kūrimo modelis., 58*(3), 51-59.

Wilcox, P. A., & Gurau, C. (2003). Business modelling with UML: the implementation of CRM systems for online retailing. *Journal of Retailing and Consumer Services, 10*(3), 181-191.

Winer, R. (2001). A framework for customer relationship management. *California Management Review, 43*(4), 89-105.

Woodcock, N., & Starkey, M. (2001). I wouldn't start from here: finding a way in CRM projects. *The Journal of Database Marketing, 9*(1), 61-74.

Wu, I., & Wu, K. (2005). A hybrid technology acceptance approach for exploring e-CRM adoption in organizations. *Behaviour and Information Technology, 24*(4), 303-316.

Yau, O. H. M., Lee, J. S. Y., Chow, R. P. M., Sin, L. Y. M., & Tse, A. C. B. (2000). Relationship Marketing the Chinese Way. *Business Horizons, 43*(1), 16.

Zablah, A. R., Bellenger, D. N., & Johnston, W. J. (2004a). Customer Relationship Management Implementation Gaps. *Journal of Personal Selling & Sales Management, 24*(4), 279-295.

Zablah, A. R., Bellenger, D. N., & Johnston, W. J. (2004b). An evaluation of divergent perspectives on customer relationship management: Towards a common understanding of an emerging phenomenon. *Industrial Marketing Management, 33*(6), 475-489.

Zhong Hong, S. (2008). *Information System and Management Strategy of Customer Relationship Management.* In proceedings of the 3rd International Conference on Innovative Computing Information and Control, 2008. (ICICIC '08).

Zikmund, W., McLeod, R., & Gilbert, F. (2003). *Customer relationship management: integrating marketing strategy and information technology*: Wiley.

APPENDIX A. Summary of the Different Perspectives of CRM Definition.

1. "CRM is a relationship orientation, customer retention and superior customer value created through process management" (Ryals & Knox, 2001).

2. "A philosophy of doing business that will affect the entire enterprise" (Newell, 2003).

3. "CRM refers to the idea that the most effective way to achieve loyalty is by proactively seeking to build and maintain long term relationships with customers" (Zablah et al., 2004b).

4. "CRM is a customer-centered enterprise management mode, which discovers the customers' value and satisfies their requirements to realize the interaction between enterprise management and customers" (Huang & Wang, 2009).

5. "CRM is a customer-focused business strategy that aims to increase customer satisfaction and customer loyalty by offering a more responsive and customized services to each customer " (Croteau & Li, 2003).

6. "Is a strategy used to learn more about customer's needs and behaviors in order to develop stronger relationship with them" (Gupta & Lehmann, 2003).

7. "An enterprise approach to understanding and influencing customer behavior through meaningful communications in order to improve customer acquisition, customer retention, customer loyalty, and customer profitability" (Swift, 2000).

8. "CRM is the strategic use of information, processes, technology, and people to manage the customer's relationship with a company across the whole customer life cycle" (Kincaid, 2003).

9. "A process to compile information that increases understanding of how to manage an organization's relationships with its customers" (Zikmund et al., 2003).

10. "Resources destined for relationship building and maintenance efforts should be allocated based on customers' lifetime value to the firm" (Ryals, 2003).

11. "CRM is a strategic approach concerned with created improved shareholder value through the development of appropriate relationships with key customer and customer segment" (Payne, 2006).

12. "CRM is a comprehensive strategy and process of acquiring, retaining, and partnering with selective customers to create superior value for the company and the customer. It involves the integration of marketing, sales, customer service, and the supply-chain functions of the organization to achieve greater efficiencies and effectiveness in delivering customer value" (Parvatiyar & Sheth, 2001).

13. "CRM is a key business strategy in which a firm needs to stay focused on the needs of its customers and must integrate a customer-oriented approach throughout the organization" (Liou, 2009).

14. "CRM is a strategic approach for systematically targeting, tracking, communicating, and transforming relevant customer data into actionable information on which strategic decision-making is based" (Karakostas et al., 2005).

15. "CRM is a strategy used to learn more about customers' needs and behaviors in order to develop stronger relationships with them." (Tarokh & Ghahremanloo, 2007).

16. "CRM is an enterprise-wide integration of technologies working together , such as data warehouse, web site, intranet/extranet, phone support system accounting, sales, marketing, and production" (Bose, 2002).

17. "CRM is a technology or software solution that helps track data and information about customer to enable better customer service" (Peppers & Rogers, 2004).

18. "CRM is leveraging technology to engage individual customers in a meaningful dialogue so that firms can customize their products and services to attract, develop, and retain customers" (Campbell, 2003).

19. "CRM is an enabling technology for organizations to foster closer relationships with their customers" (Hsieh, 2009).

20. "CRM is the complex of software and technologies, automating and performing business processes in the following areas: sales, marketing, service, and customer support" (Urbanskienė et al., 2008).

21. "CRM is the philosophy, policy and coordinating strategy mediated by a set of information technologies, which focuses on creating two way communications with customers so that firms have an intimate knowledge of their needs, wants, and buying patterns". (Lun et al., 2008).

22. "CRM is a managerial strategy that helps organizations collect, analyze, and manage customer related information through the use of information technology tools and techniques in order to satisfy customer needs and establish a long term and mutually beneficial relationship" (Hung et al., 2010).

23. "CRM is a strategic approach that is concerned with creating improved shareholder value through the development of appropriate relationships with key customers and customer segments. CRM unites the potential of relationship marketing strategies and IT to create profitable, long-term relationships with customers and other key stakeholders. CRM provides enhanced opportunities to use data and information to both understand customers and to create value with them. This requires a cross-functional integration of processes, people, operations, and marketing capabilities that is enabled through information, technology, and applications" (Payne & Frow, 2005)

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MONITORING AND EVALUATION OF THE WATER QUALITY OF TAAL LAKE, TALISAY, BATANGAS, PHILIPPINES

Felipe B. Martinez
De La Salle University -
Dasmariñas
PHILIPPINES
fbmartinez@yahoo.com

Imelda C. Galera
De La Salle University -
Dasmariñas
PHILIPPINES

ABSTRACT

This paper presents an update on the physico-chemical properties of the Taal Lake for local government officials and representatives of non-government organizations by monitoring and evaluating a total of nine (9) water quality parameters. The study further shows that the Taal Lake's surface temperature, pH, total dissolved solids, total suspended solids, color, and dissolved oxygen content conform to the standards set by the Department of Environment and Natural resources (DENR); while phosphate, chlorine, and 5-Day 20°C BOD are below the standard. Likewise, the T-test result shows no significant difference in the overall average of the two sites at the Taal Lake (P > 0.05). Based on the data, the Lake is safe for primary contact recreation such as bathing, swimming and skin diving, and can be used for aqua culture purposes.

Key words: Cool dry season, hot dry season, rainy season, Taal Lake, water quality

INTRODUCTION

The health condition of every human being depends on the environment where he or she lives. With the unabated urbanization of localities due to increasing population, human and industrial activities and more so the extreme climatic condition, the supply of substantially healthy and fresh food in the market is affected. Sources of fish like lakes, seas, and rivers have been abused by man in exchange to industrial and domestic consumption. Non-conformance of businessmen, particularly those who rely on the supply of natural food such as fish pen and cage operators from water sources, to government imposed regulations make bodies of water more vulnerable to pollution.

The Philippines has a typical humid tropical climate. Average rainfall is approximately 2,026 millimeters per annum during rainy season from June to October (Lakenet, 2003). Its surface area covers about 234 square kilometers with an average depth of about 63 meters (Lakenet, 2003). The normal range of annual water level fluctuation of the Lake is 2 meters (Lakenet, 2003).

Despite the national government's declaration of the Taal Lake as protected area, number of illegal fish cages continue to increase. Approximately, there are 9,000 fish cages that contribute to its degradation (PCIJ, 2008). Likewise, some native fishes disappeared, the scenic view of the Lake is blocked, and its nature reserve put at risk.

The Taal Volcano Protected Landscape - Protected Areas Management Board (TVPL-PAMB) created the Unified Rules and Regulations for Fisheries (URRF). Its primary function is to care for the Lake. Likewise, it aims to identify specific areas to control the quantity of fish cages, prohibit destructive fishing methods, and implement existing rules in the preservation of the Lake.

URRF as a program is headed by the Department of Environment and Natural Resources (DENR) secretary Lito Atienza in coordination with the Batangas Governor, Vilma Santos-Recto. They are assisted by the other local government officials in limiting the number of fish cages. The uncontrollable proliferation of these cages is due to the fact that fishing is the primary livelihood of the locales, and the high demand of aquatic food products in the CALABARZON and Metro Manila areas. Be it that, the existing problem on the profuse number of cages in the Lake might have already been difficult to address at the present as the problem started even during the early or first phase of the program implementation.

METHODOLOGY

Study Site

Taal Lake, formerly known as *Bombon Lake,* is the deepest and the third largest Lake in the Philippines. It is located between 14.002°N to 14°0'6"N latitude and 120.993°E to 120°59'36"E longitude (Lakenet, 2003). The Lake was declared as protected area in 1996 through the Administrative Order No. 118. The stretch of the Lake covers the municipalities of Talisay, Malvar, Tanauan, Laurel, Agoncillo, Sta. Teresita, Cuenca, Alitagtag, Mataas na Kahoy, Lipa City, Balete, and San Nicolas in Batangas. Thirty-seven (37) tributaries drain into the Lake and its only outlet is the Pansipit River. It drains to Balayan Bay and it serves as the entry and exit points for migratory fish (Asian Development Bank, 2003).
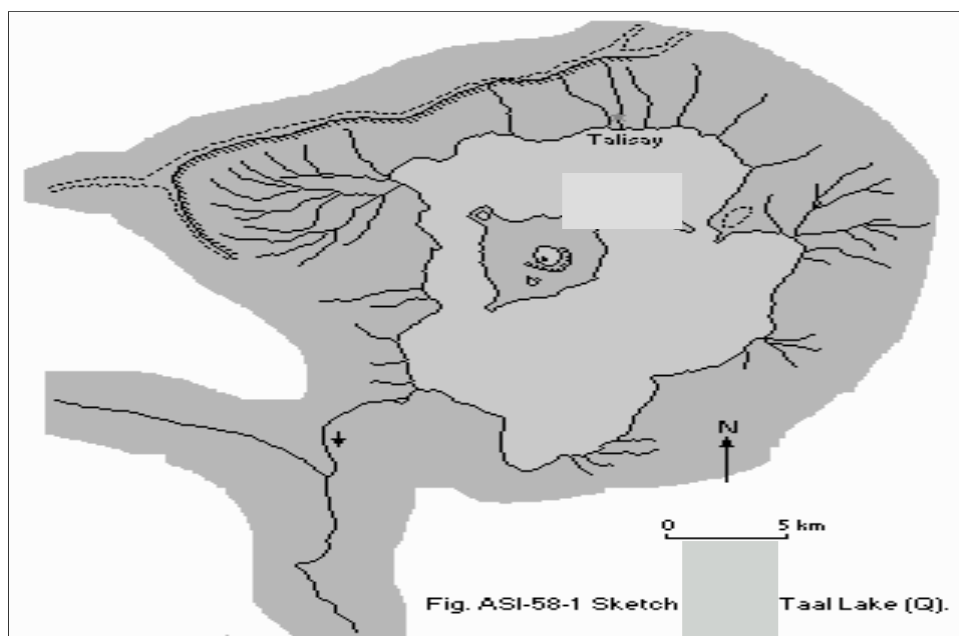
Figure 1. Map of Taal Lake

Water Sampling

Water sampling was done *in situ* to determine the quality of water of Taal Lake in Talisay, Batangas. Samples were collected from the two sampling sites referred to as Site 1 (with fish cages) and Site 2 (without fish cages). Each site was divided into two layers. The first layer is referred to as Layer 1: The surface layer. The second layer is referred to as Layer 2, 10.5 feet: The layer below water visibility. The latter was marked through the use of Secchi disk. Likewise, the collection of samples was conducted quarterly within a year. To determine whether there were differences in the results at different times of the day, sampling was done at two sampling intervals: early morning around 9:00 A.M. and late afternoon around 2:00 P.M.

For the chemical and physical analyses, approximately 1000 mL of water sample per sampling site was collected. Then, the samples collected were placed in an ice cooler and transported immediately to the laboratory for analysis.

Physico-chemical Analysis

Water temperature was measured *in situ* using a handheld thermometer. Likewise, other parameters like chloride and phosphate were analyzed in the laboratory.

In the Biochemical Oxygen Demand (BOD) test, the direct determination method is used wherein standard 300-mL glass BOD bottles were used. Two Dissolved Oxygen (DO) measurements were involved in the 5-day 20ºC BOD of the water samples. The initial measurement began at t = 0 and the second measurement at t = 5 after the sample has been incubated in the dark for five days at 20ºC. The BOD marks the difference between the two measurements. To determine the BOD of the water sample Dilution Technique was used.

To determine the Dissolved Oxygen (DO) concentration, a membrane electrode meter was used after conducting a careful water sampling. The use of the electrode probe was material in the process as it senses small electric currents that are relative to the dissolved oxygen in the water.

Gravimetric Method was used to determine the Total Suspended Solids (TSS). A 100mL water sample was filtered using a glass fiber filter paper. Then, the water sample was set to evaporate into dryness from 103ºC to 105ºC using a pre – weighed 100mL beaker. After evaporation, the beakers, which hold the sampling, were placed in desiccators before weighing. The cycle of drying, cooling, desiccating, and weighing was continued until a constant weight was obtained or until the weight discrepancy among the samples was less than 4% of their previous weight or 0.5mg, whichever is lower.

The Total Dissolved Solids (TDS) were also determined using TDS meter. In TDS meter, a probe that contains temperature sensor senses the TDS value. It also automatically adjusts the temperature difference. The measurement is completed after the reading had stabilized.

Chloride was determined using argentometric method. In this process silver chloride was quantitatively precipitated before the formation of the red silver chromate. Likewise, calculation was done after the experimentation.

In phosphate analysis, the pH of the sample was adjusted to fall within the range of 4 to 10 by dilution if extremely acidic and by addition of phenolphthalein if extremely basic. The highly colored samples were passed through activated carbon. Likewise, the test sample was placed in a volumetric flask which was added with vanadate-molybdate reagent. Moving on, distilled water was used to dilute the solution to mark. After several minutes from the time of adding the vanadate-molybdate reagent, the absorbance of the sample versus the blank at a wavelength of 400-490 nm was measured. A calibration curve by using suitable volumes of standard phosphate solution was also prepared and read at the same wavelength.

ANALYSIS OF DATA

The gathered data were clustered according to layer, site, and into three seasonal variations namely: rainy (from June to November), Cool dry (from December to February), and Hot dry season (from March to May). This procedure was done after determining the physical and the chemical characteristics of the water samples. To test if there was a significant difference in the characteristics of water of Taal Lake based on the selected sampling sites, the T – test was used. Hence, the average mean for the whole year was calculated since there is no significant difference in terms of values per site, layer, and season. The results were compared against the standard set by Department of

Environment and Natural Resources – Environmental Management Bureau (DENR-EMB, Administrative Order no. 34, 1990).

RESULTS AND DISCUSSION

The results of the study were compared against the standard set by DENR-EMB. Table 1 shows the total mean of physical and chemical characteristics of Taal Lake in site 1 and site 2 for the whole year as compared to the standards set by DENR-EMB.

Table 1. Results of the physical and the chemical characteristics of Taal Lake at Talisay, Batangas for the whole year; Values shown are total mean and standard limits set by DENR-EMB for surface waters (AO No. 34, 1990)

Parameters	Site 1	Site 2	Mean Values	Standard Set by DENR-EMB (for Class B)	Interpretation
Water temperature (°C rise)	26.42	25.87	26.15	3*	Within the standard
Color	No abnormal discoloration from unnatural causes	No abnormal discoloration from unnatural causes	No abnormal discoloration from unnatural causes	No abnormal discoloration from unnatural causes	Within the standard
pH	8.27	8.35	8.31	6.5 – 8.5	Within the standard
Total Dissolved Solids (TDS, mg/L)	914.33	911.58	912.96	1000 mg/L	Within the standard
Total Suspended Solids (TSS, mg/L)	5.33	5.00	5.17	Not more than 30% increase	Within the standard
Chloride as Cl (mg/L)	577.24	575.47	576.36	250 mg/L	Exceed the standard
Phosphate as Phosphorus (mg/L)	0.21	0.21	0.21	0.2	Exceed the standard
5-Day 20°C BOD (mg/L)	3.08	3.42	3.25	5 (minimum) 10(maximum)	Below the standard
Dissolved Oxygen (DO) (mg/L)	6.92	8.67	7.79	5(minimum)	Within the standard

* 	The allowable temperature increase over the ambient temperature is 3°C

Increase in water temperature results in greater natural activity while its decrease results in increase in dissolved oxygen (Johnson, 2000). If the water tended to get warm, its nutrients mixed uniformly as oxygen is restored. This oxygen is used by microorganisms and results in the reduction of the amount of dissolved oxygen.

Stable water temperatures were observed at Taal Lake during the 12-month period of monitoring. The average recorded temperature is 26.15ºC. The increase in temperature during Hot Dry Season is minimal and conforms to the standard set by DENR-EMB since there has not been a recorded increase of more than 3ºC compared with the ambient temperature. In general, the increase in temperature in the Taal Lake for the whole year did not affect its situation since no irregularities have been monitored like degrading of environment.

pH signifies the acidity or alkalinity of the matter being tested. Average pH level is extremely significant to the health of aquatic life. Low pH level may cause death to many fishes in rivers and

lakes because some aquatic organisms are sensitive to changes in pH and a few of them may not be able to endure the changes. Low pH can also raise the quantity of heavy metals such as aluminum and mercury (Lusch, 1997). For example, a pH of 4 or less of water cannot be tolerated by a marine organism in a river.

In Taal Lake, a negligible change in pH was monitored with an average value of 8.31. This value conforms to the standard set by DENR-EMB.

The rising water temperature is directly correlated to total dissolved or suspended solids (TSS and TDS). An increase in the amount of TDS and TSS can increase the temperature of water since floating materials absorb heat from sunlight. These two parameters can also reduce the color of the water and can influence photosynthesis (IWR-MSU, 1997).

Taal Lake has a mean of 912.96 mg/L and 5.17 mg/L of total dissolved solids (TDS) and total suspended solids (TSS), respectively, for the whole year. The value of TDS is very close to the standard set by DENR-EMB which is 1000mg/L but still conforms to the standard. TSS also conforms to the standard set because not more than 30% increase in the amount was monitored. The amounts of these parameters are possible because of the accumulated lava from the volcano or maybe from the feeds given to fishes and other activities such as bathing and fishing.

Chloride is damaging and killing some parts of the body each time one bathes or swims in the river (Bordin, 2007). High chloride content can also cause poisoning of aquatic organisms similar to the study of Moskovchenko, Babushkin, and Artamonova (2008) on the Vatinsky Egan River catchment in West Siberia. The results of the said study shows that the river has wide and high concentration of chloride.

These findings in the study on the Vatinsky Egan River is comparable to this study on the Taal Lake because 576.36 mg/L Chloride was recorded during the entire period of monitoring. This value does not conform to the standard set by DENR-EMB which is 250mg/L. The high amount of this chloride is maybe due to the thirty-seven (37) tributaries that drain into the Lake for years. This is quite alarming because high chloride content can cause poisoning of aquatic organisms.

Higher phosphate content in the Lake can be dangerous to marine organisms. It can cause tremendous development on aquatic bloom that may lessen the quantity of light in the water and decrease the amount of dissolved oxygen. Eutrophication causes algae growth; the decay of this bloom will deprive fish of sufficient oxygen (Bodzin, 2004).

In Taal Lake, Phosphorus has an average value of 0.21 mg/L. Based on the data, the study shows that Taal Lake has a little higher phosphate content as compared to the DENR-EMB standard of 0.2 mg/L. This condition is anticipated since heavy rainfall increases the downpour of domestic wastes containing detergents and top soils carrying naturally occurring phosphorus from the neighboring highlands (Helmer and Hespanhal, 1997).

Biochemical oxygen demand (BOD) determines how a huge quantity of oxygen is used by aquatic life in the aerobic oxidation. The BOD presence in the Lake can be attributed to the increase of discharges into the lake such as polluted topsoils and other household wastes transported by heavy precipitation from the nearby residential area. However, in Taal Lake, below the minimum standards set by DENR-EMB was monitored with a value of 3.25 mg/L.

Dissolved oxygen (DO) is necessary for the survival of aquatic organisms. It is the amount of oxygen dissolved in the bodies of water. Low DO readings show high oxygen requirement of aquatic organisms. This is maybe due to severe pollution.

During rainy season the Dissolved Oxygen (DO) in Taal Lake has a value of 3.75 mg/L. The value does not conform to the standard set by DENR-EMB. However, the average value of 7.79 mg/L for the whole year is within the standard. The fluctuation of dissolved oxygen in Taal Lake could be the possible reason for the profuse occurrences of fish kills.

Color is produced by particulate substance in water. TDS and TSS can also affect the color of water. In the case of Taal Lake, no abnormal discoloration (changes color of water to light brown or more intense light brown) due to unnatural causes was observed during the whole year of monitoring. It means that color conforms to the standard set by DENR-EMB.

Tale 2 shows the t – test result of site 1 and site 2 for equality of means. The result shows that there is no significant difference in the overall average of the two sites at Taal Lake since the t-value of 0.006 has a p-value (0.996) greater than 0.05.

Table 2. Results of t- test for equality of means for Site 1 and Site 2

	Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Equal variances assumed	.000	.995	.006	20	.996	1.38818	249.92191	-519.93979	522.71615
Equal variances not assumed			.006	20.00	.996	1.38818	249.92191	-519.93995	522.71632

To preserve the quality of water in Taal Lake, safety, security, and environmental management plan must be implemented by concerned local government units (LGUs). This way the best beneficial use of the Lake is likely to be sustained. Likewise, information campaign on the protection and preservation of the Lake has to reach nearby residents and mountaineers to mitigate the quantity of contaminants in the vicinity.

Based on the overall results of the study, Taal Lake water can still be classified as Class B (DENR-EMB, 2005), Recreational Water Class I. The classification is the same with Pagsanjan river of Laguna and the Bolbok river of Batangas (DENR-EMB, 2005). In general, the Lake can be beneficially used for primary contact recreation such as bathing, swimming, and skin diving.

REFERENCES

[APHA, AWWA, WEF]. 2005. American Public =Health Association, American Water Works Association, Water Environment Federation. Standard Methods for the Examination of Water and Wastewater, 21st Ed., Washington D.C.

[Asian Development Bank]. [Internet]. Tilapia Cage Farming in Lake Taal, Batangas, Philippines. [Cited August 2003]. Available from Http://www.adb.org/Documents/Reports/Evaluation/sst-reg-2004-07/phi-ase6.pdf.

Bodzin A., [Internet]. Phosphates in the stream. Pennsylvania, USA. [Cited 2004]. Available.from.http://www.leo.lehigh.edu/envirosci/enviroissue/lawsregs/phosphates.htm.

Bordin C. Chehalis River Council [Internet]. Centralia, WA. [Cited 2007]. Available from: http://www.crcwater.org/.

Chang H. 2008. Spatial Analysis of Water Quality Trends in The Han River Basin, South Korea. Springerlink Journal. Journal 42:3285-3304

[DENR-EMB]. 2005. Department of Environment and Natural Resources Environmental Management Bureau Administrative Order no. 2005-10. Implementing Rules and Regulations of the Philippine Clean Water Act of 2004. Republic Act no. 9275.

[DENR–EMB] 1990. Department of Environment and Natural Resources Environmental Management Bureau Administrative Order no. 34. (Series of 1990). Revised Water Usage and Classification Water Quality Criteria Amending Section Nos. 68 and 69, Chapter III of the 1978 NPCC Rules and Regulations.

Discover Asia. [Internet]. Lake Taal. [Cited 2010] Available from http://www.thailandsworld.com/index.cfm?p=399.

GMA News. [Internet]. **Ate Vi's Governance Challenge on Taal Lake**. [Cited April 27, 2009]. Available from **http://blogs.gmanews.tv/sidetrip/blog/**.

[ILEC]. International Lake Environment Committee. [Internet]. Available from http://www.ilec.or.jp/database/asi/asi-58.html. [Cited 1985]

IWR-MSU. [Internet]. Institute of Water Research. Michigan State University. [Cited 1997]. Available from http://www.iwr.msu.edu/edmodule/water/ph.htm.

LakeNet. [Internet]. Taal Lake Profile. [Cited 2003] Available from http://www.worldLakes.org/Lakedetails.asp?Lakeid=8420.

Lusch et al. [Internet]. Water Quality. Michigan, USA. [Cited 1997]. Available from http://www.iwr.msu.edu/edmodule/water/ph.htm.

Johnson L. [Internet]. Measuring Temperature and its Effects on Water Quality. Texas, USA. [Cited 2000]. Available from Available from: http://peer.tamu.edu/curriculum_modules/water_quality/Module_2/lesson2.htm

Malaya. [Internet]. In Taal, communities struggle to stave off disaster. [Cited 2008]. Available from http://www.malaya.com.ph/jun06/news7.htm.

Moskovchenko D. V. , A. G. Babushkin and G. N. Artamonova. 2008. Surface Water Quality Assessment of the Vatinsky Egan River Catchment, West Siberia. Spingerlink Journal. **Volume 135, (1-3)**

Odemis B. and Fatih Evrendilek. 2007. Monitoring Water Quality and Quantity of National Watersheds in Turkey . Springerlink Journal. Volume 133, Numbers 1-3: 215-229

Opiña R. [Internet]. Balili River: A Health Hazard [Internet]. [Cited March 8, 2005]. Availablefrom:http://www.sunstar.com.ph/static/bag/2005/03/08/news/balili.river.a.health.hazard.html.

[PAGASA]. Philippine Atmospheric Geophysical and Astronomical Services Administration [Internet]. Climatology and Agrometeorology [Cited 2004]. Available from http://www.pagasa.dost.gov.ph/cab/statfram.htm

[PCIJ]. Philippine Center for Investigative Journalism. Illegal Fish Cage Operations

Poison Taal Lake [Cited 2008]. Available from http://www.pcij.org/stories/2008/taal-lake2.html

Susfalk et al. 2008. Characterization of Turbidity and Total Suspended Solids in the Upper Carson River, Nevada. Desert Research Institute (DRI). DHS Publication No. 41242

[SDA Science]. [Internet]. Soap and Detergent Association. [Cited 2005]. Available from http://www.sdascience.org/index.php?.option=com_content&task=view&id=50&Itemid=61

Umaly C, Cuvin M. 1988. Limnology: A Laboratory and Field Guide on Physico-chemical and Biological Factors. Manila: National Bookstore.

FUZZY MATHEMATICAL APPROACH FOR EFFECTIVE GENERALIZATION OF PERFORMANCE EVALUATION

Manoj Kumar Jain
School of Studies in Mathematics
Vikram University
Ujjain, MP
INDIA
Manoj.kumarjain@gmail.com

A. K. Dalela
Department of Mathematics
Govt. Science College
Jabalpur, MP
INDIA
dalela@ymail.com

Sandeep Kumar Tiwari
School of Studies in Mathematics
Vikram University
Ujjain, MP
INDIA
skt_tiwari75@yahoo.co.in

ABSTRACT

Evolution of employee performance is one of the most important responsibilities of managers. Yet performance evolution has been the source of considerable dissatisfaction for both managers and employees because of the many shortcomings that have plagued evolution systems. On the basis of Drawing on research, experience and court rulings, in this paper Fuzzy mathematical solution for establishing an effective performance evolution system. Some of the guidelines cover the design of a system and others its administration. Performance evolution systems are the butt of many jokes and the source of considerable dissatisfaction.

INTRODUCTION

Completing effective performance evaluation serves many important functions within an organization, and doing so is essential in virtually every managerial job. An effective employee performance evaluation system can play an important role; motivating peak individual performance and improving organizational productivity. It's important for managers to know what performance evaluations are, understand why they are important, and be able to conduct them effectively and efficiently[1,2and 7].

What is a Performance Evaluation?
By definition, a performance evaluation is a formal evaluation of an employee's job performance. To conduct a formal performance evaluation, the manager must complete an evaluation document and conduct an oral review with the employee who is being evaluated.

This process involves providing the employee with feedback regarding how well he or she is performing the essential functions of his or her job. Performance evaluations usually assess how well the employee executes job duties, overall efficiency, as well as the outcomes, or results, of his or her activities.

Importance Of Effective Performance Evaluations

Communication Link

Having an effective performance evaluation system in place can improve the flow of communication between supervisors and their employees. Performance evaluations provide a vital communications link between managers and employees. Every employee needs to know how he or she is doing on the job. Timely evaluations build respect and trust and when done well can dramatically improve performance."

Improved Feedback Mechanism

Providing feedback to employees on an ongoing basis is an important part of any manager's job. However, all too often, managers overlook the importance of consistent feedback unless there are specific problems that need to be addressed.

The performance evaluation process provides an important mechanism for much needed feedback—both positive and negative-which can easily be overlooked without the presence of a formal employee evaluation system. Employees may grumble about performance evaluations, but most of them actually appreciate feedback from their supervisors. The majority of employees want to get accurate information regarding how they are performing, and they value suggestions on ways to improve [3,4].

Identification of Competency Gaps

Employee performance evaluations can be the best way for managers to become aware of gaps in employee competency. Without sitting down and speaking directly with employees about their job performance, supervisors often have no way of recognizing what their employees really don't know how to do. The performance evaluation process is beneficial in helping managers and workers identify gaps in competency, and can lead to the development of training action plans to fill in the gaps.

Goal Setting Tools

The action plans developed through the performance evaluation process can become specific goals for performance improvement. Setting concrete goals is the most beneficial outcome of conducting effective performance evaluations.

The defined goals can form the basis of a written action plan for the employee and the manager, and provide the foundation for future performance evaluation discussions. When managers and employees are able to agree on performance improvement goals that tie directly to competency gaps, the end results include greater organizational productivity and enhanced employee engagement.

Providing Necessary Documentation

In addition to providing managers with many tools and techniques for helping employees become more productive, performance evaluations also serve the important purpose of presenting the documentation necessary to take adverse actions regarding poorly performing employees. Supervisors who have team members performing below standard (and can point to accurate performance evaluation documentation) may be able to justify employee terminations based on weak performance.

Improving the Performance Evaluation Process

Even though conducting employee performance evaluations is an important part of every manager's job, most supervisors don't look forward to sitting down with their employees and going through the formal evaluation process. But there are several things managers can do to improve their ability to conduct effective performance evaluations with a minimal level of stress.

Tips for Preparing for Performance Evaluations

- Review the job description and make sure you understand it
- Verify that you know the specific job duties and requirements
- Consider each duty and job requirement individually
- Focus on what is expected of the employee in the current position
- Don't allow personality characteristics to factor into the evaluation process
- Focus the review on actual performance, not on expectations for the future

- Do not fall into the trap of the "halo" or "horn" effect, which leads to assuming that outstanding or poor performance in one area indicates the presence of the same in other aspects of the job
- Reflect on performance throughout the entire rating period, not just the most recent events

Tips for Leading Performance Evaluation Meetings

Filling out the necessary paperwork for effective performance evaluations is only part of a manager's responsibilities. In order to complete the performance evaluation process, the manager must sit down with the employee and discuss his or her performance face to face, using the completed evaluation form as a guide [4, 5 and 6].

- Allow sufficient time for your meeting with the employee

- Do not allow other employees to interrupt the evaluation meeting

- Ask the employee open ended questions and really listen to his or her responses

- Remain open minded throughout the conversation

- Be prepared to offer concrete suggestions for performance improvement as needed

- Praise an employee's achievements

- Focus on changes that can be made for future improvement rather than on past failures

- Clearly state your expectations for future performance

- Verify that the employee clearly understands what is expected of him or her

Benefits of Effective Performance Evaluations

Most employees want to do a good job, and it's up to managers to recognize their strengths and provide them with the feedback and tools they need to overcome their weaknesses. Following these suggestions, preparing for and delivering performance evaluations to your employees can enhance the value of the process for you, the members of your team, and the organization as a whole.

Evaluating project performance is one part of the theory of industrial measure. How to give an objective evaluation of the project performance of a employee is an unsolved question. Usually, when we appraise project qualities, we often use words' good"/fairly good'/mediocre" or "bad", but they are all blurred. If we want to make a quantitative evaluation of project work performance, using fuzzy mathematics is one of the effective ways. In this article, we combine the fuzzy synthetically judgment with the fuzzy recognition to give a way to evaluate the project evaluation of a employee [1, 3, 5and 7].

SETTING UP AN EVALUATION INDEX SYSTEM

Project performances of employees are affected by many factors, such as project aims, project requirements, project contents and technology, project methodology and so on. So we must choose evaluation factors and set up an evaluation index system scientifically and reasonably if we want make an objective evaluation of project performer.

We suppose that project performances of employees are affected by factors as follows: u_1, u_2, ..., u_n. Let field U= {u_1, u_2, u3, ..., u_n} be a set of evaluation index. Grade the factors that affect the project work according to their affecting extent: v_1 v_2, ...,v_m. Let V= {v_1, v_2, v_3, ..., v_m} be a set of the grade . In order to guarantee that the evaluation results tally with the actual situation, and have more reference value, we invite k project specialists to pass a judgment of weight number respectively on each factor in field U as follow list:

u_i weight number specialist	u_1	u_2	...	u_n	Σ
specialist 1	a_{11}	a_{12}	...	a_{1n}	
specialist 2	a_{12}	a_{22}	...	a_{2n}	
$\vdots$	$\vdots$	$\vdots$	$\vdots$	$\vdots$	$\vdots$
specialist k	a_{k1}	a_{k2}	...	a_{kn}	
$\frac{1}{k}\sum_{i=1}^{k} a_{ij}=t_i$	$\frac{1}{k}a_1$	$\frac{1}{k}a_2$	...	$\frac{1}{k}a_n$	

In the list a_i (i=l, 2, . ..,n) is $\sum_{i=1}^{K} a_{ij}$, the sum of all the rows. The weight number of a_i corresponding to index factor u_i is

$$t_i = \frac{1}{k}\sum_{i=1}^{k} a_{ij} = \frac{a_i}{k}$$

The weight number distributive set corresponding to the evaluation factor set U={$u_1,u_2,...,u_n$} is

$\underline{A}$ = (t_1, t_2,t_3, ..., t_n)

Where $t_i \in$ (0, 1) and $\sum_{i=1}^{k} t_i = 1$.

Synthetically Judgment of the Model

On basis of setting up the index system of evaluation, we'll pass a judgment on the model that will be evaluated. Invite k project specialists, adopting specialists evaluation method, we get weight number distributive set $\underline{A}$ = (t_1, t_2,t_3, ..., t_n). On the other hand, we pass a judgment on each $u_i \in$ U, i = 1, 2... n, as follow list:

	v_1	v_2	...	v_n
u_1	x_{11}	x_{12}	...	x_{1m}
u_2	x_{21}	a_{22}	...	x_{2m}
$\vdots$	$\vdots$	$\vdots$	$\vdots$	$\vdots$
u_n	x_{n1}	x_{n2}	...	x_{nm}

There upon we get the matrix of fuzzy relation. The evaluation matrix

$$
\underline{R} =
\begin{bmatrix}
x_{11} & x_{12} & \cdots & x_{1m} \\
x_{21} & x_{22} & \cdots & x_{2m} \\
\cdot & \cdot & \cdot & \cdot \\
\cdot & \cdot & \cdot & \cdot \\
\cdot & \cdot & \cdot & \cdot \\
x_{n1} & x_{n2} & \cdots & x_{nm}
\end{bmatrix}
$$

Adopting the set operation of fuzzy matrix $\underline{B} = \underline{A} \bullet \underline{R}$ and using operation M($\bullet$, $\oplus$) , we obtain the results of synthetically judgment $\underline{B} = (b_1, b_2, \ldots, b_m)$ where $b_i \in (0,1)$, and $\sum_{i=1}^{m} b_i = 1$.

Example

We want to evaluate project performer of employee A_1, A_2, A_3 of an organization. First of all we must fix the set of evaluation factors U= {u_1, u_2, u_3, u_4, u_5, u_6, u_7, u_8} where u_1: project aims and requirements; u_2: project contents; u_3: **scientifically**; u_4: basic concept, elementary knowledge; basic technique; u_5: focal point, difficult point; u_6 project methodology; u_7: project state, language, project execution plan; u_8: project effect. Adopt the set of evaluation grade V= {v_1, v_2, v_3, v_4}, where v_1: outstanding, v2: exceed expectation, v3: Meet expectation, v4: Need improvement. Eight members including Business unit head,

Project manager, Director of project and research section and employees with project performer make up the evaluation group. The eight people adopt specialist evaluation method to get the weight number distribution set A= {1.2, 1.3, 0.9, 1.9, 1.5, 1.15, 0.85, 2.05} and appraise employee A_1 by passing judgments respectively on factor {u_1, u_2, ..., u_8} as follows:

{(0.4, 0.1, 0.2, 0.3),(0.6, 0.2, 0.1, 0.2),(0.3, 0.7, 0 , 0), (0.6, 0.2, 0.1, 0.1),(0.2, 0.4, 0.1, 0.3), (0.3, 0.3, 0.2, 0.2), (0.4, 0.3, 0.15, 0.15), (0.5, 0.25, 0.2, 0.05)}, then we get the evaluation matrix

$$
\underline{R_1} =
\begin{array}{cccc}
v_1 & v_2 & v_3 & v_4 \\
\begin{bmatrix}
0.4 & 0.1 & 0.2 & 0.3 \\
0.5 & 0.2 & 0.1 & 0.2 \\
0.3 & 0.7 & 0 & 0 \\
0.6 & 0.2 & 0.1 & 0.1 \\
0.2 & 0.4 & 0.1 & 0.3 \\
0.3 & 0.3 & 0.2 & 0.2 \\
0.4 & 0.3 & 0.15 & 0.15 \\
0.5 & 0.25 & 0.2 & 0.05
\end{bmatrix}
&
\begin{array}{l}
u_1 \\ u_2 \\ u_3 \\ u_4 \\ u_5 \\ u_6 \\ u_7 \\ u_8
\end{array}
\end{array}
$$

Adopting the set operation of fuzzy matrix to give an evaluation result to employee A_1

$$\underline{B}_1 = \underline{A} \cdot \underline{R}_1 = (1.2, 1.3, 0.9, 1.9, 1.5, 1.5, 0.85, 2.05) \begin{bmatrix} 0.4 & 0.1 & 0.2 & 0.3 \\ 0.5 & 0.2 & 0.1 & 0.2 \\ 0.3 & 0.7 & 0 & 0 \\ 0.6 & 0.2 & 0.1 & 0.1 \\ 0.2 & 0.4 & 0.1 & 0.3 \\ 0.3 & 0.3 & 0.2 & 0.2 \\ 0.4 & 0.3 & 0.15 & 0.15 \\ 0.5 & 0.25 & 0.2 & 0.05 \end{bmatrix}$$

Using M ($\bullet, \oplus$), we get $\underline{B}_1 = \underline{A}_1 \bullet \underline{R}_1 = (4.666, 3.2075, 1.5475, 1.79)$, after normalization,

$\underline{B}_1 * = (415626, 0.286383928, 0.138169642, 0.169821428)$
$= (0.41, 0.29, 0.14, 0.16)$

The members of the evaluation group adopting the same method that we have used to employee A_1, using the weight number distributive law $\underline{A} = (1.2, 1.3, 0.9, 1.9, 1.5, 1.5, 0.85, 2.06)$ to give evaluation to employee A_2, A_3 respectively and get the result of synthetically judgment.

THE COMPARE OF THE MODEL'S EVALUATION

By the above-mentioned analysis, we can see that the project performer of employee A_1, A_2, A_3 have been quantified and the proportions they hold in the evaluation grade have been fixed. But we can't show the order of employee A_1, A2, A_3 about their performance. We must compare the models so that we can make out the order of the employees about their performance.

"Only by comparing can one distinguish.' And we must have a criterion when we compare. We choose an acknowledged excellent employee with good performance as a standard model. Using fuzzy synthetically judgment we can get the evaluation result. Using fuzzy recognition, we can find the approach degree of the evaluation models with the standard model. Then we can make out the order of evaluated model according to their approach degrees.

Adopting the above-mentioned example and same method we can find the evaluation result of the standard model $\underline{B} = (0.75, 0.20, 0.05, 0)$. Using the computational formula of approach degree, according to the characters of the factors that affect the project performance and application range of all kinds of the approach degrees, we use computational formula of degree.

$$\mathbf{N_H(\underline{A}.\underline{B}) = 1 - \frac{1}{n} d(\underline{A},\underline{B})}$$
$$= 1 - 8(\underline{A},\underline{B})$$

To find the approach degrees of $\underline{B}_1$, $\underline{B}_2$, $\underline{B}_3$ with $\underline{B}$ respectively.

$N_H(\underline{B}, \underline{B}_1) = 1 - \dfrac{1}{4} (| 0.75\text{-}0.41 | + | 0.29\text{-}0.20 | + | 0.05\text{-}0.14 | + | 0\text{-}0.16 |)$

$= 1 - \dfrac{1}{4} (0.34 + 0.09 + 0.09 + 0.16)$
$= 1 - 0.17$
$= 0.83$

$N_H(\underline{B},\underline{B}_2) = 1 - \dfrac{1}{4} (\mid 0.75\text{-}0.39 \mid + \mid 0.31\text{-}0.20 \mid + \mid 0.15\text{-}0.05 \mid + \mid 0\text{-}0.15 \mid)$

$= 1 - \dfrac{1}{4} (0.36 + 0.11 + 0.10 + 0.15)$

$= 1 - 0.18$

$= 0.82$

$N_H(\underline{B},\underline{B}_3) = 1 - \dfrac{1}{4} (\mid 0.75\text{-}0.40 \mid + \mid 0.20\text{-}0.27 \mid + \mid 0.05\text{-}0.25 \mid + \mid 0\text{-}0.08 \mid)$

$= 1 - \dfrac{1}{4} (0.35 + 0.07 + 0.20 + 0.08)$

$= 1 - 0.175$

$= 0.825$

We can find from the approach degree that the sequence of the project performance of the three employees is A_1 is the best, A_3 is second and A_2 is the last.

CONCLUSION

Fuzzy mathematical modeling technique provides a solution in area of performance measurement techniques and its evaluation. An effective performance evaluation system can play a crucial role in an organization's efforts to gain competitive advantage like motivating peak individual performance and improving organizational productivity. It's important for managers to know what performance evaluations are, understand why they are important, and be able to conduct them effectively and efficiently. This process involves providing the employee with feedback regarding how well he or she is performing the essential functions of his or her job. Performance evaluations usually assess how well the employee executes job duties, overall efficiency, as well as the outcomes, or results, of his or her activities. The above model can apply anywhere to evaluate the performance.

REFERENCES

[1]. Aitkin, M and Longford, N (1986), Statistical Modelling issues in school effectiveness studies. *Journal of the Royal Statistical Society*, Series A, 144, 1.

[2]. Goldstein, H. (1987), *Multilevel Modelling in educational and social research*, London, Griffin.

[3]. Jesson D, Mayston DJ and Smith PC (1987). Performance assessment in the education sector: educational and economic perspectives. *Oxford Review of Education* 13: 249 - 266.

[4]. D. Jesson (2000), Comparisons of GCSE Performance between Specialist and Other Maintained comprehensive Schools, Technology Colleges Trust, London, 2000, 105pp, ISBN1-873882-49-1.

[5]. D. J. Mayston (2003), "Measuring and Managing Educational Performance", Journal of Operational Research Society, Vol. 54, 2003, 679-691pp.

[6]. Mayston DJ (1985). Non-profit performance indicators in the public sector. *Financial Accountability and Management* 1: 51- 74.

[7]. Mayston DJ (1992). *School Performance Indicators and Performance Related Pay*. Assistant Masters and Mistresses Association: London.

PREDICTION OF THE SUITABILITY OF LOCATIONS FOR WIND FARMS USING FLEX EXPERT SYSTEM

Chukwuchekwa Ulumma Joy
Department of Mathematics
Federal University of Technology, Owerri
NIGERIA.
rejoice2k7@yahoo.com

Chukwuchekwa Nkwachukwu
Department of Electrical/Electronic
Engineering, Federal University of
Technology, Owerri
NIGERIA.

ABSTRACT

Wind-generated electricity has the ability to provide electricity to homes and businesses without causing air pollution or depleting non-renewable resources, unlike electricity generated by coal, natural gas, and oil (fossil fuels). Wind farm developments are mostly not common with the local populations and as a result, many factors have to be taken into consideration before such development can take place. This paper presents a Forward Chaining Flex knowledge-base for locating Wind Farms. Such factors as energy production, visual and sound impact for the local community, the number of wildlife species in the area and their population sizes, a geological survey to determine ground stability and a hydrological survey to show the effect of the development on local rivers and water sources, are arranged in a decision tree and consequently built into a knowledge-based system using the Flex expert system shell. Sample outputs from the developed Flex expert system show that a location might be ruled out as 'completely unsuitable', 'ideal' or a 'second best' choice.

Keywords: Wind farms, Flex knowledge-base, Expert systems, Decision tree

INTRODUCTION

Wind-generated electricity, also known as wind power, has the ability to provide electricity to homes and businesses without causing air pollution or depleting non-renewable resources, unlike electricity generated by coal, natural gas, and oil (fossil fuels). Furthermore, because wind power has no fuel costs (that is, wind power depends on the energy of the wind), its operating costs are lower than the costs for power produced from fossil fuels, although its capital costs are greater. Wind power relies on frequent, strong winds to turn the blades of power-generating turbines (United States Government Accountability Office, 2004).

In testing whether a location is suitable for a wind farm, some factors are usually considered (United States Government Accountability Office, 2004), (Colby, etal, 2009) as indicated in the decision tree in Fig. 1. The outcome of a hydrology survey is always checked; the development may interfere with water courses, by eroding land or causing flooding from run-off (as the turbines need concrete footings, reducing the volume of land to soak up water). If that test is passed, a further test for suitability is used which involves determining the level of energy production possible at the site.

Next, a test is made of the diversity of wildlife inhabiting the site – that is, counting the number of different bird species in the nearby area. However, some birds are scarcer than others, resulting in a greater need for conservation (and hence rejecting any sort of development). The broad categories of birds are indicated in the table below, along with a simple means of producing a score from counts of the different numbers of invertebrate species. An assessment of whether the location is suitable is based on the total score derived from the formula ($N * S$), where N is the number of distinct species (they could be Endangered, Scarce and Common species) and S is the scoring weight. The scoring weights for the species are 3, 2 and 1 respectively. The location is considered not to be damaging to

wildlife if the score is greater or equal to 20; it is considered a second best quality location if the score is between 10 and 20; it is considered damaging to wildlife if the score is less than 10.

Table 1. Birds Diversity Scoring System

Level of scarcity	Number of distinct species (N)	Scoring Weight (S)	Weighted score (N * S)
Endangered		3	
Scarce		2	
Common		1	
			Total Score =

The scoring system might be misleading because based on the formula, suppose we have 0 number of endangered, 2 Scarce and 20 common, the score is 24, meaning that the obvious conclusion is that a wind farm will not be damaging to wildlife but it is also obvious that one of the species is not represented. This implies that a high score might be produced by the individual components of the formula. The mere fact that diversity and sizes of birds populations change seasonally and with migration patterns and the capacity of a site to provide the necessary food and habitat for birds can also vary from year to year, then having a low score does not always mean that the placement of a wind farm would significantly damage the wildlife..

Following the wildlife diversity test, a further four tests may be required. A check of visual impact is next. If the location is close to inhabited areas, then a check of sound impact is also required. Then the result of a geological survey is tested, to determine whether the ground is sufficiently stable to support a heavy turbine. Lastly, a check for sound is made, to consider whether the noise of the turbines is likely to carry to inhabited areas.

Expert Systems

Expert Systems (ES) (Negnevitsky, 2005), (Hopgood, 2001), (Callan, 2003) are systems that are designed to simulate the behaviour of a human expert as he or she attempts to solve some complex problem in a particular domain. They are computer systems that encapsulate specialist knowledge about a particular domain of expertise and are capable of making intelligent decisions within that domain. Areas successfully tackled so far within the expert systems framework include medical diagnosis, geological exploration, organic chemistry, fault-finding in electronic equipment, and the insurance industry. In fact, any area in which human experts solve problems is a potential area for the use of expert systems. The most popular expert systems are rule-based systems. Rules can represent relations, recommendations, directives, strategies and heuristics (Negnevitsky, 2005).
A rule-based expert system consists of five components – the knowledge base, the database, the inference engine, the explanation facilities, and the user interface (Negnevitsky, 2005). The knowledge base contains the domain knowledge useful for problem solving. The knowledge is represented as a set of rules and each rule specifies a relation, recommendation, directive, strategy or heuristic and has the IF (condition) THEN (action) structure. When the condition part of a rule is satisfied, the rule is said to fire and the action part is executed. The database includes a set of facts used to match against the IF (condition) parts of rules stored in the knowledge base. The inference engine carries out the reasoning whereby the expert system reaches a solution. The inference engine links the rules given in the knowledge base with facts provided in the database and uses two main strategies to operate – the forward chaining strategy and the backward chaining strategy.
The inference engine must decide when the rules have to be fired. The two main ways in which rules are executed are the forward chaining and the backward chaining. Forward chaining is a data-driven reasoning which means that rules are selected and applied in response to the current fact base. The reasoning starts with the known data and proceeds forward with that data. Forward chaining is also a method of gathering information and then concluding from it whatever can be concluded. Backward

chaining is the goal-driven strategy. In backward chaining, an expert system has the goal and the inference engine attempts to find the evidence to prove it.

A computer cannot encode the full complexity of the factors and the often uncertain information involved in developing Windy-ES. Consider for instance, the wildlife diversity and sizes change enormously over time, and the information from geological surveys can be quite inaccurate, leading to changes in the exact location for the wind farm once development begins. These changes should be taken into account in site selection because rules cannot capture the thought processes of an expert (Callan, 2003). This is in agreement with what (Negnevitsky, 2005) said in his book: "In general, rule-based expert systems do not have the ability to learn from the experience. Unlike a human expert, who knows when to 'break the rules', an expert system cannot automatically modify its knowledge base, or adjust existing rules or add new ones. The knowledge engineer is still responsible for revising and maintaining the system." Deciding on what constitutes some of the factors involved (especially the hydrology survey, geology survey and the diversity of wildlife) is quite subjective, so the knowledge represented is not particularly deep.

The key to the success of an expert system is the validity and completeness of the knowledge possessed by the system. Most often, it is assumed that the knowledge itself is readily available and could be expressed explicitly but this assumption is not always the case as can be seen in the Flex knowledge-based expert system for locating the wind farm, mainly due to the complexity of the factors and the uncertain information. Thus, the rules that describe the domain are not known and the problem is not expressible explicitly in terms of rules, facts or relationships such as expressing wildlife migration pattern and land stability as rules.

Disadvantages of Expert Systems

Some of the limitations of Expert Systems include the following (Kock, 2003):
- Expert Systems cannot apply common sense in making decisions. They only rely on the rules.
- Experts do not realise when they reach their limits. They may recommend inappropriate actions.
- Knowledge acquisition is not readily available. Another reason for this problem is that experts tend to be unreliable when it comes to describing their own reasoning processes. This may be as a result of deliberate resistance from the domain experts. Also experts tend not to spend enough time analysing their own behaviour and processes.
- The domain of expertise is usually narrow. An expert system is designed for a specific purpose and is not useful for another purpose.
- Expert systems may be costly to develop because of the time of human experts and other people involved in the process.
- Expertise is very difficult to extract from humans.
- Lack of trust by end users may be a hindrance to expert system's use.
- Knowledge transfer is subject to a host of perpetual and judgemental biases.
- The work of rare and expensive knowledge engineers is required, and
- Most experts have independent means of checking whether the conclusions are reasonable.

MATERIALS AND METHODS

Decision Trees

A decision tree (Callan, 2003) is a way of relating a series of inputs to an output (usually representing something you want to predict) using a series of rules arranged in a tree structure. One famous algorithm used for the decision tree learning is ID3 (Callan, 2003), which uses the Training Set to decide which attribute is the most important in dividing the cases into the different outcomes. This

attribute is then placed at the top of the Decision Tree, and the process repeats to find the next most important attribute along each branch. Choosing the best attribute uses a measurement from Coding and Information Theory, called entropy. The description of the ID3 algorithm is given by (Kock, 2003)
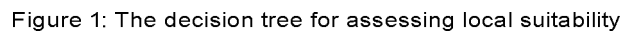
Flex Expert System

For the Flex knowledge-base for locating wind farms, the forward chaining (rules) strategy was used. We need to first gather information and then tries to infer from it whatever can be inferred. The Flex Expert System Shell will be used. Flex describes knowledge in terms of *production rules* (that is, *if-then* statements), which has proved the most popular approach to encapsulation expert knowledge. Such rules, despite appearing simple, enable relatively complex connections to be made between individual pieces of 'knowledge', thereby solving apparently difficult problems. The rule consists of two parts – the IF part called the antecedent (condition) and the THEN part called the consequent (conclusion or action). In general, a rule can have multiple conditions joined by the keywords AND (conjunction), OR (disjunction) or a combination of both (Negnevitsky, 2005). The condition of a rule contains two parts – the object (linguistic object) and its value. The object and its value are linked by an operator. Such operators used in Flex programs are *is, are, are not, becomes and includes*. However, expert systems can also use mathematical operators to define an object as numerical and assign it to the numerical value (Callan, 2003)**.** Also similar to a rule antecedent, a consequent combines an object and a value connected by an operator. The operator assigns the value to the linguistic object.

Figure 1 shows the Decision Tree for assessing local suitability that will eventually be used to produce the corresponding knowledge-base. Based on the decision tree provided, some production rules are constructed. A location might be ruled out as completely unsuitable, ideal or a 'second best' choice (which may be used if no other sites can be found, but there may be difficulties, construction-based or political, to overcome). In many cases a result can be determined without performing all the tests.

Each node is an attribute in the decision tree (corresponding to an object in Flex), and the arcs from the node specify the different values that attribute can take (Callan, 2003). In this case, every attribute can take at least two values. Following one line of values, the path taken represents a specific case of attribute values that lead to an outcome for that case – a decision in which we are interested. As an example, consider the leftmost path, which is equivalent to the following rule:

```
rule best_location
        if [ the outcome of a hydrology survey is 'no hydrological effect'
        or the outcome of a hydrology survey is 'minimal hydrological effect']
        and the level of energy production possible is 'high energy'
        and the number of different bird species in the nearby area >= 20
        and the visual impact of the proposed wind farm is 'very distant visual impact'
        and the result of a geology survey is 'stable geological effect'
        then decision becomes 'Accept as best quality location.'
```

Figure 1: The decision tree for assessing local suitability

General Structure Of The Developed Expert System

The structure of a (forward chaining) Flex knowledge-base for locating a wind farm has the following parts which will be typed in this order:

- /* gather all the necessary information */

Here we construct rules to check what we don't already know and include questions to ask for these values. We gather all the information we need about the different tests to be conducted to ascertain suitability of site for a locating a wind farm. Also a set of questions are given to the user to supply

answers with. In the case of the wildlife score, the user enters a number while in other cases, the user chooses from among group of options from the dialogue box. The following program segment illustrates this:

group hydrology_test 'no hydrological effect', 'minimal hydrological effect', 'erosion', 'flooding', 'significant run_off'.

question the outcome of a hydrology survey
       what is the hydrological effect of the site? ;
       choose from hydrology_test ;
       because knowing the hydrology effects help determine the suitability of site .

group energy_test 'low energy', 'medium energy', 'high energy'.

question the level of energy production possible
       what is the energy level of the proposed site? ;
       choose from energy_test ;
       because knowing the energy level help determine the suitability of site .

group visual_test 'close visual impact', 'fairly distant visual impact', 'very distant visual impact'.

question the visual impact of the proposed wind farm
       what is the actual visual impact of the site? ;
       choose from visual_test ;
       because knowing the visual impact of the site help determine suitability of site.

group geology_test 'stable geological effect', 'partly stable geological effect', 'unstable geological effect'.

question the result of a geology survey
       what is the geology survey on the site ;
       choose from geology_test ;
       because knowing the geology survey really help determine the suitability of site .

group sound_test 'loud sound impact', 'quiet sound impact'.

question the effect of sound impact on the populace
       what is the sound impact on the populace? ;
       choose from sound_test ;
       because knowing the sound impact help determine the suitability of site .

question the number of different bird species in the nearby area
       please enter the wildlife score ;
       input number ;
       because knowing the scores help determine suitability of site .

- /* rules to determine the value of the object sought */

There are nine rules written to determine the value of the decision to be taken, that is, whether to accept as best quality location, accept as second best quality location, or to reject site completely. The first rule has 'Accept as best quality location' as the decision, the second to the eighth rule have 'accept as second best quality location' and the ninth rule has 'reject site completely' as the decision. The full production rules are included in Appendix 1.

If there are no matches, then a default case is created that instantiates decision and advice to something sensible as illustrated in the following program segment:

```
rule unknown_tests
        if decision is unknown
        then decision becomes 'not known'
        and advice becomes 'Check the various tests and try again.'
        and output_advice .
```

- /* set up how the program starts and output */
    1. Ruleset: The ruleset simply refers to the rule base of the expert system (Windy-ES), that is, the production rules produced from the given decision tree. The full production rules are provided in Appendix 1.

    2. Action to invoke the ruleset: The action 'decide' invokes the ruleset, windy_ES, we have defined. The first line of 'ruleset' statement specifies that all the nine rules are to be included. The second line specifies that rules are to be visited in the order in which they are written because forward chaining strategy was used in the flex program. In order to avoid Flex firing a single rule repeatedly, the third line specifies that if a rule has been used, that it should not be used again. The last rule (concerning restart) specifies that Flex should not use previous answers to instantiate objects each time the program is run, but that it should ask the questions again, so the user can enter different answers each time the questions are asked. The last line simply tells Flex to forget what was typed in the previous session. The following program segment illustrates this:

```
ruleset windy_ES
        contains all rules ;
        select rule using first come first served ;
        update ruleset by removing each selected rule ;
        initiate by doing restart .
```

    3. Actions to output to the Console window: The flex program is started by typing in '*decide* .' in the Console window. The action '*decide*' invokes a ruleset (windy_ES), and then calls another action , 'output_advice' to write the 'decision' and 'advice' on the console window, as illustrated by the following program segment:

```
        action decide
            do invoke ruleset windy_ES .

        action output_advice
            do nl
          and write('A possible decision is: ')
            and write(decision)
            and nl
            and tab(2)
            and write('You are advised to ')
            and write(advice)
            and nl
            and nl .
```

Below is a screen shot obtained from the console window when the Flex program is run for the first time, showing the general structure of the expert system (Windy-ES):
| ?- template   hydrology_test

```
template        energy_test
template        wildscores
template        visual_test
template        sound_test
template        geology_test
group           hydrology_test
question        hydrology_test
group           energy_test
question        energy_test
group           visual_test
question        visual_test
group           geology_test
question        geology_test
group           sound_test
question        sound_test
question        wildscores
rule            best_location
rule            secondbest_location1
rule            secondbest_location2
rule            secondbest_location3
rule            secondbest_location4
rule            secondbest_location5
rule            secondbest_location6
rule            secondbest_location7
rule            reject_location
rule            unknown_tests
ruleset         windy_ES
action          decide
action          output_advice
```

RESULTS AND DISCUSSION

Analysis of the Flex Expert System

Templates definitions are used at the start of the Flex program to allow object and action names to be hidden from part of the program except in the template definition. Using template definitions also make the programs easier to read, as illustrated by the following program segment:

template hydrology_test
        the outcome of a hydrology survey .

template energy_test
        the level of energy production possible .

template wildscores
        the number of different bird species in the nearby area .

template visual_test
        the visual impact of the proposed wind farm .

template sound_test
        the effect of sound impact on the populace .

Kock, 2003

template geology_test
        the result of a geology survey .

The rules are written in a way that by calling the output actions as soon as the 'decision' object is successfully instantiated, multiple decisions and corresponding advice are output. We also try to establish a kind of natural dialogue between the system and the user by making inference engine to ask questions only when the questions are necessary to make decisions.

DISCUSSION

A typical consultation would invite the user to input details about the location being considered, and would output an assessment of suitability, including details of actions necessary or reasons for rejecting it as unsuitable. The expert system should try to ask only questions that still seem relevant – following on from answers given by the user – to produce a natural dialogue. The Flex program should allow for a more natural dialogue to take place. Take for instance, when the user enters all the information satisfying the first rule 'rule accept_location', Flex still ask the user to enter the 'sound impact of the turbine' which is not part of the first rule. If the user enters 'quiet sound impact' to the question, the first rule will still fire but if the user enters 'loud sound impact' the first rule ('accept_location') and the last rule ('reject_location') will fire. One way of resolving this problem should be to include Test 5 (that is, Check the sound impact) in all the rules since having a quiet sound impact is a good indication that a land is suitable for locating the wind farm and having a loud sound impact indicates alter rejection of site. This approach can also be a good way of improving the decision tree. Again, more specific rules will avoid this. The ordering of the rules is also very important.

The general working of the system can be explained by looking at some sample outputs obtained when the Flex Expert System in Appendix 1 was run for the various conditions in the production rules. For instance, when the outcome of a hydrology survey is 'no hydrological effect' or the outcome of a hydrology survey is 'minimal hydrological effect, and the level of energy production possible is 'high energy', and the number of different bird species in the nearby area >= 20, and the visual impact of the proposed wind farm is 'very distant visual impact' and the result of a geology survey is 'stable geological survey' then output becomes:

0.025 seconds to reconsult_rules windy farm project.ksl [f:\]
| ?- decide.

A possible decision is: Accept as best quality location.
  You are advised to accept as an ideal location and start building now.

Congratulations yes

CONCLUSION

The use of Flex expert system shell in the development of a knowledge-base expert system   for locating a wind farm has been considered. Flex has proved to be an excellent tool for developing rule-base expert systems by representing knowledge in the form of production rules (IF – THEN statements). The developed expert system (Windy-ES) also got a share of the general problems of expert systems, especially the problem of encoding (because of the complex nature of factors involved and uncertain information) and the problem of knowledge acquisition. Decision tree learning (using ID3 algorithm) and Inductive learning should be adopted for the overall improvement of the decision tree used in the development of the model.

APPENDIX 1 – Flex Expert System for Locating Wind farms

/* Flex knowledge-base for locating Wind Farms */
/* using forward-chaining (rules). */

/* To allow object names to be hidden from part of the
program except in the template definition, and for the programs to be more readable, templates
definitions are used */

template hydrology_test
        the outcome of a hydrology survey .

template energy_test
        the level of energy production possible .

template wildscores
        the number of different bird species in the nearby area .

template visual_test
        the visual impact of the proposed wind farm .

template sound_test
        the effect of sound impact on the populace .

template geology_test
        the result of a geology survey .

/* questions to be called by the rules */

group hydrology_test 'no hydrological effect', 'minimal hydrological effect', 'erosion', 'flooding',
'significant run_off'.

question the outcome of a hydrology survey
        what is the hydrological effect of the site? ;
        choose from hydrology_test ;
        because knowing the hydrology effects help determine the suitability of site .

group energy_test 'low energy', 'medium energy', 'high energy'.

question the level of energy production possible
        what is the energy level of the proposed site? ;
        choose from energy_test ;
        because knowing the energy level help determine the suitability of site .

group visual_test 'close visual impact', 'fairly distant visual impact', 'very distant visual impact'.

question the visual impact of the proposed wind farm
        what is the actual visual impact of the site? ;
        choose from visual_test ;
        because knowing the visual impact of the site help determine suitability of site.

group geology_test 'stable geological effect', 'partly stable geologicaeffect', 'unstable geological
effect'.

question the result of a geology survey
  what is the geology survey on the site ;
  choose from geology_test ;
  because knowing the geology survey really help determine the suitability of site .

group sound_test 'loud sound impact', 'quiet sound impact'.

question the effect of sound impact on the populace
  what is the sound impact on the populace? ;
  choose from sound_test ;
  because knowing the sound impact help determine the suitability of site .

question the number of different bird species in the nearby area
  please enter the wildlife score ;
  input number ;
  because knowing the scores help determine suitability of site .

/* Rules about tests and decisions. */
/* By calling the output actions as soon as the */
/* 'decision' object is successfully instantiated, */
/* multiple decisions and corresponding advice are */
/* output. Our choice of where to call output */
/* actions can determine how many answers we output */
/* in a foward-chaining program. */

rule best_location
  if [the outcome of a hydrology survey is 'no hydrological effect'
  or the outcome of a hydrology survey is 'minimal hydrological effect']
  and the level of energy production possible is 'high energy'
  and the number of different bird species in the nearby area >= 20
  and the visual impact of the proposed wind farm is 'very distant visual impact'
  and the result of a geology survey is'stable geological effect'
  then decision becomes 'Accept as best quality location.'
  and advice becomes 'accept as an ideal location and start building now.'
  and output_advice
  and write ('Congratulations') .

rule secondbest_location1
  if [the outcome of a hydrology survey is 'no hydrological effect'
  or the outcome of a hydrology survey is 'minimal hydrological effect']
  and the level of energy production possible is 'high energy'
  and the number of different bird species in the nearby area >= 20
  and the visual impact of the proposed wind farm is 'very distant visual impact'
  and the result of a geology survey is 'partly stable geological effect'
  then decision becomes 'accept as second best quality location1.'
  and advice becomes 'Stabilize the land if necessary.'
  and output_advice .

rule secondbest_location2
  if [the outcome of a hydrology survey is 'no hydrological effect'
  or the outcome of a hydrology survey is 'minimal hydrological effect']
  and the level of energy production possible is 'high energy'
  and the number of different bird species in the nearby area >= 20

and the visual impact of the proposed wind farm is 'fairly distant visual impact'
and [the result of a geology survey is 'stable geological effect'
or the result of a geology survey is 'partly stable geological effect']
then decision becomes 'accept as second best quality location2.'
and advice becomes 'Stabilize the land if necessary.'
and output_advice .

rule secondbest_location3
if [the outcome of a hydrology survey is 'no hydrological effect'
or the outcome of a hydrology survey is 'minimal hydrological effect']
and the level of energy production possible is 'high energy'
and the number of different bird species in the nearby area >= 20
and the visual impact of the proposed wind farm is 'close visual impact'
and the effect of sound impact on the populace is 'quiet sound impact'
and [the result of a geology survey is 'stable geological effect'
or the result of a geology survey is 'partly stable geological effect']
then decision becomes 'accept as second best quality location3.'
and advice becomes 'Stabilize the land if necessary.'
and output_advice .

rule secondbest_location4
if [the outcome of a hydrology survey is 'no hydrological effect'
or the outcome of a hydrology survey is 'minimal hydrological effect']
and the level of energy production possible is 'high energy'
and [the number of different bird species in the nearby area > 10
and the number of different bird species in the nearby area < 20]
and the visual impact of the proposed wind farm is 'very distant visual impact'
and the effect of sound impact on the populace is 'quiet sound impact'
and [the result of a geology survey is 'stable geological effect']
or the result of a geology survey is 'partly stable geological effect'
then decision becomes 'accept as second best quality location4.'
and advice becomes 'Stabilize the land and/or create an alternative
wildlife habitat if necessary.'
and output_advice .

rule secondbest_location5
if [the outcome of a hydrology survey is 'no hydrological effect'
or the outcome of a hydrology survey is 'minimal hydrological effect']
and the level of energy production possible is 'high energy'
and [the number of different bird species in the nearby area > 10
and the number of different bird species in the nearby area < 20]
and [the visual impact of the proposed wind farm is 'close visual impact'
or the visual impact of the proposed wind farm is 'fairly distant visual impact']
and [the result of a geology survey is 'stable geological effect'
or the result of a geology survey is 'partly stable geological effect']
then decision becomes 'accept as second best quality location5.'
and advice becomes 'Stabilize the land and/or create an alternative
wildlife habitat if necessary.'
and output_advice .

rule secondbest_location6
if [the outcome of a hydrology survey is 'no hydrological effect'
or the outcome of a hydrology survey is 'minimal hydrological effect']
and the level of energy production possible is 'medium energy'

and the number of different bird species in the nearby area >= 20
and [the visual impact of the proposed wind farm is 'close visual impact'
or the visual impact of the proposed wind farm is 'fairly distant visual impact'
or the visual impact of the proposed wind farm is 'very distant visual impact']
and the effect of sound impact on the populace is 'quiet sound impact'
and [the result of a geology survey is 'stable geological effect'
or the result of a geology survey is 'partly stable geological effect']
then decision becomes 'accept as second best quality location6.'
and advice becomes 'Stabilize the land if necessary.'
and output_advice .

rule secondbest_location7
        if [the outcome of a hydrology survey is 'no hydrological effect'
        or the outcome of a hydrology survey is 'minimal hydrological effect']
        and the level of energy production possible is 'medium energy'
        and [the number of different bird species in the nearby area > 10
        and the number of different bird species in the nearby area < 20]
        and [the visual impact of the proposed wind farm is 'very distant visual impact'
        or the visual impact of the proposed wind farm is 'fairly distant visual impact'
        or the visual impact of the proposed wind farm is 'close visual impact']
        and [the result of a geology survey is 'stable geological effect'
        or the result of a geology survey is 'partly stable geological effect']
        then decision becomes 'accept as second best quality location7.'
        and advice becomes 'Stabilize the land if necessary.'
        and output_advice .

rule reject_location
        if the outcome of a hydrology survey is 'erosion'
        or the outcome of a hydrology survey is 'significant run-off'
        or the level of energy production possible is 'low energy'
        or the number of different bird species in the nearby area =< 10
        or the result of a geology survey is 'unstable geological effect'
        or the effect of sound impact on the populace is 'loud sound impact'
        then decision becomes 'reject site completely.'
        and advice becomes 'reject site completely - unsuitable due to likelihood of land
        erosion, risk of flooding, not being profitable, negative wildlife impact,
        negative impact on population or unstable ground.'
        and output_advice
        and write ('Sorry about that') .

/* If there are no matches, then create a 'default' */
/* case that instantiates decision and advice to */
/* something sensible. */

rule unknown_tests
        if decision is unknown
        then decision becomes 'not known'
        and advice becomes 'Check the various tests and try again.'
        and output_advice .

/* Set up how the program starts and outputs. */

ruleset windy_ES
        contains all rules ;

```
        select rule using first come first served ;
        update ruleset by removing each selected rule ;
        initiate by doing restart .

action decide
        do invoke ruleset windy_ES .

action output_advice
        do nl
        and write('A possible decision is: ')
        and write(decision)
        and nl
        and tab(2)
        and write('You are advised to ')
        and write(advice)
        and nl
        and nl .
```

REFERENCES

[1]   Renewable Energy – Wind Power's Contribution to Electric Power Generation and Impact on Farms and Rural Communities (GAO-04-756). United States Government Accountability Office. September 2004. Retrieved 2010-11-26.

[2]   Colby W. D., etal, Wind Turbine and Health Effects: An Expert Panel Review. Canadian Wind Energy Association, December 2009.

[3]   Kock E. De,. Decentralising the Codification of Rules in a Decision Support Expert System Knowlegde Base. Master Degree Thesis. Chapter Six, Pages 107 – 124. University of Pretoria, (2003).

[4]   Negnevitsky M.. Artificial Intelligence: A Guide to Intelligent Systems. 2nd Edition. Addison-Wesley, (2005).

[5]   . Hopgood A. A . Intelligent Systems for Engineers and Scientists. 2nd Edition. CRC Press, (2001).

[6]   Callan. R.   Artificial Intelligence. Hampshire: Palgrave Macmillan, (2003).

WATERSHED SHAPE USING SIMODAS: A CASE STUDY OF SABU ISLAND, NTT

Ruslan Wirosoedarmo
Lecturer in Agriculture
Engineering Department
University of Brawijaya**,** Malang
INDONESIA.
ryslanws@ub.ac.id

Alexander Tunggul Sutan Haji
Lecturer in Agriculture
Engineering Department
University of Brawijaya**,**
Malang
INDONESIA.

Erlita Meidya Pramesti
Agriculture
Engineering Department
University of Brawijaya**,**
Malang
INDONESIA.

ABSTRACT

The objective of this research was to know the influence of watershed to the flood's hydrograph using SIMODAS. Case study was in Sabu Island, Nusa Tenggara Timur, Indonesia. SIMODAS was a soft ware that could be used to determine watershed shape, to describe drainage network, and to produce hydrograph stream flow. Result was used: 1) to predict watershed shape, 2) to inform on the planning of building flood control, and 3) to give any consideration in the way to prevent or decrease flood.

Keywords: watershed shape, hydrograph, SIMODAS

INTRODUCTION

The insufficient knowledge of the nature of long-term variations in river regime and the impossibility of their long-term prediction in designing various facilities, results in the use probabilistic estimates, based on the laws of mathematical statistics and mathematical modeling (Kalinin and Trufimov, 2011). However, the samples should be representative: adequately represent the features of the total populations. This is the particular importance as far as the available observational series in the hydrological gage network have different duration and not coinciding boundaries.

The optimal combination of flood protection options is determined flood damages and construction cost of flood control options along the river (Oztekon, 2011). The needed design flood values for decided options especially when the lengths of recorded data are short may require usage of various statistical distributions. These distributions enable us to predict values having return periods greater than the lengths of the recorded series (Oztekin, 2011). Therefore, choice of the distribution most suitable to the recorded sample series is important from these aspects.

The Primary objective of frequency analysis is to relate the magnitude of extreme events to their frequency of occurrence through the use of probability distributions (Hassanzadeh et al., 2011) The preciseness of hydrologic frequency analysis depends on the type of statistical distributions and parameter estimation techniques. A lot of models have been developed to describe the distribution of hydrological data. Likewise, there are several methods of parameter estimation, among which the most popular are the methods of maximum likelihood, moment and probability weighted moments (Hassanzadeh et al, 2011).

Watershed is a topographic land area that is bounded by the spines of mountain accommodated and stored water then connected to the rain towards the sea through the main river (Asdak, 2002). One output of the systems is the flood discharge of the river basin. One of the factors that affect the river flood discharge is catchment area or the shape of watershed. Information about river flood discharge

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would provide more useful results when presented in the form of hydrographs. However, estimation of maximum floods on a watershed can be analyzed if the flood discharge on each form of watershed and its influence on the flood hydrograph are known. Such information can also be used to design the building of flood prevention.

The purpose of this study was to determine the flood discharge at the various forms of watersheds, the effect of different forms of watersheds against flood hydrograph, and the effect of other watershed characteristics in addition to the flood hydrograph shape watershed.

CONTEXT AND REVIEW OF LITERATURE

This research was conducted from September 2008 until June 2009 at the Engineering Laboratory of Natural Resources and Environment, Department of Agricultural Engineering, Faculty of Agricultural Technology, UB, Malang. Equipment and materials used in this research were as follow:

- Equipment: PC *(Personal Computer)*

- Material: contour maps, map of catchment boundaries, river network map of P. Sabu, and data of rainfall

- Software used in this research was ArcView 3.3 ESRI as GIS *software,* Microsoft Visual Basic 6.0 and SIMODAS Software

METHOD

The method used in this study was analysis of spatial and flood hydrographs. The study used three different locations in the catchment area of the island of Sabu, NTT Watershed, namely Daieko DAS, Ladeke DAS, and DAS Raikore Location of this study was as Figure 1. Sabu Island was an island belonging to the territory of Kupang, East Nusa Tenggara Province (NTT) Territorial boundaries Sabu Island were: northern bordering by the Sea Savu / Sabu, the Southern by Indian Ocean, the eastern by Rote Island, and the western by the Raijua island.

Figure 1 Location of Study

FINDINGS AND DISCUSSION

Each watershed of this study was included some of sub-watersheds. The characteristics of watersheds in this study were described as Table 1 below.

Table 1 Results of watershed characteristics

Watershed	R_B	R_L	R_A	D	Lo	Area (km2)	Length of ma river (m)
Daieko	5	1.046	5.031	2.211	0.226	8.501533	4627.924
Daieko 2	6	1.629	5.971	1.59	0.314	10.58851	5863.069
Ladeke	10.25	4.608	16.587	1.966	0.254	8.564623	3113.478
Ladeke 2	12	6.399	22.746	1.948	0.257	12.97595	3652.036
Ladeke 3	7.2	1.657	8.733	1.538	0.325	10.31123	2215.713
Ladeke 4	11.5	5.685	22.143	2.096	0.239	19.25934	4997.173
Raikore	7	1.555	4.379	1.777	0.344	8.460305	5305.907
Raikore 2	6.83	1.743	5.943	1.982	0.317	11.14883	5593.719
Raikore 3	9	2.714	11.245	1.574	0.318	10.51605	3350.745

In addition to the characteristics in Table 2, the form of watershed was one of the factors that influenced the occurrence of flood discharge and hydrograph shape. In this study, it also had a watershed that was used in different forms, among others could be seen in Figure 7 as follow:
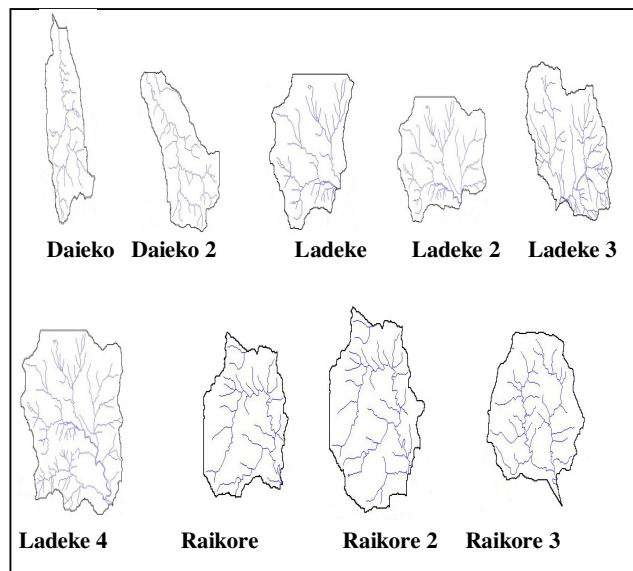

Daieko   Daieko 2   Ladeke   Ladeke 2   Ladeke 3

Ladeke 4   Raikore   Raikore 2   Raikore 3

Figure 7 Shapes of watershed

Watershed Flood Hydrograph Analysis

Flood Hydrograph analysis of watershed with CN 50

Curve Number (CN) was a number that indicated the state of land use in an area. CN 50 showed the state of land use was still large forested. Large flood peak discharge in each watershed on the hydrograph could be seen in Table 3 below:

Table 3. The Flood Hydrograph watershed with CN 50

watershed	CN 50	
	Q peak (m^3/s)	Time to peak (minute)
Daieko	1.06	460-470
Daieko 2	1.03	500-510
Ladeke	1.28	410-420
Ladeke 2	1.22	430
Ladeke 3	0.958	420-430
Ladeke 4	1.12	480-490
Raikore	0.957	500-510
Raikore 2	0.93	490-500
Raikore 3	1.14	460-470

Hydrograph results in Table 3 showed that the highest flood peak discharge values at the watershed Ladeke was equal to 1:28 m ^{3} / second with a time to peak 420-480 minutes and the lowest was 410-420 minutes Raikore second watershed was equal 0.93 with a time to peak 490-500 min.

Flood Hydrograph Analysis watershed with CN 70

In the rain flow simulation using *the Curve Number* 70, it was assumed that 50% of land was remains forested and 50% had already been in the form of settlement. Large flood peak discharge in each watershed in the hydrograph could be seen in Table 4 below:

Table 4 The Flood Hydrograph watershed with CN 70

Watershed	CN 70	
	Q peak (m^3/s)	Time to peak (minute)
Daieko	16.068	220
Daieko 2	15.999	230
Ladeke	17.889	200
Ladeke 2	17.448	200
Ladeke 3	14.054	200
Ladeke 4	16.752	220
Raikore	15.376	230
Raikore 2	15.139	230
Raikore 3	16.43	220

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Table 4 showed that the highest flood discharge in the watershed Ladeke was the same as in the simulation with the CN 50. Values of flood peak discharge on the flow simulation of watershed Ladeke with CN 70 was 17 889 m ^{3} / second with a time of 200 minutes. Flood peak time on the CN 70 was faster than the CN 50. This was due to the CN 70, it was assumed to be 50% of forest land and 50% residential. The lowest flood peak discharge in the watershed Ladeke was 3 14 054 m ^{3} / sec with flood peak time was 200 minutes.

Flood Hydrograph Analysis watershed with CN 90

In this simulation, the flow of rain with the CN 90 was assumed as land especially in the form of settlement. Urban land use that was considering or not to the environmental balance aspects such as the provision of water catchment areas, would affect water flow patterns in the event of rain. Fewer recharge area, causing rain falling most of the land surface would become surface runoff *(runoff)*. Large flood peak discharge in each watershed in the hydrograph could be seen in Table 5 below:

Table 5 Flood Hydrograph Results watershed with CN 90

watershed	CN 90	
	Q peak (m^3/s)	Time to peak (minute)
Daieko	61.46	150
Daieko 2	60.55	150
Ladeke	67.63	140
Ladeke 2	66.19	140
Ladeke 3	53.75	140
Ladeke 4	63.39	150
Raikore	58.57	150
Raikore 2	57.94	150
Raikore 3	62.76	150

Table 5 showed the the highest flood peak discharge was the same as in the watershed Ladeke rain flow simulation with CN 50 and CN 70. Values of flood peak discharge on the flow simulation of watershed Ladeke with CN in 1990 was calculated as 67.63 m ^{3} / second with a time of 140 minutes. When the flood peak on the CN 1990 was much faster than the CN 50 and CN 70, this was due to the CN 90, it was assumed that most of the land was in the form of settlement (densely populated) so that water flow rate was not detained and the majority of rainwater became runoff. Lowest flood peak discharge value in the simulation with the CN 1990 was a watershed Ladeke 3. Large flood peak discharge in the watershed Ladeke 3 was 53.75 m ^{3} / second with a time of 140 minutes.

Relationship analysis of watershed characteristics with Flood Hydrograph

In statistical science, the term had the meaning of relationship of quantitative correlation between two variables measured on ordinal or interval scale [5]. While correlation analysis was a form of analysis (statistics), which showed the strength of the relationship between two variables, the coefficient of determination indicated how far the error in estimating the magnitude *of y* could be reduced by using information held by the variable *x*. Regression model was said to be better if the amount of R ^{2} close to 1.

Correlation between peak flood discharge watershed characteristics could be seen in Figure 11 to 17 below.

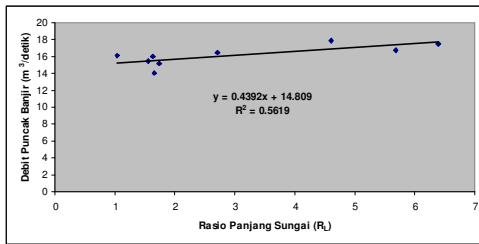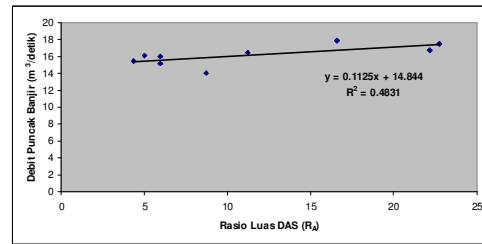Figure 11 Graph Flood peak discharge relations with River Length Ratio (R_L)

Figure 12 Graph Flood peak discharge relationship with the ratio of watershed area ratio (R_A)
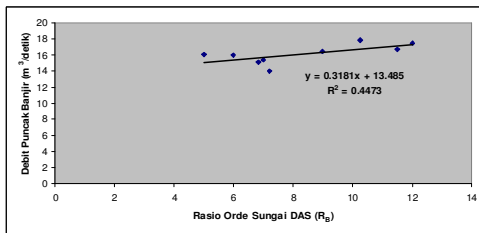
Figure 13 Graph Flood peak discharge relationship with the Order of Comparative Ratios River watershed (of R_B)
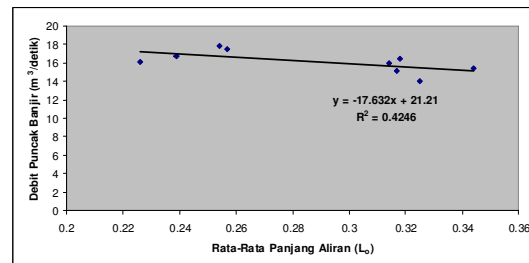
Figure 14 Graph Debit Relationship with Peak Flood Flow Average length (L_o)
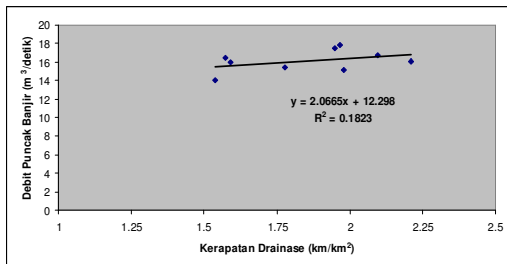
Figure 15 Graph Relations Flood peak discharge with drainage density
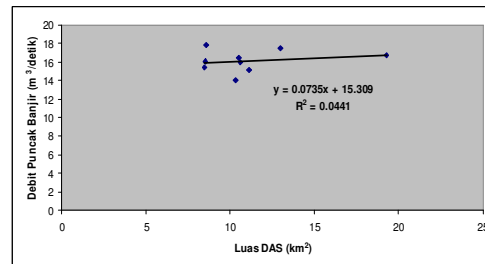
Figure 16 Graph of flood peak discharge relations with watershed ar**ea**
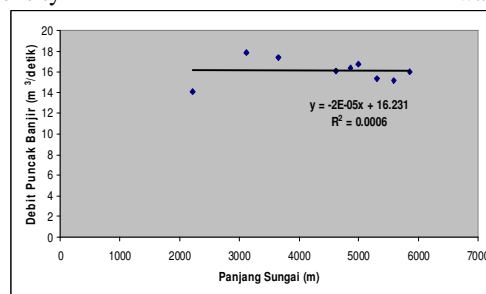
Figure 17 Graph Debit Related with the Long River Flood Peak

Correlation graph in Figure 11 to Figure 17 showed that the R^2 value was the highest flood peak discharge on the relationship with R_L by 0.5619. Relatively strong positive correlation also occurred in the flood peak discharge relationship with R_A and flood peak discharge relationship with R_B respectively of 0.4831 and 0.4473. Flood peak discharge related with drainage density was relatively weak because it only had a value of R^2 of 0.1823. Otherwise very weak correlation occurred in flood peak discharge relations watershed area that was equal to 0.0441.

Flood peak discharge related with the river length that was equal to 0.0006. With R^2 values of 0.0006 which indicates that the greater the length of the river and very little affect the increase in flood peak discharge or it could be said that the flood peak discharge with a length of the river there is no correlation.

Results from the correlation graphs were not in accordance with data obtained from the simulation hydrograph. This could be as high or low values of flood peak discharge in a watershed is influenced by many factors of watershed characteristics that was occured simultaneously instead of just one characteristic factor.

Shape Analysis and Watershed Flood Hydrograph

The shape of the flood hydrograph of a watershed was influenced by some watershed properties. One of these properties was the shape of the watershed. Form of a watershed would affect the timing of peak discharge (Tp) and the volume of peak discharge (Qp)

Flood hydrograph of a watershed was influenced by watershed characteristics, one such characteristic was the shape of the watershed. Form of watershed was classified into three types, namely the form of bird feathers, a radial shape, and form parallel. A part form of watershed was a factor that also influenced flood hydrograph is the land use of the watershed. Watershed remains forested land would produce hydrographs that were different from most of the watershed land in the form of settlement. The following were the results of the classification of the shape and the resulting flood hydrograph with different *Curve Number*.

Table 6 Watershed and Flood Hydrograph Shape

Watershed shape	Qp (m³/s)			Tp (minutes)		
	CN 50	CN 70	CN 90	CN 50	CN 70	CN 90
Bird feather (Daieko)	1.06	16.068	61.46	460.470	220	150
Bird feather (Daieko 2)	1.03	15.999	60.55	500.510	230	150
Radial (Ladeke)	1.28	17.889	67.63	410.420	200	140
Radial (Ladeke 2)	1.22	17.448	66.19	430	200	140
Radial (Ladeke 3)	0.958	14.054	53.75	420.430	200	140
Radial (Ladeke 4)	1.12	16.752	63.39	480.490	220	150
Paralel (Raikore)	0.957	15.376	58.87	500.510	230	150
Paralel (Raikore 2)	0.93	15.139	57.94	490.500	230	150
Paralel (Raikore 3)	1.14	16.43	62.76	460.470	220	150

Table 6 showed that the watershed was relatively insensitive to change in land was a watershed in the form of bird feathers (lengthwise). Watershed with a form of bird feathers tended to have the flood peak discharge is much smaller than the shape of the radial and parallel watershed. Time of the flood peak is also relatively long because the elongated shape. While the watershed of the most sensitive to changes in land or to the watershed was watershed degradation with a radial shape (widened). This was shown from the values of flood peak discharge that it was always great on any changes in the land.

The flood peak was also relatively fast. Watershed with a form like this had a greater potential for flooding. Watersheds with a parallel form of relatively sensitive were to changes in land or watershed degradation. Flood peak discharge value was relatively large, although the timing of the flood peak was relatively longer than the watershed with a radial shape. Watershed with a parallel form also had a great potential for the occurrence of floods.

Results of analysis of flood peak discharge increased at each change of land in each watershed with different shapes showed that watershed experienced the smallest increase in flood peak discharge on any changes in land was the watershed that had a parallel form. Improving the highest flood peak discharge in each watershed land of changes was occured in the form of the radial.

CONCLUSION

1. Watershed Ladeke were most prone to disasters due to flooding than any other watershed flood peak discharge that was always high on every different CN.
2. Watershed shape of bird feathers (lengthwise) produced values of flood peak discharge relatively small with a time of flood peak was relatively long. Performing a broad basin with a river pattern of spread (radial) tended to generate higher flood peak discharge with a fast time. The shape of a parallel watershed tended to produce values of flood peak discharge relatively small with a time of flood peak was relatively long.
3. Watersheds with increased radial shape of flood peak discharge of the highest in the land and each change had a greater potential for flooding. Watershed with a parallel shape of flood peak discharge increased by the smallest one on any changes in the land.

REFERENCES

Kalinin, V.G. and Trufimov, N.A (2011). Esrimating the Nacessary Duration of Observation Period in Studying Water River Runoff. *Journal of Water Resources*, 38(2), p. 149-154

Oztekin, Tekin (2011) Estimation of the Parameters of Wakeby Distribution by a Numerical Least Squares Method and applying it to the Annual Peak Flows of Turkish River. *Journal of Resource Man*age, 25(12): p. 1299-1313

Hassanzadeh, Yousef; Abdi, Amin; Talatahari, Siamak; and Singh, Vijay P (2011) Meta-Heuristic Algorithms for Hydrologic Frequency Analysis. *Journal of Water Resource Manage*, 25: p. 1855-1879

Asdak, C. (2002) *Hidrologi dan Pengelolaan Daerah Aliran Sungai*. Cetakan kedua (revisi). Gadjah Mada University. Yogyakarta

Fowler, J. Dan L. Cohen (1993(*Practical Statistics for Field Biology. 3rd edition.* Jons Wiley and Sons. New York.

VOCATIONAL EDUCATION AND TRAINING (VET) IN HUMAN RESOURCE DEVELOPMENT: A CASE STUDY OF BANGLADESH

Md. Aktaruzzaman
Assistant Professor, Dept. of ITS
Islamic University of Technology (IUT), Dhaka
BANGLADESH
Email: akhtar.iut@gmail.com

Dr. Che Kum Clement
Associate Professor and Head, Dept. of ITS
Islamic University of Technology (IUT), Dhaka
BANGLADESH
Email: chekum@iut-dhaka.edu

ABSTRACT

Due to increasing globalization and liberalization in most of the countries across the world, realization of the challenges faced to make Vocational Education and Training (VET) system to be more need-based and effective, more dynamic and responsive to the changes taking place in the industrial scenario. The graduates coming out from VET institutions need to be more capable of excellent performance. Therefore, VET system must respond to the rapidly changing technological needs of the world of work by continuously evaluating and modifying curricula, introducing new courses, vocational teacher education, modernizing laboratories and workshops through close partnership between VET institution and the world of work. Therefore significant reform need to be made in the domain of better adapting vocational teacher education and well structured VET system and it has the direct impact to enhance competitiveness of skill workforce for the labor market, productivity and to promote entrepreneurial activity. This paper is an attempt to understand the VET system of Bangladesh in the context of labor market and to propose policy options that improve labor market outcomes and drive future economic growth.

INTRODUCTION

Despite the calamities that hit the country almost every year, Bangladesh's economic growth averaged 5.7% per annum form 2000 to 2006. Nevertheless, about half of the population lives below the national poverty line. Achieving accelerated poverty reduction and related Millennium Development Goal targets would require Bangladesh's economy to grow by 7% - 8% per annum. Significant investment is required to achieve this figure. Attracting investments will require upgrading the skills and competencies of human resources. The national poverty reduction strategy (NPRS) recognizes the potential contribution of VET in reducing poverty while supporting economic growth (GOB, 2006).

Bangladesh will need to create at least two and one-quarter million jobs per year to accommodate a near doubling of the labor force from its present size of 55 million to 100 million in 2020. Given a saturated agriculture sector, industry must create 16 million jobs by 2020 - a 5.5 percent annual increase. The largest portion of the new jobs needed over the next two decades will have to come from the service sectors including trade, construction, transportation and communication. This paper is intended to help policymakers by first providing a structural framework of VET in Bangladesh and the ways by which different VET courses have been used in education thus far. Second, it addresses financing of VET both by the government and private sectors along with their outcomes. The paper concludes with a discussion of six key issues and recommendations that policymakers in Bangladesh must reckon with when making decisions about the establishment of technology-based VETs throughout the country (Mahajan, 2006).

Structural Framework of VET in Bangladesh

Formal vocational education and training begins after Class VIII. The VET system is comprised of three levels of skills development below that of higher education degree, namely basic skills, certificate and diploma levels. The first level, basic skills, is a two year course focusing on manual

skills, which is offered both inside and outside of schools. Prospective students must have completed grade VIII.

Table 1. Training Capacities in Public and Accredited Private Institutions, 1998 and 2005

Level/Course	Number of Institution		Intake Capacity		Private Share	
	Public	Private	Public	Private	Institutions	Students
Vocational Education, 1998						
Basic Skill Level	64	3	23,500	1,500	4%	6%
Certificate Level…						
- SSC (Voc)	62	510	5,380	25,800	89%	83%
- HSC (BM)	-	220	-	8,800	100%	100%
- HSC (Voc)	51	-	1,520	-	0%	0%
Vocational Training, 1998						
Diploma Level	36	7	13,155	1,160	16%	8%
Total	213	520	43,555	28,460	71%	40%
Vocational Education, 2005						
Basic Skill Level	76	414	12,370	13,300	84%	52%
Certificate Level…						
- SSC (Voc)	110	1,303	23,570	63,450	92%	73%
- HSC (BM)	-	955	-	50,000	100%	100%
- HSC (Voc)	64	-	5,560	-	0%	0%
Vocational Training, 2005						
Diploma Level	54	143	15,020	13,230	73%	47%
Total	304	1,860	56,520	89,980	86%	61%

Source: (DTE, 2005)

At the certificate level, the two-year Secondary School Certificate, SSC (Voc), covers a similar set of skills and also requires grade VIII completion. Students may proceed beyond the SSC (Voc) to the Higher Secondary Certificate, HSC (Voc), requiring an additional two years of secondary schooling after grade 10. Business Management courses are also offered as a two-year Higher Secondary Certificate, HSC (BM), but as a distinct stream. At the post-secondary level, there are four-year diploma-level courses, which are offered through polytechnic institutions (such as the Textile Institutes). The basic skills and certificate level courses can be classified as vocational education, while the diploma level courses can be classified as vocational (post-secondary) training (Table 1).

In an attempt to increase the capacity of the system over recent years, the Government has facilitated a significant expansion of private sector places. Until 1990, private sector participation had been negligible. However, by the late 1990s, the private sector was supplying about 40 percent of total capacity, and by 2002, this proportion had gone up to over 60 percent (Abrahart and Alam, 2002).

This private sector growth has been driven by public financing, especially of vocational education. The Government has facilitated this increase by providing salary subventions, which meet 90 percent of salary costs for staff who teach SSC (Voc) and HSC (Voc) and HSC (BM) courses in private institutions. Private colleges offering diploma courses have also expanded but these colleges receive no subventions and must fully recover their costs to remain in business.

Although the VET sector provides numerous types of courses (Table 2), private providers tend to focus on less expensive ones. Typically, this means computer courses and language courses, which

require fewer fixed costs to begin operations at both the vocational education and vocational training level. This preference has also resulted in a focus by many private providers on HSC (BM) courses, which have ballooned from 200 selected institutions with less than a 9,000 student intake capacity (1998) to 955 institutions with an intake capacity of more than 50,000 students (2005). HSC (BM) courses do not provide management training, but emphasize straightforward commerce-related skills such as accounting, banking, basic computing and entrepreneurship (BBS, 2005).

Table 2. Courses of VET in Bangladesh, 2010

Diploma In Engineering: Vocational Training	SSC (Vocational): Vocational Education
- Architecture Technology	- Dress making and tailoring
- Civil Technology	- Audio-video system
- Power Technology	- General electrical works
- Mechanical Technology	- Computer application
- Electrical Technology	- Automotive and machinist
- Electronics Technology	- Refrigeration and air-conditioning
- Chemical Technology	- Machine tools operation
- Computer Technology	- Building maintenance
- Industrial wood Technology	- Civil construction
- Refrigerator and Air-conditioning Technology	- Plumbing and pipe fitting
- Automobile Technology	- Poultry rearing and farming
- Food Technology	- Farm machinery
- Glass and ceramic Technology	- General mechanics
- Graphic arts Technology	- Welding & Drafting
- Surveying Technology	- Wood working and cabinet design
	- Fish culture and breeding
HSC (Business Management): Vocational Education	
01. Accounting	**HSC (Vocational): Vocational Education**
02. Banking	- Welding and fabrication
03. Computer Operation	- Refrigeration and air-conditioning
04. Secretarial Sciences	- Electrical works and maintenance
05. Entrepreneurship	- Fish culture and breeding
	- Computer operations and maintenance
IT/ICT Training	- Automobiles
a. Introduction To Computer And Word Processing	- Electronic control and communication
b. Q-Basic Programming	- Agro-machinery
c. C Programming	- Machine tools operation
d. Computer Operation And Spread Sheet Analysis	- Clothing and garments finishing
e. Computer Operation And Data Base Using	- Building construction and maintenance
f. Database Programming	- Poultry rearing and farming
	- Wood working and cabinet design

Source: (BTEB, 2010)

In spite of this growth, enrollments remain well below the Government's stated policy goal of 20 percent of the share of all secondary students. VET, at all levels, is chosen by few students. Out of about eight million students enrolled in secondary schools, less than 250,000 are enrolled in vocational education - equivalent to three percent of total secondary school enrolment. For example, there are 28,000 places in diploma courses as compared to about 1.5 million enrolments in higher secondary schools and about 150,000 in tertiary degree level courses.

Non-government agencies also provide non-accredited training, though there are no estimates of the size and scope of their operations nationwide. Several NGOs and private providers provide basic skills and training to target groups such as youth, the underprivileged, and the rural population. However, while there are a few prominent organizations of this type providing training, most are very small in terms of enrolment and facilities and usually provide short-term training (ranging from 4 to 6 months duration) in income generating activities such as tailoring/sewing, embroidery for women and

electrical, welding, radio/TV, and carpentry for men. Many private trade schools and institutions are said to offer non-formal, non-standard short courses. Many are computer-related courses intended for technical and vocational students and university graduates; others provide short-term training in activities that are linked to the demand for skilled and semi-skilled workers in the Middle East (such as tailoring, welding, drafting, small machine repairing and driving) (Rafiq, 2003).

The Underprivileged Children's Education Program (UCEP), is considered to be extremely effective, and provides three types of training to some 25,000 students in 44 schools and centers across the country: general schooling with vocational training in 32 schools, technical training in 3 technical schools, and para-trade trainings in 9 para-trade training centers. UCEP's primary emphasis is on the provision of general education with vocational content for urban working and distressed children (ages: girls 10+, boys 11+) who have little to no opportunity for normal schooling, are engaged in hazardous jobs, are laboring an average 48 hours per week, and are earning less than US$ 5 per month. UCEP has successfully targeted dropouts from formal education. The main characteristics of UCEP's operations that lead to the success of its model include: flexible schooling hours, learning while working, emphasis on practical training (80%), on-the-job training, curriculum review in consultation with employers, trades as per market needs, and linkages with other technical schools, employers and the community. With an enrollment of about 20,000 in its education and training programs, UCEP is among the largest NGOs of its kind in Bangladesh (UCEP, 2000). MAWTS is an agency that provides training to economically disadvantaged parts of the population. It provides short-term, modular vocational training using mobile centers – often in basic skills. About 2,000 students are trained annually.

The primary responsibility for overseeing the VET system rests with two agencies: the Directorate of Technical Education (DTE) and the Bangladesh Technical Education Board (BTEB). DTE is responsible for setting the overall policy framework of the entire vocational education and training system. BTEB, a statutory agency, is responsible for maintaining the qualifications framework for VET: setting training standards (and relevance to the labor market), student assessment, certification of results, and accreditation of institutions. BTEB covers all accredited institutions, both government and non-government institutions.

However, the VET institutions are managed by a number of ministries. These include: (a) technical schools and colleges run by the Ministry of Education (MoE) – these form the vast majority of the entire system; (b) Technical Training Centers financed and managed by the Ministry of Labor and Manpower (MoLM); (c) the Ministry of Local Government; (d) the Ministry of Agriculture (MoA); (e) the Ministry of Forestry; (f) the Ministry of Textiles; and (g) the Ministry of Defence. A total of 11 ministries administer accredited VET programs. Additionally, a number of ministries offer training through non-accredited courses, such as the basic training in livestock, pisciculture, and poultry farming provided by the Ministry of Youth and Sports to youth under 30 years of age.

Financing VET

The Government is the major financier through its annual budget, which is allocated to a number of ministries. Government funds are used to finance public sector institutions and to provide subventions to private providers at the vocational education level. Students also contribute to VET financing by paying tuition and examination fees. However, student fees in public institutions are usually not substantial sources of institutional funding and are largely offset by the fact that students receive stipends and scholarships [Ali, 2005]. Though all private vocational training institutions are completely self-funded through fees, most private vocational education institutions rely heavily on the government subventions that finance 90 percent of teacher salaries, as happens in the general secondary school system. Industry also pays for training either by buying training for their employees from public or private providers or through financing on the-job training (Ahmed, 2005).

Government Financing

Although budgets are allocated to numerous ministries for VET, the largest recipient is the Ministry of Education (MoE). MoE receives a budget to operate public sector VET institutions managed by

DTE, as well as a budget for subventions to meet salary costs of private vocational education schools. MoE accrues roughly 70 percent of the total government budget allocated on VET. Other major recipients include the Bureau of Manpower, Employment and Training, and the Ministry of Agriculture (MoA). BMET is administered by the Ministry of Expatriate Welfare and Overseas Employment (MoEWOE). Ministry of Agriculture is responsible for colleges running diploma courses in agriculture (BMET, 2004).

A majority of public spending on VET (approximately 55 percent) is given to vocational training institutions, while vocational education institutions comprise the second largest spending category (28 percent). A significantly smaller proportion of funding is allocated to the Department of Technical Education and to the line item 'other technical institutes'. Technical Teachers Training Colleges, meanwhile, receive the smallest share of funds at about 3 percent of the total. This breakdown of spending by type of institution is depicted in Figure 1.
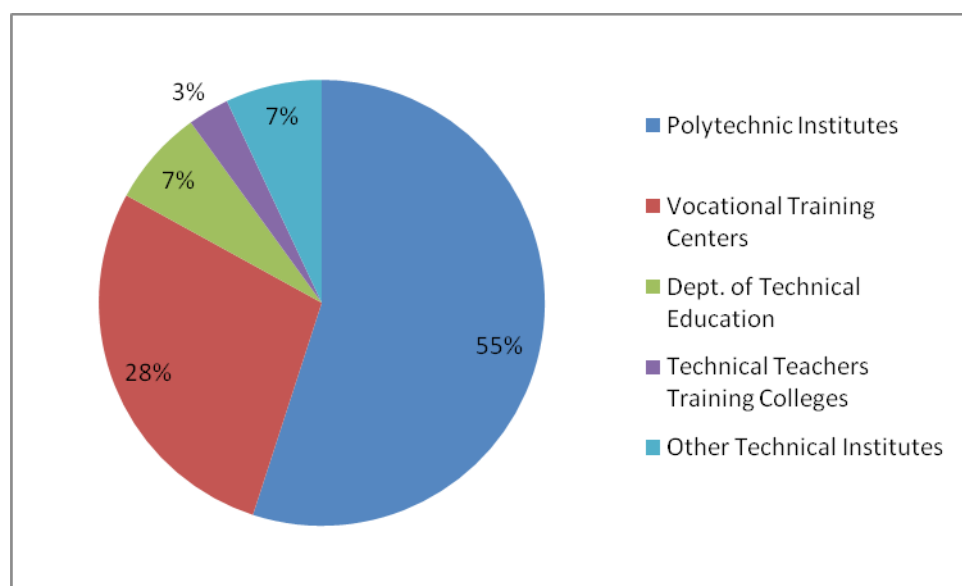
Figure 1. Proportions of budget allocated to institutions, by type
Source: Ministry of Finance, Demands for Grants and Applications, 1998-2005 (GOB, 2005)

Private Finance

Private institutions are able to raise revenue through tuition fees, the production and sale of goods, and by providing training services. The revenue is earned in addition to government support for salaries and officer pay. Private vocational education institutions, as with all accredited non-governmental schools, receive government subventions, which cover 90 percent of staff salaries.

A recently conducted institutional survey highlights the difference in source of funding between different types of institutions. The survey covered 357 accredited vocational education and vocational training institutions. Close to 70 percent of revenues for government institutions are from government grants. Public vocational training institutions raise about 20 percent of their resources through fees (Table 3).

Government subventions constitute the majority of income for private vocational education institutions. Close to 55 percent of income is through government grants while tuition fees constitute less than 17 percent of total income.

On the other hand, private vocational training institutions raise most of their revenues from fees. There are large differences between the fees charged in private and public vocational training institutions, primarily because private training institutions do not receive government subsidies.

Hence close to 80 percent of revenue of private institutions are generated through fees, as compared to 20 percent in the case of public institutions. For example, the highest charging institution, Bangladesh Institute of Fashion Technology (BIFT), is completely self-funding through fees. BIFT charges at least Tk 85,000 for a one-year training course. Shorter courses seem to average about Tk 5,000 a week (BIFT, 2000).

Table 3. Composition of sources of funding by public vs. private and type of course

Source of Financing		Government			Private		
		Vocational Education	Vocational Training	Total	Vocational Education	Vocational Training	Total
Government grants	Amount	805.1	953.3	824.9	755.8	-	743.2
	Share (%)	75.2	69.0	75.0	54.6	0.0	51.0
Tuition and other fees	Amount	52.8	277.7	80.6	200.2	1,428.1	278.3
	Share (%)	4.9	20.1	7.3	14.5	76.8	19.1
Sale of products	Amount	33.7	82.9	39.5	101.4	14.5	99.2
	Share (%)	3.2	6.0	3.6	7.3	0.8	6.8
Income from training	Amount	52.3	-	52.3	127.0	120.8	133.7
	Share (%)	4.9	-	4.8	9.2	6.5	9.2
Others	Amount	126.5	68.1	103.2	198.9	295.8	202.0
	Share (%)	11.8	4.9	9.4	14.4	15.9	13.9
Total	Amount	1,070.5	1,382.0	1,100	1,383.3	1,859.2	1,456

Source: (World Bank assessment report, 2006)

Neither private nor public institutions raise a significant share of resources from the sale of goods and services, such as the provision of training to the private sector. This is a discouraging sign – particularly for the private sector institutions, which might be expected to be more attuned to the needs of the market.

Outcomes of the VET System

The outcome of the VET system is its graduates. While the number of students who have appeared in examinations for the SSC (Voc) has increased at a dramatic rate, the pass rates have declined sharply.

Table 4. SSC (Voc) Examination Results

	No. Appeared in the Board Exam			No. Passed		
Year	Boys	Girls	All	Boys	Girls	All
1997	NA	NA	1,586	NA	NA	998
1998	NA	NA	5,276	NA	NA	1,954
1999	6,438	2,165	8,603	NA	NA	5,860
2000	10,683	3,877	14,560	6,585	2,420	9,005
2001	14,241	5,814	20,055	7,449	4,014	11,463
2002	17,189	8,401	25,590	7,670	3,450	11,120
2003	21,460	10,168	31,628	8,703	3,606	12,309
2004	21,613	9,893	31,506	11,345	4,754	16,099

Source: (Guardian, 2005)

In the five years from 1999 to 2004, while the number of examinees increased almost four-fold; pass rates in standardized examinations has declined. The downward trend in the pass rate for SSC (Voc) may be due to tighter examination controls designed to address cheating but a significant factor may also be the poor quality of instruction especially those have sprung up recently in large numbers (Table 4).

The number of students who have appeared in examinations for the HSC (BM) certificate have increased in recent years, although pass rates have also climbed (Table 5). The increasing pass rate should, however, be interpreted with caution. HSC (BM) institutions have financial incentives to increase their pass rates artificially because the final assessment of those institutions depends heavily upon internal assessments undertaken by the institutes. For this reason, the dramatic increase in the pass rate in the past two years does not necessarily represent enhanced quality of education.

Table 5. HSC (BM) Examination Results

	Appeared in the Board Exam			Number of Students Passed			Pass Rate		
	Boys	Girls	All	Boys	Girls	All	Boys	Girls	All
2002	9,873	3,786	13,659	4,373	1,653	6,026	44.3	43.7	44.1
2003	13,141	5,083	18,224	8,373	3,192	11,565	63.7	62.8	63.5
2004	15,046	5,297	20,343	10,209	3,683	13,892	67.9	69.5	68.3

Source: (Guardian, 2005)

ISSUES AND RECOMMENDATIONS

- The lack of linkage between the VET institutions and industry is a big issue and the main reason of low employment rate of VET graduates which is the biggest concern for its existence (Figure 2). From the labor demand perspective, employers expressed concern about the quality of graduates. They perceived that the system is continuing to produce graduates for old and marginal trades, which have no market demand, while newer trades with substantial skilled labor needs are left unmet. Employers were also not content with available VET training facilities including machinery, equipment and trainers. They suggested that the government be more proactive in involving them in the management of the system to ensure that VET was responsive to their needs. They also felt that students lacked general business and management skills as a result of which most graduates fail to get promoted. This has a ripple effect in terms of discouraging better students from entering the VET system. So lack of linkage with the labor market is the key reason for these poor outcomes. These gaps between VET institutions and the industry should be bridged as soon as possible to overcome the situation.
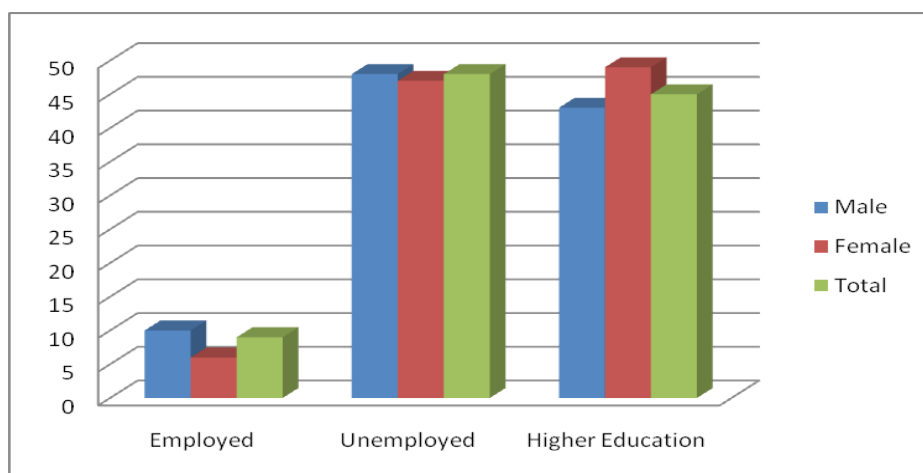
Figure 2: Outcomes for graduates for VET institutions
Source: (World Bank assessment report, 2006)

- The bureaucratic complexities and inadequate coordination of different ministries and BTEB and DTE are affecting the VET system w.r.t management aspects. In the medium term, an autonomous Board of Vocational Education and Training (BVET) should be established, constituted by public and private sector interests and by industry interests. To respond effectively to skill needs of the economy, these authorities should be set up as an autonomous agency, independent of line ministries. It should play a key role in the coordination of the overall training

system, in financing training, curriculum development, supervising skills testing, certification and accreditation, and provision of information on the quality and effectiveness of institutions. Critical to the success of this body will be the role of employers – unless employers are given a sufficient role in the decision making process, training may not be adjusted sufficiently to meet the needs of employers. Hence, most functions of the DTE and BTEB would be subsumed by the autonomous Board, while the Ministry of Education (MoE) should retain a unit to oversight the activities of the Board.

- The lack of international recognition of the VET institutions may be a problematic issue. Allowing institutions to seek accreditation from internationally recognized accreditation agencies will allow their qualifications to be recognized internationally. An option that has been introduced successfully in many developing countries is to allow training institutions to pay fees and seek certification and accreditation from internationally recognized agencies – e.g. City and Guilds of the U.K., Singapore's Workforce Development Agency, and Australia's National Training Authority. Reducing the workload will allow BTEB to perform its functions more effectively, while allowing institutions flexibility in the choice of certification providers. Institutions who aim to get accredited by these international agencies will also need to ensure that the quality of training they are providing meets international standards. The ultimate beneficiaries will be students and employers – as the quality of institutions (and graduating students) will improve and they will have better information about the quality of training provided by institutions. This will also be extremely beneficial to migrating workers. Skilled Bangladeshi workers will find it much easier to find employment in other countries if their degrees are accredited by internationally recognized institutions. This will likely reverse the trend of workers migrating abroad being unable to find high-quality jobs because of low skill levels.

- Low capacity utilization of the existing VET system is a problem also. A recently conducted survey of over 300 public and private VET institutions shows that in both vocational education as well as vocational training, close to half the student capacity is unutilized. These numbers do not vary significantly between public or private institutions for vocational education, though in the case of vocational training, public institutions have a higher proportion of capacity utilized (Table 6).

Table 6. Capacity Utilization in the VET System

	Vocational Education			Vocational Training		
	Public	**Private**	**Total**	**Public**	**Private**	**Total**
No. of Institutes	48	252	300	9	17	26
Total Student Capacity	20,416	38,146	58,562	7,020	3,800	10,820
Total Registered Students	9,617	17,990	27,607	4,451	1,991	6,442
% Unutilized	52.9	52.8	52.9	36.6	47.6	40.5

Source: World Bank assessment report, 2006 [14]

- Raising fund both from the government and private sector is the key in order to maintain sustainable development and growth of VET system. In the medium-term, it may be possible to consider one specific administrative means of managing finances—the creation of a National Training Fund. In the Bangladesh context, such a fund would be managed by BVET, which would administer the budgets for public institutions and subventions to non-public institutions. However, setting up such a fund would require a significant capacity building within BVET to administer the fund. However, such a fund will not be feasible if employers are not willing to contribute and if resources are not earmarked for training demanded by employers.

   It will be important to ensure that the fund supports private sector initiatives, such as the Chittagong Skills Development Center (CSDC). If the fund is well-designed, initiatives such as the CSDC could benefit – as one of the windows of the fund could be used to support these initiatives. However, such a fund will not be viable if employers perceive that the fund is not

being used to finance demand-driven training initiatives (CSDC, 2005). Finally, no matter how resources are allocated, a key element should be competition for funds. Competition for funds, between public and private providers, is key to ensure improved institutional performance. Funding needs to be linked to some measures of input or output criteria, and recognized public and private providers should be allowed to compete for these resources. International evidence is by and large positive in this regard – competition for resources leads to lower costs for training while also leading to positive outcomes.

- Negligence in encouraging the NGO's to play a major role in VET system. Expanding the role of non-government training providers is likely to be more effective in providing the training needed in the informal sector. Bangladeshi NGO's, many of them already active in training in the informal sector (e.g. UCEP), should be encouraged to expand this role. They should also expand the range of services they provide to the informal sector to include not only training, but a package of services, including information on how to run a business, technology, new production processes, quality control techniques, and marketing. NGOs can provide more effective services if the government plays a facilitating role and create an enabling environment to support such providers through: establishing a policy framework and stimulating investment through tax incentives or financial support to training providers to increase training capacity and quality.

CONCLUSION

The dynamics of a modernizing economy warrant that particular attention should be paid to skill development to ensure that Bangladesh can continue to tap into sources of growth in a global economy. The main source of its income is the remittance which is sent by the Bangladeshi nationals working abroad. As the global labor market is becoming competitive day by day, there is no other alternative for us to sustain and strengthen the largest sector of our income other than modernizing the VET system. It may prove useful in converting the large unskilled population into human power capable of working both at home and abroad. However, the main challenge for the skill development system is to overcome its inadequate orientation to the labor market. Formal providers of technical and vocational education and training do not have strong linkages with the private sector employers that drive the changing patterns of labor demand, nor do they have proper incentives to build those connections, which would ensure that skill development courses are relevant and useful to both graduates and employers. Appropriate policies and programs for the labor market are important drivers of economic growth and a more equitable income distribution. Establishing a separate directorate for VET may play a catalytic role in this regard.

REFERENCES

Abrahart, Alan and Alam, Mahboob (2002) *Final Report, Technical and Vocational Education, Bangladesh*,   December 2002.

Ahmed, Shaikh S. (2005) "*Delivery Mechanism of Cash Transfer Programs to the Poor in Bangladesh.*" Social   Protection Discussion Paper Series, No. 0520, World Bank, 2005.

Ali, Md. Idris (2005). *Review Study Guide: Review on the Evaluation of Vocational Education Program*,   Directorate of Technical Education (DTE), Ministry of Education, March 2005.

Bangladesh Bureau of Statistics (BBS) (2005). Annual Establishments and Institution Survey, Government of   Bangladesh, Dhaka.

Bangladesh Institute of Fashion Technology (BIFT) (2000). *Prospectus*.

Bangladesh Technical Education Board (BTEB). (2010) Ministry of Education, GOB, Dhaka.

Bureau of Manpower, Employment and Training (BMET) (2004). Government of Bangladesh, *Skill Training Activities of BMET*, October 2004.

Chittagong Skils Development Center (CSDC) (2005). *Final Report, Establishment of the Chittagong Development Centre*, May 2005.

Directorate of Technical Education (DTE) (2005). Ministry of Education, Government of Bangladesh, *Annual Report 2004.*

Government of Bangladesh (2005). *Demands for Grants and Appropriations,* Ministry of Finance, Dhaka.

Government of Bangladesh (2006). *Unlocking the Potential. National Strategy for Accelerated Poverty Reduction. (NRSP Document).*

Mahajan, S. (2006). *Bangladesh: Strategy for Growth and Employment.* A World Bank Report.

Rafiq, Abdur (2003). Bangladesh Technical Education Board (BTEB), *The Evaluation of Polytechnic Education Program For Working Out Technical Education Development Priorities*, 2002-03

The Guardian, August 2005, Dhaka.

Under-Privileged Children Education Program (UCEP) (2000). *Creating Miracles for the Working Children*, Mirpur, Dhaka, Bangladesh.

World Bank (WB) (2006). *The Bangladesh Vocational Education and Training System: An Assessment*, Human Development Unit South Asia Region, Document of the World Bank, June 2006.

AWARENESS ABOUT WAYS OF HEPATITIS TRANSMISSION AMONG PEOPLE OF FAISALABAD, PAKISTAN

Khalid Hussain Janbaz
Department of Pharmacy,
B. Z. University, Multan,
PAKISTAN
khjanbaz@hotmail.com

M. Imran Qadir
College of Pharmacy,
G.C. University, Faisalabad,
PAKISTAN
mrimranqadir@hotmail.com

ABSTRACT

Hepatitis is inflammation of the liver caused by different viruses. Objective of the present study was to investigate the extent of knowledge of the people of Faisalabad, Pakistan about the ways of transmission of Hepatitis. A questionnaire was developed and given to 1000 individuals from the different area of Faisalabad, Pakistan to participate in the study but 696 answered the questionnaire. Less number of people of District Faisalabad, Pakistan were aware about the ways of transmission of Hepatitis except the way through sharing of unsterilised instruments (86.78%).

Keywords: Hepatitis, knowledge of people, transmission, prevention

INTRODUCTION

Hepatitis is inflammation of the liver caused by different viruses. Hepatitis may be transferred from one person to another by following ways:

Hepatitis A (HAV), Hepatitis E (HEV) and possibly Hepatitis F (HFV)

Are transmitted by enteric, that is digestive or by fecal routes. The infected person passes the virus to another person who ingests a small amount of infected material. Poor hygiene and poor sanitary conditions in some countries lead to high rates of infection. Some areas of the world are particularly prone to hepatitis E virus e.g. India, South America, Bangladesh, and Central America. One third of people in the United States of America have been exposed to the hepatitis A virus (Bar-Yishay et al., 2011).

Hepatitis B (HBV), Hepatitis D (HDV), Hepatitis C (HCV), Hepatitis G (HGV) and TTV

These types of hepatitis are transmitted by the parental route, parental meaning viruses introduced by all other routes except through the intestinal tract.

Transmission of Hepatitis B

Hepatitis B is transmitted through contaminated blood, sweat, tears, saliva, semen, saliva, vaginal secretions, menstrual blood and breast milk. This can occur when using the same syringe as an infected person, from blood transfusions prior to 1975 (now screened in most countries), having tattoos or body piercing, from mother to child during childbirth, during medical procedures, occupational exposure, during sexual intercourse. Having Hepatitis B does not necessarily mean that he or she is infectious to other people, only some people with HBV are contagious (Farías et al., 2010; Bourlet et al., 2002; Eugenia et al., 2001).

Transmission of Hepatitis C

Hepatitis C is transmitted primarily blood to blood contact; a person is infected by hepatitis C gets that persons blood into their blood stream. Therefore as with hepatitis B, blood transfusions (prior to 1990 in this case), tattooing and body piercing, occupational exposure, medical procedures, intravenous drug use. Sexual contact, anal, oral or genital, has been shown to be an inefficient route of exposure, as is mother-to-child in childbirth (Kuan et al., 1997; Caldwell et al., 1996).

Transmission of hepatitis D

Hepatitis D is transmitted in the same way as hepatitis B. Hepatitis D can only exist with the hepatitis B virus and can be caught either at the same time as HBV (coinfection) this type is known to clear the body well (90% to 95%). Others get the HDV separately when they are already infected by HBV, (superinfection), here 70% to 95% go on to have the more serious chronic form of HDV.

Transmission of Hepatitis G

Hepatitis G is thought to be transmitted in a similar way to HCV.

Transmission of Transfusion Transmitted Virus (TTV)

Transfusion Transmitted Virus (TTV) has only been associated with hepatitis in people who have had a blood transfusion.

Hepatitis B and C are the most common Hepatitis causing viruses in Pakistan (Ali et al., 2011). So their transmission may be given shortly as a table (table 1).

Table 1. Ways of Hepatitis B and C transmission

Sr.#	Ways of Hepatitis transmission?	Definitely	Rarely
1	Unprotected sex	Hepatitis B	Hepatitis C
2	Mother to child during feeding and birth	Hepatitis B	Hepatitis C
3	Sharing unsterilised instruments/injections	Hepatitis B, Hepatitis C	-
4	Transfusion of contaminated blood	Hepatitis B, Hepatitis C	-

OBJECTIVES

Prevention is always better than treatment. The complementary strategy to prevent from Hepatitis infection, is the knowledge of people about its transmission. Objective of the present study was to investigate the extent of knowledge of the student about the ways of transmission of Hepatitis.

METHODOLOGY

A questionnaire was developed that was reviewed by M.I. Qadir, Assistant Professor, College of Pharmacy, GC University, Pakistan. The study was conducted from November 2008 to February 2010. A total of 1000 people from different areas of Faisalabad, Pakistan were invited to participate in the study. Only those people were included in the study who were greater than 18 year. Faisalabad is the third largest city of Pakistan and is known for its textile industry, in fact known as the Manchester of Pakistan. Faisalabad district had a population of about 5.4 million.

RESUTLS

Among a total of 1000 individuals, only 696 (435, 62.5% female and 261,37.5% males) answered the questionnaire and the remaining 304 did not responded. Knowledge of the people of Faisalabad about Hepatitis is given in table 2. Knowledge of the people of Faisalabad about causing agent of Hepatitis is given in table 3. Knowledge of the people of Faisalabad about types of Hepatitis is given in table 4. Knowledge of the people of Faisalabad about ways of transmission of Hepatitis is given in table 5.

Table 2. Knowledge of the people about Hepatitis (% of Respondents)

Sr.#	What is hepatitis?	Male	Female	Total
1	Liver disease	16.66	25.57	42.23
2	Viral disease	1.72	0.57	2.29
3	Liver + Viral disease	0.57	0.86	1.43
4	No information	18.10	31.90	50.0
5	Wrong information	0.45	3.57	4.02

Table 3. Knowledge of the people about causing agent of Hepatitis (% of Respondents)

Sr.#	Causing agent of hepatitis?	Male	Female	Total
1	Virus	10.34	18.82	29.16
2	No information	7.47	10.92	18.39
3	Wrong information	19.69	32.76	52.45

Table 4. Knowledge of the people about types of Hepatitis (% of Respondents)

Sr.#	Types of hepatitis?	Male	Female	Total
1	A	8.33	57.76	66.09
2	B	9.77	59.20	68.97
3	C	27.58	40.51	68.09
4	D	4.02	14.37	18.39
5	E	2.30	9.77	12.07
6	F	1.44	5.75	7.19
7	No information	10.34	20.11	30.45
8	Wrong information	0.29	0	0.29

Table 5. Knowledge of the people about ways of transmission of Hepatitis (% of Respondents)

Sr.#	Ways of Hepatitis transmission?	Male	Female	Total
1	Unprotected sex	9.77	14.37	24.14
2	Mother to child during feeding and birth	21.84	49.71	71.55
3	Sharing unsterilised instruments/injections	27.58	59.20	86.78
4	Transfusion of contaminated blood	10.34	20.11	30.45
5	Wrong answers	2.30	1.15	3.45
6	Did not answer the question	1.44	9.77	11.21

DISCUSSION

Hepatitis viral infections are serious global health problems. Shaving by barbers has been identified as the key risk factor for spread of HBV. Jokhio et al., (2010) conducted a cross-sectional survey of barbers in Hyderabad city, Pakistan in 2007 to establish their knowledge and attitudes to the risk of HBV and HCV transmission and their working patterns. Observations showed that 96.2% washed razors with antiseptic after each client and 95.7% used a new blade with new clients. However, knowledge about the diseases and modes of transmission were poor and only 36.6% knew that hepatitis can be transmitted via shaving instruments.

Less people of Faisalabad, Pakistan were aware about the ways of transmission of Hepatitis except the way through sharing of unsterilised instruments (86.78%). There should develop a strategy to increase the knowledge of people of Faisalabad, Pakistan about the ways of transmission of Hepatitis as they may be prevented only if they know. Some sugested strategies include to conduct conferences, workshops and training course and also develop camps in the rural areas to give knowdge to the people about Hepatitis.

REFERENCES

Ali et al., (2011). An overview of treatment response rates to various anti-viral drugs in Pakistani Hepatitis B Virus infected patients. *Virol J.* 15;8:20.

Bar-Yishay et al., (2011). Hepatocyte metabolic signalling pathways and regulation of hepatitis B virus expression. *Liver Int.* 31(3):282-90.

Bourlet et al., (2002). Detection of GB virus C/hepatitis G virus in semen and saliva of HIV type-1 infected men. *Clin Microbiol Infect.* 8(6):352-7.

Caldwell et al., (1996). Hepatitis C virus in body fluids after liver transplantation. *Liver Transpl Surg.* 2(2):124-9.

Eugenia et al., (2001). Investigation of saliva, faeces, urine or semen samples for the presence of GBV-C RNA. *Eur J Epidemiol.* 17(3):271-4.

Farías et al., (2010). Detection of hepatitis C virus (HCV) in body fluids from HCV monoinfected and HCV/HIV coinfected patients. *Hepatogastroent.* 57(98):300-4.

Jokhio et al., (2010). Knowledge, attitudes and practices of barbers about hepatitis B and C transmission in Hyderabad, Pakistan. ***East Mediterr Health J.*** 16(10):1079-84.

Kuan et al., (1997). Viral RNA in duodenal bile of cirrhotic patients with chronic hepatitis C. *Arch Pathol Lab Med.* 121(8):847-52.

THE EFFECT OF EMOTIONS ON ELECTROCARDIOGRAM

Hari Singh Dhillon
Assistant Professor (ECE),
DAV Institute of Engineering
and Technology, Jalandhar
INDIA
harisdhillon@gmail.com

Navleen Singh Rekhi
Assistant Professor (ICE)
Dr. B R A National Institute
of Technology, Jalandhar
INDIA
navleenr@yahoo.com

ABSTRACT

This paper reports the effect of emotions on human electrocardiogram (ECG). The overall goal was to study changes in ECG while the subject is in emotional state. The subjects were provided with some questions which can induce a particular emotional state and measured the subject's ECG with BIOPAC system. Then the ECG signal was analysed with the help of BIOPAC AcqKnowledge software. The Power Spectral Density (PSD) and Standard Deviation (SD) were calculated for the ECG signal under normal condition and during emotional state. The results obtained are encouraging. The assessment of the data suggests that ECG can be used to study emotional states of a person.

Keywords: ECG, emotions, BIOPAC, Power Spectral Density (PSD), Standard Deviation (SD)

INTRODUCTION

Many studies in the field of psychology indicate that the body functions, including: blood pressure, ECG and respiration rate are controlled by Autonomic Nervous System (ANS). This part of nervous system cannot be controlled artificially, but is influenced by the mental states of an individual. Therefore, it was presumed that the changes in mental states would be reflected to the changes in electrocardiogram. Figure 1 shows the whole process of the study of ECG w.r.t. to emotions.
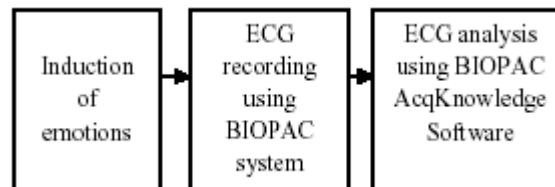

Figure 1. Emotion induction, ECG recording and ECG analysis

Emotions are related to motivation in that they lend strength or intensity to an action. There are two aspects of emotions: (1) inner emotions, such as the feelings of fear, love, anger, joy, anxiety, hope, and so on, those are entirely within a person, and (2) the outward expressions and displays of emotional behavior. Emotional behavior includes such complex behaviors as attack and such simple actions as laughing, sweating, crying, or blushing. Emotional behavior is achieved by integrated activity of autonomic and somatic efferent systems and provides an outward sign that an emotion has occurred.

The two aspects of emotion are served by different parts of the brain, and these aspects can occur independently in certain diseases and in experimental situations. Inner emotions involve the cerebral cortex and various areas of limbic system – the hypothalamus – and the brain stem. Emotional behavior, unlike inner emotions, can be studied reasonably well because it includes responses of the autonomic, endocrine, and motor systems that are easily measured.

Stimulation of limbic structures other than the hypothalamus causes a wide variety of complex emotional behaviors that receive their final coordination by the hypothalamus. For example, stimulation of one area of the limbic system caused an animal to approach the researcher as though expecting a reward, whereas stimulation of a second area caused the animal to stop the behavior it was performing, as though fearing punishment. Stimulation of third region caused the animal to arch its back, puff out its tail, hiss, snarl, bare its claws and teeth, flatten its ears, and strike. Simultaneously, its heart rate, blood pressure, respiration, salivation, and concentrations of plasma epinephrine and fatty acids all increased.

In order to observe the changes in electrocardiogram rate w.r.t. changes in cognitive states, the subjects were provided with some questions/problems which can induce a particular emotional state. During this process of questioning, their ECG was recorded using BIOPAC system.

SIGNAL ACQUISITION

Lead II ECG was recorded using electrocardiogram amplifier module (ECG 100C) in BIOPAC. ECG 100C is a single channel, high gain, differential input, biopotential amplifier designed specifically for monitoring the heart's electrical activity. It has built in derive capability for use with shielded electrode leads. It is designed to pass the ECG signal (P,Q,R,S,T) with minimal distortion.

The best choice of electrodes depends on the application, but typically the EL500 series of adhesive/disposable snap electrodes are used in conjunction with LEAD 110S pinch lead. In our study Ag – AgCl disposable lead electrodes were used.

Three electrodes are used to record Lead II ECG signal. Two active electrodes are affixed on right arm (RA) and left leg (LL). Reference electrode is applied on right leg (RL) of the subject. The electrodes are connected to the ECG amplifier (ECG 100C) using three leads.

The ECG 100C includes a high pass filter that is used to stabilize the ECG base line. When the HP switch is set to 1.0 Hz, P and T wave amplitudes will be reduced somewhat, but the QRS wave will be virtually unchanged. The HP switch is usually ON when using the ECG 100C for rate measurement only or when monitoring the ECG of an active subject. Modules are factory preset for 50 Hz or 60 Hz notch options to match the wall power line frequency of the destination country.

The following settings of the ECG 100C are used to record ECG II of the subject: Gain: 1000, Output selection: Normal, Low pass filter: 35Hz, High pass filter: 0.5 Hz

Figure 2. ECG recording using BIOPAC system

Data of each subject was recorded for 15 minutes. The subject is assumed to be at rest state for first 7 minutes. After that the subject was provided with an aptitude problem shown on multimedia projector. Since emotional state is defined as the state when emotional aspects are dominating in the mental

activities. Also, surprise, confusion and embarrassment are supposed to be major factors evoking the state of emotions. Therefore, the subject was asked to solve an aptitude problem to produce this state.
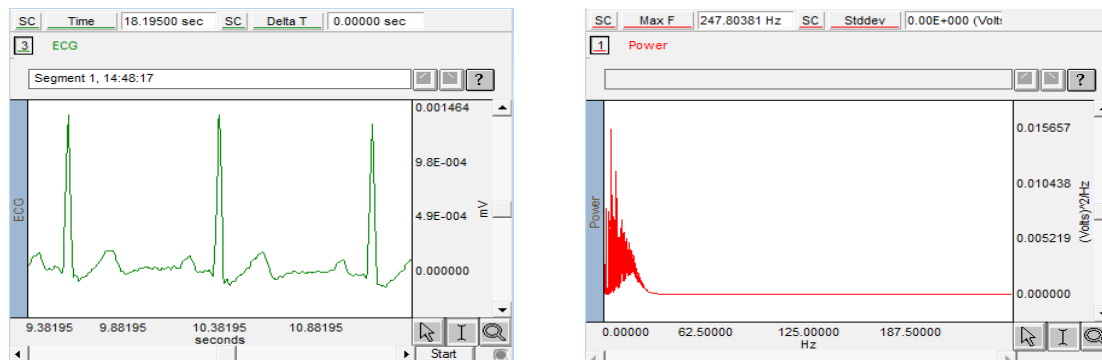

Figure 3. Recorded ECG signal and its Power Spectral Density (PSD)

SIGNAL ANALYSIS

In most of the cases, analysis is performed after the data has been collected. This involves creating, managing and saving files, as well as editing data, performing mathematical transformations and displaying data in various ways.

The laboratory experiments have been performed in which 22 subjects were involved. They were male and female student majority of post graduate students. The ECG was recorded when they were exercising the required tasks as described above. The signal analysis has been performed with help of BIOPAC AcqKnowlwdge software. The ECG recorded and its Power Spectral Density (PSD) is shown in figure 3.

RESULTS AND DISCUSSION

In this experimental work, we analyzed the relationship between emotions and the autonomic nervous system through ECG. From the Standard Deviations (SD) calculated for PSD signals, during rest state and emotional state of the subject, it has been observed that the SD increases when the subject's mental state changes from the rest state to emotional state. This result is found in case of 90.93% subjects. The results obtained are quite satisfactory.

Many factors determine the performance of this study. These factors include the measurement of ECG, the signal analysis methods that extract signal features and other environmental factors. ECG measurement is affected by high contact impedance due to sweating. To reduce this impedance jelly is used. The measurements also depend on whether the subject is sitting or lying on the bed. In this work all measurements were performed while the subject was lying on the bed.

REFERENCES

[1]   Koichi Iwanga, Sosuke Saito, Yoshikawa Shimomura, Hajime Harada, and Tesuo Katsuura, "*The Effect of Mental Loads on Muscle Tension, Blood Pressure and Blink Rate*", Journal of Physiological Anthropology and Applied Human Science, Vol. 19, No. 3, pp: 135 – 141, 2000.

[2]   ChungK Lee, SK Yoo, YoonJ Park, NamHyun Kim, KeeSam Jeong, and Byung Chae Lee, "*Using Neural Network to Recognize Human Emotions from Heart Rate Variability and Skin Resistance*", Proceedings of the IEEE Engineering in Medicine and Biology 27th Annual Conference, Shanghai, China, pp: 5523-5525, September 1-4, 2005.

[3]   Mary Court, Jennifer Pittman, Christos Alexopoulos, David Goldsman, Seong-Hee Kim, Margaret Loper, Amy Pritchett, and Jorge Haddock, "*A framework for Simulating Human Cognitive Behavior and*

Movement When Predicting Impacts of Catastrophic Events", Proceedings of the Winter Simulation Conference, pp: 830-838, 2004.

[4]   Makoto Takahashi, Osamu Kubo, Masashi Kitamura, and Hidekazu Yoshikawa, "*Neural Network for Human Cognitive State Estimation*", Intelligent Robots and Systems, Advanced Robotic Systems and Real World, IROS, Proceedings of the IEEE Conference on VOL 3, pp: 2176 – 2183, 12-16 Sept 1994.

[5]   Naoki Saiwaki, Hiroyuki Togashi, Hiroaki Tsujimoto, and Shogo Nishida, "*An Adaptive Intrface Based on Physiological Indices*", System, Man and Cybernetics, IEEE Conference, Vol. 04, pp: 2793 – 2798, 14 – 17 Oct, 1996.

[6]   Joseph J Carr, and John M Brown, "*Introduction to Biomedical Equipment Technology*", Fourth Edition, Pearson Education, Reprint 2004.

[7]   John G Webster, "*Medical Instrumentation (Application and Design)*", Third Edition, Wiley India Edition, Reprint 2007.

[8]   Leslie Cromwell, Fred J Weibell, and Erich A Pfeiffer, "*Biomedical Instrumentation and Measurements*", Second Edition, Pearson Education, Reprint 2005.

[9]   Arthur J Vander, James H. Sharman, and Dorothy S Luciano, "*Human Physiology*", McGraw-Hill Sixth International Edition.

EVALUATING THE EFFECT OF STEMMING IN CLUSTERING OF ARABIC DOCUMENTS

Omaia M. Al-Omari
Department of Computer Science
University of Hail
KINGDOM OF SAUDI ARABIA
omaiaomari@yahoo.com

ABSTRACT

In text mining, the concept of clustering is common and important to retrieve and categorize documents. Clustering techniques divers and many of them are applied on different languages but not on Arabic. K-means algorithm is a widely used clustering technique that seeks to minimize the average squared distance between points in the same cluster. This paper aimed to implement and evaluate the K-means algorithm on clustering of Arabic documents and estimate the effect of stemming on such clustering algorithm. The experimented work showed that the accuracy of clustering Arabic documents using the K-means algorithm varies from low to very good. The best achieved result was 69% of successful documents without stemming. Furthermore, the effect of stemming resulted in decreasing the accuracy of retrieving documents because the stemming is an abstract of a word which leads to miss-discriminating of documents. The best result scored with stemming was 55% of successful documents, when applying the same thresholds.

Keywords: clustering Arabic documents, Stemming, K-means.

INTRODUCTION

The amount of electronic text available such as electronic publications, electronic books, news articles, and web pages is increasing rapidly. As the volume of online text information increases, the challenge of extracting relevant knowledge increases as well. The need for tools that help people find, filter, and manage these resources has grown. Thus, automatic organization of text document collections has become an important research issue. A number of machine learning techniques have been proposed to enhance automatic organization of text data. These techniques can be grouped in two main categories as supervised (document classification) and unsupervised (document clustering) (Laskov et al., 2005).

Text mining is the process of deriving interesting information from text (Ikonomakis et al., 2005), usually involves the process of structuring the input text, deriving patterns within the structured data, and finally evaluating and interpreting of the output. Typical text mining tasks include text categorization, text clustering, production of granular taxonomies, document summarization, and entity relation modeling (Cohen, and Hunter, 2008).

According to (Kassab and Lamirel, 2008), clustering is the partitioning of a data set into subsets, or groups similar documents according to dominant features (Tan, 1999) in text mining and information retrieval, a weighted feature vector is frequently used to describe a document. This feature vector contains a list of the main themes or keywords along with a numeric weight indicating the relative importance of the theme or term to the document as a whole (ElWakil, 2002). Unlike data mining

applications which use a fixed set of features for all analyzed items (e.g. age, income, gender, etc.), documents are described with a small number of terms or themes chosen from potentially thousands of possible dimensions.

Clustering methods, such as K-means and hierarchical clustering tend to assume that an object belongs to a particular cluster only if it is closer to at least some object in that cluster than to another object in other clusters; an approach based on how many nearest neighbours a document shares used is described in (Jarvis and Patrick, 1973). For documents, this is somewhat indirect measure of similarity turns out to be more accurate than a direct similarity measure based, like on the cosine measure. More recently, as document collections have grown larger, K-means clustering algorithm has emerged as a more efficient approach for producing clusters of documents (Karypis and Han, 2000) (Steinbach et al, 2002) K-means clustering produces a set of un-nested clusters.

Statement of problem

There are many existing classification techniques applied on Arabic texts (documents) but there are only a few for clustering. This paper aims to apply K-means algorithm to find the efficiency of clustering on Arabic documents, Furthermore a few of stemming functions are used during clustering in order to measure the effect of stemming on such clustering algorithm. The main objectives of this research are to: evaluate the result of K-mean for Arabic documents, and estimate the effect of stemming on the documents for better result.

CONTEXT AND REVIEW OF LITERATURE

Unlike document classification, document clustering is an unsupervised task, which does not require predefined categories (Kyriakopoulou and Kalamboukis, 2006). Document clustering has many application areas. In Information Retrieval, it has been used to improve precision and recall, and as an efficient method to find similar documents. Also document clustering has been used to automatically generate hierarchical grouping of documents (Koller and Sahami, 1997).

Algorithms for clustering can be categorized into two main groups as hierarchical and partitional clustering algorithms (Jain et al., 1999).

The authors in (Yoo and Hu, 2006) performed a comprehensive comparison study of various document-clustering approaches such as K-means and Suffix Tree Clustering in terms of the efficiency, the effectiveness, and the scalability. They found that the partitional clustering algorithms are the most widely used algorithms in document clustering.

The work in (Kanungo and Mount, 2002), presented an implementation of a filtering K-means clustering algorithm. It established the practical efficiency of the filtering algorithm by presenting a data-sensitive analysis of the algorithm's running time. For the running time experiments, they used two algorithms, simple *brute-force* algorithm which computes the distance from every data point to every center. The second algorithm, called *kd-center*, operates by building a *kd-tree* with respect to the center points and then uses the *kd-tree* to compute the nearest neighbor for each data point. The results showed that the filtering *K-means* clustering algorithm runs faster as the separation between clusters increases.

The authors in (Zhong and Ghosh, 2002) focused on model-based partitional clustering algorithms because, according to the authors, many advantages provided. First, the complexity is $O(n)$, where n is the number of data documents. In similarity-based approaches, calculating the pair wise similarities requires $O(n2)$ time. Second, each cluster is described by a representative model, which provides a richer interpretation of the cluster.

For document clustering, measures are more commonly used, since typically the documents' category labels are actually known. Examples of these measures include the confusion matrix, classification accuracy, F-measure, average purity, average entropy, and mutual information.

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The research in (El Kourdi et al., 2002); deals with automatic classification of Arabic web documents. Such classification is very useful for directory search functionality, which has been used by many web portals and search engines to cope with an increasing number of documents on the web. In his paper, Naive Bayes, which is a statistical machine-learning algorithm, is used to classify non-vocalized Arabic web documents to one of five predefined categories. Cross validation experiments are used to evaluate the Naive Bayes categorizer. The data set used during these experiments consists of 300 web documents per category. The results of cross validation in the leave-one-out experiment showed that, using 2,000 roots, the categorization accuracy varies from one category to another with an average accuracy over all categories of 69 %.

The authors in (Zeng et al., 2004) performed an experiment with a training of a cluster label selection procedure. First, a set of fixed-length word sequences are created from the input. Each label is then scored with an aggregative formula combining several factors: phrase frequency, length, intra-cluster similarity, entropy, and phrase independence. The specific weights and scores for each of these factors are learnt from examples of manually prioritized cluster labels.

The authors in (Wang and Ngai, 2006) proposed, an unsupervised (clustering) approach to Chinese co-reference resolution. This approach performed resolution by clustering, with the advantage that no annotated training data is needed. The authors evaluated this approach using a corpus, which developed using standard annotation schemes; found the system achieves an error reduction rate of almost 30% over the baseline. In addition, they analyzed the performance of the system by investigating the contribution of individual features to the system; results illustrated the contribution of the new language specific features.

(Schenker et al., 2003) proposed the clustering of web document collections using two variants of the popular K-means clustering algorithm, the global K-means method which computes "good" initial cluster centers deterministically rather than relying on random initialization the graph-based and the vector-based representations. They found that allowing web documents to be represented by graphs is more robust than vectors.

(Sawaf et al., 2001) showed that statistical methods for document clustering and text classification are very promising approaches for Arabic, even without any morphological analysis. For document clustering they used a criterion based on the mutual information criterion; the algorithm for clustering documents has a predefined number of classes, where words are assigned to word classes. With this algorithm, an optimal solution is not necessary found, and the quality of classes of more complex algorithm is not better.

(Ghwanmeh, 2001) implemented a K-means -Like with hierarchical initial set on Arabic documents. This method is a combination between hierarchical and K-means-Like method. The advantage of using K-means-Like is that it allows texts to be classified quickly. The algorithm starts with an initial partition and then apply the other documents and relocate them iteratly until have the final partition that have a property that it is not allowed to transfer any document from one cluster to another. The initial partition is built using hierarchical classification. He proved that clustering documents enhance precision on information retrieval systems.

METHOD

In this section, the K-means methodology is introduced as a commonly used clustering algorithm.We also introduce the functions used to enhance the methodology for applying it on Arabic. The overall methodology for clustering Arabic text is illustrated in Figure 1.
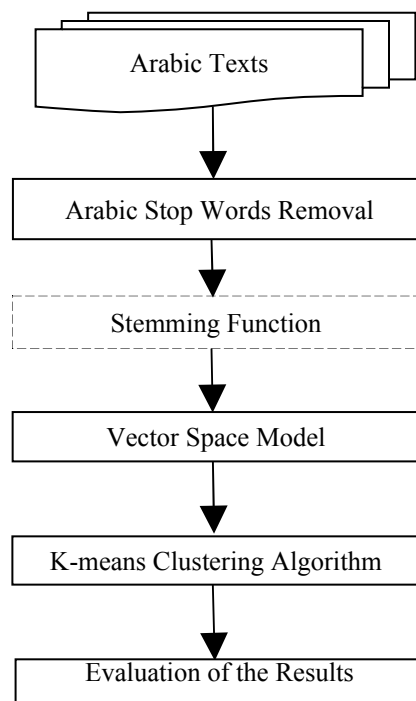
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Figure 1. Arabic text clustering method.

Tokenization

Given a character sequence and a defined document unit, tokenization is the task of chopping it up into pieces, called tokens, perhaps at the same time throwing away certain characters (Sebesta, 2006).

Stop Words Removal Function

Stop words are words appear frequently within texts that without conveying any particular meaning and they lose their usefulness as search terms. Therefore, removing them is better.

Stemming Function

Stemming is the process of reducing derived words to their stem, base, or root form, The stem need not be identical to the morphological root of the word; it is usually sufficient that related words map to the same stem, even if this stem is not in itself a valid root (Larkey et al., 2002).

The stemming process starts by assigning order and weight values to each letter in a given word, then generate new values by multiplying the order by the weight values for each letter in a given word, and the root will simply be the concatenation of the first three letters that have minimum product values.

Some letters in Arabic language must be given a weight equal to zero, while other letters, which can be combined and formed in the Arabic word "سألتمونيها", will be assigned weight values greater than zero. The weight values assigned to each letter are shown in (Al-Shalabi et al., 2003).

K-means Clustering Algorithm

It assigns each point to the cluster whose center is nearest. The center is the average of all the points in the cluster; so, its computes the arithmetic mean for each dimension separately over all the points in the cluster (Al-Harbi and Al-Thubaity, 2004). This step starts after removing stops words and apply stemming, with a prepared collection of documents and attempts to group them into k number of clusters.

The most usually used partitional strategy is based on the square error criterion which is the minimization of the variations within clusters, as measured by the sum of the distances from each document in one cluster to its cluster center. The cluster k has documents $(x_1, x_2, x_3, ..., x_{n_k})$, x_c is the center of cluster k and $e_k = \sum_{i=1}^{n_k}(x_i - x_c)^2$ is the variance of the cluster k. The square error with k clusters is the sum of the entire cluster variations: $E = \sum_{j=1}^{K} e_j$.

Vector Space Model

Vector space model is an algebric model for representing text documents as vectors of identifiers, such as index terms. It maps text documents to vectors and compares their angles (Chuang and Seamons, 1997).

In order to reduce the complexity of texts and make them easier to handle, the texts have to be transformed from the full text version to a document vector, which describes the contents of the text. According to (Chuang and Seamons, 1997), the text is defined as is that it is made of a joint membership of terms, which have various patterns of occurrence. Term weight is very important and critical step in building a vector space model, the parameters in calculating a weight for a document term are:

- Term Frequency (*TF*): Term Frequency is the number of times a term i appear in document j (TF_{ij}).
- Document Frequency (*DF*): Number of documents a term i appears in, (DF_i).
- Inverse Document Frequency (*IDF*): A discriminating measures for a term i in collection, i.e., how discriminating term i is. (The terms that appear in many documents are not very useful for distinguishing a relevant document from irrelevant one).

$(IDF_i) = log_{10}(N/n_i)$, where:
N= number of documents in the collection.
n_i = number of document that contain the term i.
Then the weights are computed as follows $w_{i,j}$ *(TF-IDF):*
One of the most popular methods is based on combining two factors:

1. The importance of each index term in the document *(TF).*
2. The importance of the index term in the collection of documents *(IDF).*

Combining these two factors we can obtain the weight of an index term i as:

$w_{ij} = (TF_{ij})(IDF_i) = (TF_{ij})(log10)(N/n_i)$

Where:
N= number of documents in the collection.
ni = number of document that contain the term i.

A fixed collection of text is clustered into groups or clusters that have similar contents. The similarity between documents is usually measured with the associative coefficients from the vector space model; we will use the cosine coefficient equals to

$$\frac{\sum_{k=1}^{t}(d_{ik} \bullet q_k)}{\sqrt{\sum_{k=1}^{t} d_{ik}^2 \bullet \sum_{k=1}^{t} q_k^2}}$$

Where, $\sum_{k=1}^{t}(d_{ik} \bullet q_k)$ is the inner product, and $\sqrt{\sum_{k=1}^{t}d_{ik}^{2} \bullet \sum_{k=1}^{t}q_k^{2}}$ is the length between documents. Here d, q, i, k, t ..

FINDINGS: EXPERIMENTS AND EVALUATION

The training and testing datasets:

We had two data sets; one for training set in which we build the source system and the other is the test dataset in which we examined the *K-means* algorithm. The training data set includes 1445-Arabic document in different and separate nine categories. Categories include, computer, economics, education, engineering, law, medicine, politics, religion, and sport.

Preparing the data for evaluation

To be able to test the implemented *K-means* algorithm we generated a database that includes a table for documents from the data set and assigned each document to its category.

Experiments and evaluation environment

For the experiment we used PC Pentium 4 with Intel Mobile technology CPU 1.5 MHz, 512 Mb of RAM, Microsoft Windows XP Professional, Microsoft SQL Server 2005 database management systems, and programming language Microsoft Visual VB .NET 2005.

Evaluation

We use the Accuracy to measure the efficiency by measuring the percent of retrieved documents in an accurate category.

In Table 1 the best result in category Computer scored 0.97 of successful documents without applying stemming, otherwise with stemming the best scored result was 0.99 in category Economics. The overall percent of successful documents without stemming equals to 0.69 while with stemming equals to 0.55.

We can observe that more iterations with minimizing the difference between old and new cluster's center result in increase the accuracy of clustering.

DISCUSSION AND CONCLUSION

The experimental results showed that the clustering solution produced by the *K-means* algorithm is not stable; because we changed the initial *k* points every time we ran the system. In addition, the produced clusters facilitate examining each cluster for a clustering task. The task involves discriminating between successful and unsuccessful procedures.

Furthermore, experiments showed that *K-means* generally performed better if it selects several new centers during each iteration. Applying stemming on such clustering is not efficient because the documents must discriminate from each other to relate to the exact category; because the stemming is an abstract of word which leads to miss discriminating of documents.

Table 1. Clustering result at, cluster threshold= 1, and loop count = infinite

Category Name	number of documents	Number of successful documents without stemming	Percent	Number of successful documents with stemming	Percent
Computer	70	68	0.97	9	0.13
Economics	220	121	0.55	218	0.99
Education	68	34	0.5	39	0.58
Engineering	115	101	0.88	43	0.37
Law	97	78	0.8	61	0.63
Medicine	232	155	0.67	37	0.16
Politics	184	121	0.66	110	0.6
Religion	227	184	0.81	150	0.66
Sport	232	90	0.39	186	0.8
Overall Total	1445	953	**0.69**	853	**0.55**

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REFERENCES

Laskov et al., (2005). *Learning intrusion detection: supervised or unsupervised*, Internet Measurement Conference.

Ikonomakis et al., (2005). *Text Classification Using Machine Learning Techniques,* WSEAS Transactions on Computers, Issue 8, 4: 966-974.

Cohen, K. & Hunter, L. (2008). *Getting Started in Text Mining*, PLoS Computational Biology Journal.

Kassab R. & Lamirel J. (2008). *Feature-based Cluster Validation for High-Dimensional Data*, in Proceeding 595, Artificial Intelligence and Applications, track 168.

Tan A. H. (1999). *Text Mining: the state of art and the challenges*, proceeding workshop on Knowledge Discovery from Advanced Databases, 71-76.

ElWakil M. M. (2002). *Introducing Text Mining, 9th* scientific Conference for Information Systems and Information Technology (ISIT02).

Jarvis, R. & Patrick, E. (1973). *Clustering Using a Similarity Measure Based on Shared Nearest Neighbors*, IEEE Transactions on Computers, C-22.

Karypis, G. & Han E. (2000). *Concept Indexing: a Fast Dimensionality Reduction Algorithm with Applications to Document Retrieval & Categorization*, CIKM.

Steinbach et al., (2002). *A Comparison of Document Clustering Algorithms*, KDD Text Mining Workshop.

Kyriakopoulou, A. & Kalamboukis, T. (2006). *Text Classification Using Clustering*, 10th European Conference on Principles and Practice of Knowledge Discovery in Databases (PKDD), 28-38.

Koller, D. & Sahami, M. (1997). *Hierarchically Classifying Documents Using Very Few Words,* proceeding of 14th International Conference on Machine Learning, 170–178.

Jain et al., (1999). *Data Clustering: A Review*, ACM, Computing Surveys, 31: 264–323.

Yoo, I. & Hu X. (2006). *A Comprehensive Comparison Study of Document Clustering for a Biomedical Digital Library MEDLINE*, JCDL, ACM.

Kanungo, T. & Mount D. (2002). *An Efficient K-means Clustering Algorithm Analysis and Implementation,* IEEE Transactions on Pattern Analysis and Machine Intelligence, 24.

Zhong, S. & Ghosh J. (2002). *A Comparative Study of Generative Models for Document Clustering,* SIAM Knowledge and Information Systems.

El Kourdi et al., (2002). *Automatic Arabic Document Categorization Based on the Naïve Bayes Algorithm*, COLING Computational Approaches to Arabic Script-based Languages, 51-58.

Zeng et al., (2004). *Learning to Cluster Web Search Results,* proceeding of the 27th ACM International Conference on Research and Development in Information Retrieval, 210-217.

Wang, C. & Ngai, G. (2006). *A Clustering Approach for Unsupervised Chinese Co-reference Resolution,* proceeding of the Fifth SIGHAN Workshop on Chinese Language Processing, 40–47.

Schenker et al., (2003). *A Comparison of Two Novel Algorithms for Clustering Web Documents,* proceeding of the Second International Workshop on Web Document Analysis, 71-74.

Sawaf et al., (2001). *Statistical Classification Methods for Arabic News Articles,* Arabic Natural Language Processing workshop.

Ghwanmeh S. H. (2001). *Applying Clustering of Hierarchical K-means-like Algorithm on Arabic Language*, International Journal of Information Technology, 3.

Sebesta R. W. (2006). *Concepts of programming languages*. Boston: Pearson/Addison-Wesley, 7th edition pp.177.

Larkey et al., (2002). *Improving Stemming for Arabic Information Retrieval: Light Stemming and Co-occurrence Analysis*, in SIGIR, 275-282.

Al-Shalabi et al., (2003). *New Approach for Extracting Arabic Roots,* Paper presented at the *International Arab Conference on Information Technology*.

Al-Harbi, S. & Al-Thubaity, A. (2004). *The Use of Modified K-means Algorithm in Bridging the Digital Gap*.

Chuang, H. & Seamons, K. (1997). *Document ranking and the vector-space model*, IEEE, 14: 67 – 75.

SURVEY OF COMPUTATIONAL SUPPORT
FOR SHAHMUKHI SCRIPT OF PUNJABI LANGUAGE

Saira Javaid	**Hira Sattar**	**Aasim Ali**	**M. G. Abbas Malik**
PUCIT, University of the Punjab, Lahore PAKISTAN	PUCIT, University of the Punjab, Lahore PAKISTAN	PUCIT, University of the Punjab, Lahore PAKISTAN	GETALP – LIG, University of Grenoble FRANCE
ajee_4me@hotmail.com	hira.sattar88@gmail.com	aasim.ali@pucit.edu.pk	abbas.malik@imag.fr

ABSTRACT

This paper is a survey of Punjabi language to explore the computational facilities available for orthography of this language. The two scripts used for writing Punjabi are Shahmukhi (a derivation of the Perso-Arabic script) and "Gurmukhi". Our main focus was on Shahmukhi, mainly used in Pakistan, to identify the support by Unicode for its characters.

Keywords: Punjabi, Unicode Support for Punjabi, Punjabi Language Processing, Computational Support for Punjabi.

INTRODUCTION

Unicode is a single character set developed to support several languages of the world. The purpose of developing this huge set was to provide a universal set that contains other such existing sets earlier. Unicode serves as a single medium of interpreting the data of several languages across the globe. Single document that contains text of multiple languages need not to have multiple character sets; only one big set of all characters of written languages may serve the purpose. If that set is understandable to every operating environment uniformly then there is no need to attach it along with the document while transmitting data from one platform to another. Some less known languages may also be incorporated with addition of any language specific characters and using the majority characters from the neighboring languages of the same scripting family.

Although Punjabi is not a less known language on the globe but for the purpose of its write ability, there is a need of availability of all its characters in the Unicode. This study investigates that to what extent this facility is available for Punjabi language.

In this paper section 2 defines benefits of Unicode, section, section 3 tells about "Shahmukhi" and its characteristics, section 4 defines about RNOON and RLAM and their problems, then section 5 shows Unicode mapping of consonants, section 6 lists Vowel and their Unicode, section 7 is about Numerical values, other Diacritical marks and Symbols, in section 8 we have conclusion.

BENEFITS OF UNICODE

Unicode has following advantages:

(1) The text of any language can be represented in Unicode. It also provides portability.

(2) Unicode allows to use multilingual text using any or all the languages of desire.

(3) Unicode increases support and availability of software for local languages because of their limited scope. Otherwise such support is not available.

(4) Unicode really make it easier to globalize IT and provide advantages to all the people and languages.

Pakistan is a country with at least six major languages and 58 minor ones (Malik, 2005), as shown in Table 1 given below.

Table 1: Six major languages of Pakistan (taken from (Malik, 2005))

Language	Percent of Speakers	Number of Speakers
Punjabi	44.15	66,225,000
Pashto	15.42	23,13,000
Sindhi	14.10	21,150,000
Siraki	10.53	15,795,000
Urdu	7.57	11,355,000
Balochi	3.57	5,355,000
Others	4.66	6,990,000

The above table shows the importance of Punjabi. It is on top of all the languages spoken in Pakistan, on the basis of number of its speakers. Punjabi is also spoken in America, Canada, and Europe (as per Ethnologue, see References). There are two scripts which are used to write Punjabi: (1) Shahmukhi, a derivation of the Perso-Arabic script; and (2) Gurmukhi, a derivation of ancient Indic scripts like LANDA (script of north-west), SHARDA (script of Kashimir) and TAKRI (script of western Himalaya) (Malik, 2006). The focus of this study remained on Shahmukhi script.

CHARACTERISTICS OF SHAHMUKHI

. Shahmukhi derives its character set from Persian/Arabic scripts and came into writing nearly about 10th and 11th century after the establishment of the Mughal Empire in the Indian Subcontinent(Malik, 2005).

Shahmukhi character set is a super set of Arabic/Persian alphabets. It contains 43 characters and the 15 diacritical marks. Unlike English, the Characters do not have upper and lower case. Below Table shows the Punjabi characters set. (Malik, 2005)

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ا آ ب پ ت ٹ ث ج چ ح خ د ڈ ذ

ر ڑ ز ژ س ش ص ض ط ظ ع غ ف ق

ک گ ل ڵ م ن ٹ ں و ہ ۃ ھ ء ی ے

Figure 1: Character set of Punjabi (Shahmukhi) (taken from (Malik, 2005))

Shahmukhi is a right to left script and shapes assumed by characters in a word are context sensitive and the shape of a character depends on the position of the character, i.e., at the beginning, in the middle or at the end of a word (Malik 2005; Zia 1999). Thus a character may have initial, medial and final shapes depending on its context in the word and the fourth one is the standalone shape of the character.

بُ ﺒ ﺏ ب
(a) (b) (c) (d)

Figure 2: Conext sensitive shapes of BEY (taken from (Malik, 2005))

The above is true for all except eleven characters. Ten of them have only two shapes; the standalone and the terminating final shape (Malik, 2005). These ten characters are shown in below:

آ د ڈ ر ڑ ز ژ و

Figure 3: Characters having standalone and final shapes (taken from (Malik, 2005))

Hamza does not occur at the start of a word, but it comes in the start of a ligature. It has initial, middle and autonomous shapes (Malik, 2005) as illustrated in the Figure 4 given below.

ﺉﻧﻰ ﺳﺎﮨﻤﻨﮱ ﮨُﻦﮂ ﮐﮭﺎﻭﮂ

Figure 4: Shapes of Hamza, (Circled, right to left) Independent, Initial and Middle shape
(taken from (Malik, 2005))

0600h–06FFh and FB50h–FEFFh are the codes in Unicode that are associated with Arabic and languages written in its derivations like Punjabi and Urdu (as per Unicode Standards 2.5). Most of Shahmukhi characters are already in Unicode, but a few characters are missing.

RNOON AND RLAM

It is a general agreement that the sounds of RNOON and RLAM are present in the Punjabi language but they are written with different shapes. There are six different shapes for RNOON at the time (Malik, 2005). RLAM is rarely used in Punjabi but there are different opinions about its shape and its inclusion in Character set (Malik, 2005).

There is a convention that RNOON and RLAM never come in the beginning of the word and they are never found together in a single syllable. As mentioned above, the shape assumed by a character is context sensitive; thus both RNOON and RLAM have six different context sensitive shapes, i.e., medial, final and standalone shape in written words. They also assume their initial shapes when they come in the middle of the word and are proceeded by a character shown in Figure 3.

RNOON is also found in other languages written in the derivation of the Arabic script and it is assigned the Unicode values 06BB and FBA0 (both shapes on these codes are equivalent). RLAM is not defined in Unicode.

RNOON Problem

In the RNOON case, RNOON is present in all dialects of Punjabi. The problem with RNOON is to resolve its symbolic illustration. Six different shapes are suggested:

(1) Plain NOON ن – let the sound be resolute by context. This shape is the same as normal NOON and that leads to confusion.

(2) NOON with two vertical Dots replacing one Dot (used by Punjabi Adabi Board).

(3) NOON with TOAY mark as a replacement for dot ٹ (also use in Sindhi and accessible in Unicode). This type of shape is related to TTEY ٹ, particularly when it comes at the start & middle of the word.

(4) NOON with both Dot & TOAY mark above ݔ.

(5) NOON with "kundi" like in Pashto ڼ. The distinction used in this shape is not used for any further character.

(6) NOON with small circle instead of dot ݔ. Small circle is a new mark not found in Punjabi.

RLAM Problem

RLAM may be added in the character set of Shahmukhi script. Although it is very rarely used but it should be integrated in the character set for Punjabi Shahmukhi as the sound of RLAM exists in the Punjabi language (Malik 2005).

In the table below, the missing Punjabi characters have been listed. Each character is given a symbol and proposed description. If these missing characters are given a place in Unicode standard, it would make Punjabi Shahmukhi compatible with Unicode and ISO/IEC 10646 (Malik, 2005)

Summary of Proceedings of Meeting (Punjabi baithak) of Codepage Subcommittee of Urdu and Regional Language Software Development Forum (URLSDF) of Ministry of IT held on 6th April, 2002 in Lahore

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Table 2: Unicode letters proposed for Shahmukhi (taken from (Malik, 2005))

Serial #	Symbol	Proposed Unicode	Description
1	ڻ	063B	Arabic/Punjabi Shahmukhi RLAM
2	ڼ	063C	Arabic/Punjabi Shahmukhi RNOON
3	ٙ	0659	Arabic/Punjabi Shahmukhi SAKUN
4	ؖ	0616	Arabic ligature Jalla Jalalouhou

CONSONANT MAPPING

This section lists consonant characters in Punjabi, along with their Unicode values. Consonants can be further subdivided into two groups:

Aspirated Consonants

Table 3 given below lists the Aspirated Consonants of Punjabi:

Table 3: Aspirated Consonants – Shahmukhi

Serial #	Character	Aspiration Mark	Aspirated Consonant	Unicode
1	ب	ھ	بھ	06BE+0628
2	پ	ھ	پھ	06BE+067E
3	ت	ھ	تھ	06BE+062A
4	ٹ	ھ	ٹھ	06BE+0679
5	ج	ھ	جھ	06BE+062C
6	چ	ھ	چھ	06BE+0686
7	د	ھ	دھ	06BE+062F
8	ڈ	ھ	ڈھ	06BE+0688
9	ڑ	ھ	ڑھ	06BE+0691
10	ک	ھ	کھ	06BE+06A9
11	گ	ھ	گھ	06BE+06AF

Non-Aspirated Consonants

Table 4 given below lists the Non-Aspirated Consonants of Punjabi:

Table 4: Non-Aspirated Consonants – Shahmukhi

Serial #	Character	Unicode
1	ب	0628
2	پ	067E
3	ت	062A
4	ٹ	0679
5	ث	062B
6	ج	062C
7	چ	0686
8	ح	062D
9	خ	062E
10	د	062F
11	ڈ	0688
12	ذ	0630
13	ر	0631
14	ڑ	0691
15	ز	0632
16	ژ	0698
17	س	0633
18	ش	0634
19	ص	0635
20	ض	0636
21	ط	0637
22	ظ	0638
23	ع	0639
24	غ	063A
25	ف	0641
26	ق	0642
27	ک	06A9
28	گ	06AF
29	ل	0644
30	م	0645

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31	ن	0646
32	و	0648
33	ہ	06C1
34	ی	06CC
35	ے	06D2
36	اٹھ	0768
37	اٹ	----

VOWEL MAPPING

There are two types of vowel: Long vowels and Short vowels.

Long Vowels

Table 5 given below lists the short vowels of Punjabi:

Table 5: Long Vowels – Shahmukhi

Serial #	Vowel	Name	Unicode
1	ا	Alif	0627
2	آ	Alif Madda	0622
3	و	Vav	0648
4	ی	Ye Chhoti	06CC
5	ے	Ye Bari	06D2

The long vowel characters VAV (و) and YE (ی) may also behave like a consonant.

Short Vowels

Table 6 given below lists the short vowels of Punjabi:

Table 6: Short Vowels – Shahmukhi

Serial #	Vowel	Name	Unicode
1	َ	Zabar	064E
2	ُ	Pesh	064F
3	ِ	Zer	0650

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NUMERICAL VALUES AND OTHER

Table 7 given below lists the numeric symbols of Punjabi:

Table 7: Numeric Symbols – Shahmukhi

Numeric Value	Digit Symbol	Unicode
0	٠	06F0
1	١	06F1
2	٢	06F2
3	٣	06F3
4	۴	06F4
5	۵	06F5
6	۶	06F6
7	٧	06F7
8	٨	06F8
9	٩	06F9

Table 8 given below lists the other symbols of Punjabi:

Table 8: Other Symbols – Shahmukhi

Serial #	Symbol	Unicode
1	ً	064B
2	ّ	0651
3	ٰ	0670
4	٪	066A
5	؛	061B
6	؟	061F
7	۔	06D4
8	،	060C

CONCLUSION AND FUTURE WORK

The computational orthographic support for writing Punjabi language in Shahmukhi is already available in Unicode, except a character (RLAM), as per Unicode 5.2 [see References]. There is a need of spreading the awareness in the public to produce Punjabi contents. Government agencies may also support some projects for several (at least six major) languages of our nation.

During this study, some phonetic aspects of Punjabi also found to be worth investigating (for example, the voiceless behavior of aspirated sounds), but could not be included in this paper due to the scope of work.

REFERENCES

Malik, M. G. A. (2005): *Towards a Unicode Compatible Punjabi Character Set*, 27th Internationalization and Unicode Conference, Berlin, Germany, April 2005

Malik, M. G. A. (2006): *Punjabi Machine Transliteration*, in the proceedings of the 21st International Conference on Computational Linguistics and 44th Annual Meeting of ACL, pages 1137 – 1144, Sudney, Australia, July 2006

The Unicode Consortium. The Unicode Standard, Version 5.2.0, defined by: *The Unicode Standard, Version 5.2 (*http://www.unicode.org/versions/Unicode5.2.0/*)*

Ethnologue, Languages of the World; available at http://www.ethnologue.com/

Zia, K. (1999): *Towards Unicode Standard for Urdu*, in the Proceedings of 4th Symposium on Multilingual Information Processing (MLIT-4), Yangon, Myanmar, CICC, Japan.

GUIDELINES FOR AUTHORS

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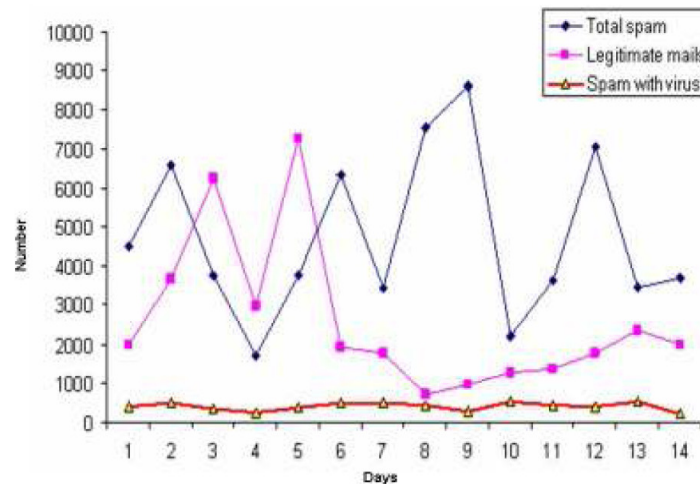

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