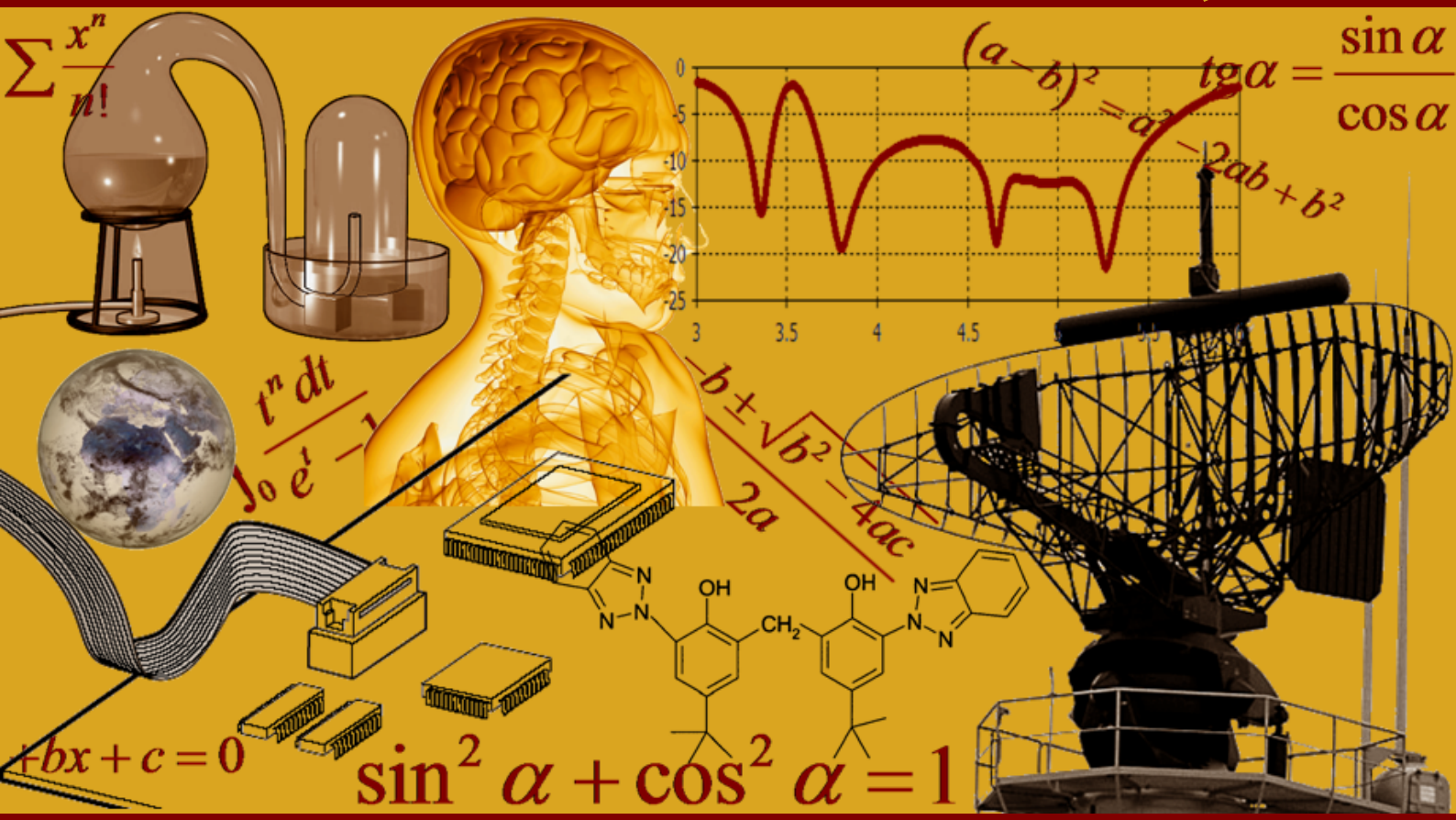
ISSN: 2351-8014 Impact Factor: 2.095

INTERNATIONAL JOURNAL OF INNOVATION AND SCIENTIFIC RESEARCH

Vol. 2 N. 1 June 2014



International Peer Reviewed Monthly Journal

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International Journal of Innovation and Scientific Reseach

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Table of Contents

International Journal of Innovation and Scientific Research
ISSN 2351-8014 Vol. 2 No. 1 Jun. 2014, pp. 1-7
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Students' Perceived Autonomy Support and its Impact on Achievement Goals

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ABSTRACT: This study is about Students' Perceived Autonomy Support and its Impact on Achievement Goals. There are two types of achievement goals, mastery and performance goals. The age of participants ranges 20-25 year. This study shows the co relation between the achievement goals and student perceived autonomy support. The sample was consisted of 100,50 male and 50 female participants taken from Bhaud din Zikariya University Multan. Autonomy support and achievement goal scales were administered on participants. Results indicate that there is strong positive co-relation between perceived autonomy support and achievement goal. Female perceive more autonomy support than males. The results indicated that male have more mastery goal than females. Female have more performance goals than male students. Joint family system is also showing the high perceived autonomy support than students of nuclear family system. Students of urban area are also showing the high perceived autonomy support than students of rural area.

KEYWORDS: perceived autonomy support, achievement goals.

1 INTRODUCTION

1.1 WHAT IS AUTONOMY?

For a definition of autonomy, Benson & Voller (1997) stated that an autonomy is an ability of a learner which is used by him to explore the ways and decisions to learn by own self. the word autonomy can be use in different ways as well as in different situations. Benson and Voller (1997), for instance, explain the five ways in which the word autonomy could be used; it can be used for the situations and circumstances in which the learners are entirely able to study the subject material by their own; it can be used for those skills and abilities whose learning and application is directed by their own; it can be used for the inherited ability of the learner that is not explored by the individual educational systems of different institutions; it can be used for the repeated practices an experiences of the responsibilities of learner for their own process of learning; it can be used for the rights of the learners to select the ways and methods of thei own learning.

There are, however, lot many dimensions, including educational set up, in which the term autonomy can be defined; sheerin (1991), for instance, claimed the autonomy as independence. The word autonomy can be defined in term of language awareness (Lier, 1996). Candy (1991) explained the term autonomy as self-direction.

1.2 LEARNER AUTONOMY

After defining the term autonomy, there is a struggle to focus the attention on the explanation of learner autonomy. Little (1991) define learner autonomy as the learner is in autonomous condition when there is the relationship between the process of learning and the content of learning, while the relationship is purely psychological. This relationship, being too

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much strong to lead the learner from attachment to detachment, critically thoughts, from suggestion to decision making, and from dependence to independence. Learner autonomy is the learner willingness, direction, and ability to have firm control on learning as well as learning method. He has the qualities of selection of aims independently, selection of materials, methods, goals, targets, selection of exercise to practice, organization and management of selected goals and targets, as well as evaluate himself independently (Holec, 1985).

Autonomous learners play an active role instead of passive role in the whole process of learning. He is entirely different, from the casual learner, in the generation of ideas and engaging different opportunities of learning, as the casual learner only follow the instructions of the teacher in the same one direction (Boud, 1988; Kohonen, 1992; Knowles, 1980). Autonomous learner actively makes the meanings of different tasks as well as different situations. He is not one to whom the things can change; he is one who actual change the things. He has the control over the environment instead of being controlled by the environment. He makes his own desired interaction to external world for his learning (Rathbone, 1971; Candy, 1991).learning is not just to memorize the event, it is a complicated process of searching out the meanings of the events efficiently (Candy, 1991).

1.3 Learner Autonomy and Dominant Philosophies of Learning

In this portion, there will be an exploration of connection between the dominant philosophical approaches of learning and learner autonomy. According to the positivists, whole the knowledge and learning is based on the objective reality the things. If the teachers, with their keen passion, make them able to achieve that objective reality, learning will not remain so hard, rather it can be transmitted from one individual to another with no extra effort (Benson & Voller, 1997). Positivists, on the other hand, strongly support the "hypothesis testing" as the real source of knowledge. They suggested that knowledge can be acquired more effectively when it is discovered rather than taught.

Constructivism is the second philosophical approach which is the core concept in applied linguistic.(Halliday, 1979; Benson & Voller, 1997). The individual, according to constructivist, pay whole attention to give meaning to those events and situations in which they are performing their functions. Constructivists focus on the opposite direction to the positivists, as constructivists, explore the view that it is more beneficial for the individuals to recognize and restructure their experience rather than just focusing on the meanings and discovering the objective reality of knowledge. According to constructivist, Knowledge cannot be taught but only can be learned, is the leading proposition (Candy, 1991). Knowledge is actually built up by the learner (Candy, 1991).

1.4 Achievement Goals

Many researchers have been focusing on the student's achievement goals perspective. There are three general aspects on goals achieved by the students; one of which are the goals for the specific task or target (Bandura, 1997; Locke & Latham, 1990). The goals which are achieved for the specific task or to solve particular problem are known as target goals (Harackiewicz & Sansone, 1991). In the second level of achievement goals, focus is on the reasons of goal achievement. It is based on the proposition that "why" an individual is motivated for the specific orientations of goals (Ford, 1992). At the third level, there comes the goal which lies between the particular target goals and the global goals. These goals can be applied to areas of achievements like in business and athletics (Pintrich & Schunk, 1996).

There is another dimension of achievement goals in which the goals are classified in the two major division; performance goals and mastery goals. Performance goals can be for the standardization of the criteria on the basis of which performance of the individual can be judged (Urban, 1997). On the other hand, different from performance goals, is the mastery goals in which the criteria is set to have superiority or to be a master in certain goal or target (Ford, 1992).

1.5 Objectives of the Study

The present research was aimed to explore the impact of students' perceived autonomy support on achievement goal. Students are greatly affected by perceived autonomy support in their achievement goals. It is the general myth, for the large number of people, that psychology only deals with the abnormal individuals. But surprisingly, even fortunately, psychology also deals with normal individuals. Psychology, when, deals with normal people it leads to those methods and ways which can improve the individuals in several dimensions. These include thought patterns, decision making power and lot many

other dimensions. Psychological researches have been focusing on infinite areas of life, like industries, clinical set up, supports, even education but not enough as it should be in Pakistan. I am, that is why, feeling glad to have my interest in the area of education. In the education system the autonomy support for the learner play an important role in their goal achievements. So the objectives of my study are as follows;

1. To see the relationship between perceived autonomy and achievement goal
2. To check the effect of perceived autonomy amongst male and female student
3. To check the different dimension of achievement goals and there relation with perceived autonomy.

2 LITERATURE REVIEW

Students perceiving the autonomy support will feel the sense of freedom and an independent self and focus on learning the themes of different concepts, such as; mastery goals, rather than the students which do not perceive autonomy support from their teacher an just focus on the grade of the courses to encourage their status, such as; performance goals (Deci & Ryan, 1991). Research, in the social context, proved that the students, perceiving more autonomy support, prefer better conceptual learning as compared to the students with perceiving low autonomy support (Grolnick & Ryan, 1987). Many researches also focus on the learning strategies for the learner, best suitable, for their encouragement. These learning strategies are actually different mental processes that are used by the learner, may be while working on the learning of a new language or a new skill, to manage their plan to do so. These mental processes are the choices of actions for learner to act upon. It will be more beneficial for the learner if these are selected by the learner himself by giving him the autonomy to select (Skehan, 1998). These strategies include; cognitive strategies and met-cognitive strategies. Cognitive strategies are those which largely focus on the information 'that is to be learned' coming from external environment and manipulating that information in such way that, no doubt, will up stair the process of learning (O'Malley and Chamot, 1990). Now, it is up to learner , who can use any one or all the options from learning strategies; he may use repetition speech, translation, note-taking, contextualization, transferring, inference, questioning for clarification; all these are the cognitive strategies on which a learner can work for his better learning (Cook, 1993). While, on the other hand, met-cognitive strategies are those facts which are acquired by the learner for their own cognitive functions. These cognitive processes are used by the learner to have knowledge and skills in the variety of situations (Wenden, 1998).

Achievement goals, on the other hand, of the students deal with their aims of learning and attaining the particular goals in a specific academic setup (Dweck & Leggett, 1988). Different researches on achievement goals, largely, focus on the two opposite poles of achievement goals, on one pole, mastery goals are there and performance goals are on the second pole. There is a great deal of investigation on the opposing affect of mastery and performance goals on different aspects of learning and achievement. It is, yet, debatable that which type of achievement goal has the positive or negative effect on the process of learning, either the mastery goals have positive effect or the performance goals play an efficient role in learning (Barron & Harackiewicz, 2001; Pintrich, 2000). According to the supporters of mastery goals, including its all types, performance goals are not so effective in learning process and achievement as compared to the mastery goals (Midgley, Kaplan, & Middleton, 2001). While, in contrast, according to supporters of performance goals indicate the positive nature of performance goals (Elliot & Harackiewicz, 1996). Some researchers, therefore, encourage the both achievement goals and in favor that these both goals should go side by side in relating to each other for better learning (Barron & Harackiewicz, 2001). Elementary students with high mastery goals use more adaptive and higher level of achievement (Meece and Holt, 1993).

3 METHODOLOGY

3.1 SAMPLE

The sample was consisted of N=100, male and female students (50 males and 50 females), the participants were enrolled in Government colleges of Multan and Age limit for sample was 18-20 for sample.

3.2 INSTRUMENTS AND DATA COLLECTION

Achievement goal scale: It was developed by Elliot and MC Gregor (2001) is 7- point self-report scales designed to measure the types of Achievement Goals. It is a 12 Item scale. The scale provides a score for each of the following two types

of achievement goals. Add the following answer values to obtain the score. Mastery (item 2, 3, 6, 7, 10 and 11) Performance (item 1,4, 5, 8, 9 and 12)

The Learning Climate Questionnaire *(LCQ):* The questionnaire is typically used with respect to specific learning settings, such as a particular class, at the college or graduate school level. Thus, the questions are sometimes adapted slightly, at least in the instructions, so the wording pertains to the particular situation being studied--an organic chemistry class, for example. In these cases, the questions pertain to the autonomy support of an individual instructor, preceptor, or professor. If, however, it is being used to assess a general learning climate in which each student has several instructors, the questions are stated with respect to the autonomy support of the faculty members in general.

Procedure: In order to conduct research, data was taken from males and females, Simple random sampling technique was applied for to select the true representative of population; although the population was homogeneous i.e. education, age and courses, instead they belong to the diverse characteristics like family background, therefore, to formulate concrete homogeneity the researchers exclude the family background and just asked about basic demographics questions from the respondents. First of all, I introduced myself to participants and told them the purpose of my research. Rapport developed with the participants and they assured that their information would be kept confidential. They were given a consent form, demographic sheet, perceived autonomy scale, and achievement goal scale. Participants were given special thanks for providing information and assisting in research.

4 HYPOTHESIS OF STUDY

1. Perceived autonomy support will be positively correlated with achievement goals.
2. Students who perceived autonomy will have mastery goals than performance goals
3. Female students will perceive more autonomy support than male students.
4. Male students will have more mastery goals than female students.
5. Female students will have more performance goals than male students.
6. Students of joint family system show high perceived autonomy support than students of nuclear system.
7. Students from urban area perceive more autonomy support than students from rural areas.

5 RESULTS AND DISCUSSION

The collected data from students were statistically analyzed through Statistical Package for Social Sciences (SPSS). In order to get comprehensive profile of achievement goals of students in terms of their perceived autonomy support in classroom. To see the relationship and comparison, correlation and independent sample t-test were computed respectively.

Table 1
Correlation between perceived autonomy support and achievement goals

Achievement Goals	Perceived Autonomy Support	
	R	P
Mastery	.83	0.01
performance	.44	0.05

Table 1 shows the significant positive relationship between achievement goals and perceived autonomy support. Results indicated that mastery goal have strong positive and significant co relation than performance Goals. It means that there will be an increase in the value of achievement goals with increase of perceived autonomy support. Results, in the parallel way, suggest that when we enhance the autonomy support, mastery goals are more preferred by the students as compared to the performance goals.

Table 2.
Means, Standard Deviations and t-value for the Scores of Male and female Students on Perceived Autonomy Support (N = 100)

Gender	N	M	SD	t	P
Males	50	44.18	7.10	1.936	0.04*
Females	50	63.35	8.47		

*df = 98, *p < 0.05*

Above mentioned table shows Means, Standard Deviations and t-value for the Scores of Male and female Students on Perceived Autonomy Support(t =1.936, df = 98, *p < 0.05). The results indicated that there is a significant difference between male and female in perceived autonomy support and female perceive more autonomy support than males.

Table 3
Means, Standard Deviations and t-value for the Scores of Male and female Students on Mastery Goals (N = 100)

Gender	N	M	SD	t	P
Males	50	76.23	11.10	1.238	0.02*
Females	50	63.31	10.47		

*df = 98, *p < 0.05*

Above mentioned table shows Means, Standard Deviations and t-value for the Scores of Male and female Students on Mastery Goal (t =1.238, df = 98, *p < 0.05). The p value is smaller than 0.05 which indicates that there is the significant difference between males an females in the preference to achieve mastery goals and males prefer to have more mastery goal than females.

Table 4
Means, Standard Deviations and t-value for the Scores of Male and female Students on Performance Goals (N = 100)

Gender	N	M	SD	t	P
Males	50	56.23	10.10	1.852	0.01*
Females	50	69.42	09.31		

*df = 98, *p < 0.05*

Above mentioned table shows Means, Standard Deviations and t-value for the Scores of Male and female Students performance goals (t =1.852, df = 98, *p < 0.05). The results indicated that there is significant difference between males and females in the preference to achieve performance goals and female students have more performance goals than male students.

Table 5
Means, Standard Deviations and t-value for the Scores of Students Living in Joint and Nuclear Family System on Perceived Autonomy Support

Family System	N	M	SD	t	P
Joint	44	31.18	11.52	2.042	0.04*
Nuclear	56	28.13	10.60		

*df = 98, *p < 0.01*

Results indicate that students living in joint family system report more perceived autonomy support as compared to students living in nuclear family system(t =2.042, df = 98, *p < 0.01). The mean score of students indicate the difference on perceived autonomy support of joint family system an nuclear family system and depicts that students with joint family system is also showing the high perceived autonomy support than students of nuclear family system.

Table 6
Means, Standard Deviations and t-value for the Scores of Students Living in Rural and Urban Area on Perceived Autonomy Support

Area	N	M	SD	T	P
Rural	37	37.93	12.62	1.082	0.03*
Urban	63	48.71	11.60		

*df = 98, *p < 0.01*

Results indicate that students living in urban area report more perceived autonomy support as compared to students living in rural area(t =1.082, df = 98, *p < 0.01). The mean score of students indicate the difference on perceived autonomy support of students of urban areas and students of rural areas and depicts that students of urban areas is showing the high perceived autonomy support than students of rural area.

6 CONCLUSION

In the light of above mention results and discussion on perceived autonomy support and achievement goals, there are some findings. Overall the result shows that there is a significant difference exists in perceiving autonomy support between males and females. The results show the significant positive relationship between achievement goals and perceived autonomy support. Results indicated that mastery goal have strong positive and significant co relation than performance Goals. The results indicated that male have more mastery goal than females. The results indicated that female have more performance goals than male. The results indicated that female have more performance goals than male students. Results indicate that students living in joint family system report more perceived autonomy support as compared to students living in nuclear family system. The mean score of students of joint family system is also showing the high perceived autonomy support than students of nuclear system. Results indicate that students living in urban area report more perceived autonomy support as compared to students living in rural area. The mean score of students of urban area is also showing the high perceived autonomy support than students of rural area.

7 SUGGESTIONS AND LIMITATIONS

A. Sample used in the present study was small. It should be representative and large enough to generalize the rules to the whole population of students in different universities.
B. The overall literacy rate of the country should be improved in order to enhance the awareness of the people about the importance of the research so that they may not hesitate while revealing the important information regarding the research topic.
C. The sample size was small and has limited resources so it was not possible for the researcher to make generalization about the whole population.
D. The sample was restricted to one institute of Pakistan. It should be nation wide in order to more reliable and authentic.
E. The time limit was very short for this research. For this type of sensitive topic more time would be given.
F. The age range of the sample is 20-25
G. Years old. This study can be conducted on different age group and on different sample.

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International Journal of Innovation and Scientific Research
ISSN 2351-8014 Vol. 2 No. 1 Jun. 2014, pp. 8-23
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http://www.ijisr.issr-journals.org/

Qualifying Teachers of Arabic by Using computers in the Faculties of Education in Egypt

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INTRODUCTION

In Egypt, the teacher of Arabic does not study computer in the syllabus of his preparation in Faculties of Education. Moreover, he does not use it in studying any of the syllabi till he graduate as a teacher (11:33-36)

This research attempts to pointing out the importance of using computer in qualifying the teacher of Arabic and showing some primary aspects of the relationship of Arabic language to computer.

This issue seems to have been lost between the extreme simplification of technicians from one side, and the sharp overlook of linguistics from the other side; the issue is inevitably difficult and interrelated so that simple solutions or tricks will not do. It is also so important and vital to the extent that its importance is in the first priorities of preparing our Arabic societies for the information society where the labour of information, its industries and services will prevail.

Behind this research is on invitation to modernize the outlook of the Arabic language as a whole. It is a demand that corresponds to the duality of computer and English language, and many other languages such as Russian, French and German. Such a demand needed a full revision of all the sides of the linguistic system, where the mechanic system impose on the topic it handles a degree of accuracy and completion without which it can not be subjected to the logic or the machine. Maybe in our approach to this problem on this level an indication of how the computer may compensate for our linguistic backward: theoretically, regulationally and implementationally

The English basis imposed technical restrictions on the mechanic handling of most languages. Such limits reach the utmost with the broadening of the field of linguistic variety between these languages and that of the basics i.e. English. English and Arabic represent from the point of view of computers two extremes; this, in turn, led to the emergence of many technical obstacles in arabizing computers which made of language another barriers added to another group of barriers separating the Arab user from that new comer which emerged and grew in a various linguistic milieu. [(1)]

Language is the container of thought. The structure and system of language impose a certain pattern of method of thought on its users; this is known as linguistic determinism. Change in any language requires an important change in the nature of language which the society uses for the existence of a mental revolution necessitates the existence of a linguistic on first.(11:205), (11), (11), (10)

Computer illiteracy in our Arab societies does not only require the availability of Arabic programmed language but also the existence of practical means to use Arabic language itself to converse with the computer.

Using computer in preparing the teacher of Arabic is based on showing the relationship of Arabic to computer; this requires the subjection of accurate science handling.

The attempt at adjusting the linguistic theorizing of Arabic and handling in mechanically is the aspect that helps to reveal the position of super theoretical knowledge on the side of scientific maturity of applied sciences.(11)

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The present research is an attempt at showing the duality of culture which prevails over our Arab societies; such duality is one of the main reasons of the deformity of our cultural and scientific view, and the deformity of our intellectual and educational product.(11)

PREVIOUS STUDIES:

There are various previous studies which pointed out the importance of using computer in teaching generally. (8), (9), (11), (6), (7)

The impact of teaching expertise on educational software selection: An examination of the strategies used by teachers and novices in their approach to software selection

Expertise in teaching has been associated with a comprehensive knowledge base, well organized schemas resulting from a deep understanding of the problem, to concrete situations, and the ability to recognize features of the problem central to the solution (Borko & Livingston, 1989; Leinhardt and Greeno, 1986; Sabers, Cushing, & Berliner, 1991.) The introduction of computer technology to the classroom has added, for some teachers, an unfamiliar dimension to the classroom environment, a dimension in which their problem solving expertise may not be as effective. This study examines the impact of computer technology on teachers' approaches to the problem of evaluating educational software packages for instructional merit. Sixteen teachers and 14 novices evaluated two educational software packages for educational merit. Two of the teachers had expertise in educational technology. The remaining teachers and the novices had no formal training in using educational technology. Participants' “think-aloud” responses were recorded, by audio and video tape, as they evaluated the software, and their responses to a brief interview and survey were collected. Teachers generated a greater percentage of technical and pedagogical statements, but did not differ significantly from Novices in their attention to specific Pedagogical variables. A qualitative analysis revealed that teachers and novices had different approaches to the problem solving task directed in part by schemas they held for effective instruction. Further, the technology-trained teachers appeared to have greater access to their schemas for effective instruction than those teachers for whom the computer was an unfamiliar environment. These findings suggest that technology training may need to be an integral part of teacher education programs.

Computer skills for pre-service teachers: Perceptions and implications for curriculum development

The purpose of this study was to examine the national profile of necessary technology skills for teachers and the perceptions of school administrators, cooperating teachers, and student teachers regarding specific technology skills needed by pre-service teachers. A survey of literature provided a national profile through standards adopted by the National Council for Accreditation of Teacher Education. The perceptual data, compiled from a survey instrument developed for this study, were self-reported and limited to administrators, cooperating teachers, and student teachers currently participating in a teacher education program in rural northwestern Pennsylvania. Descriptive data analysis, including survey mean scores data and standard deviation were utilized to determine existing technology use and the profiles of perceptions from target populations. Mean rank analysis was applied utilizing the Kruskal-Wallis procedure to identify significant differences among sample populations. The results showed that perceptions of necessary specific technology skills vary significantly among populations. Also, notable variance was found within target populations, however, a number of technology skills were clearly identified as priorities for pre-service teachers. The data revealed that word processing skills have the highest priority among groups. Other high priority skills included use of e-mail, accessing the internet, utilizing CD ROMs, and knowledge of computer terminology. Low priority skills included knowledge of programming languages, MS DOS, web page design, Ethernet function, and reformatting hard drives. The blend of priorities identified in this study and the perceptions of experts in the field of technology in education, grounded in the general standards advocated by NCATE, should be the basis of technology curriculum for pre-service teachers in northwestern Pennsylvania. The results of this study were consistent with literature and research that suggests technology curriculum in teacher education should be developed with a wide variety of populations in order to best reflect the needs of pre-service teachers and society.

The effects of a self-paced modular computer-training program on in-service teachers' attitudes and sense of computer self-efficacy

The issue of technology integration for schools can no longer wait as business, government, and education call for students to be prepared to use the tools of the 21<super>st</super> century. Pre-service teachers are presently receiving some training with the publication of the National Council for Accreditation of Teacher Education standards for technological literacy. In-service teachers are also being called to meet the needs of the 21<super>st</super> century student, but, lacking the teacher preparation training in technology and having honed successful classroom strategies without the use of technology, they are finding the acquisition of these skills more difficult. As professional development programs begin to

address the needs of the in-service teacher, the issues of attitudes toward computers and computer self-efficacy must be considered. Successful training programs must address the special needs of in-service teachers, a population of adult learners with little experience or exposure to the digital world. Investigated in this study were the effects of a self-paced modular computer-training program on teacher attitudes and computer self-efficacy. Forty-two in-service teachers at St. Paul's Episcopal School participated in a four-module self-paced computer-training program that included modules covering an introduction to computers, Windows 95, word processing, and telecommunications. Two computer attitudes instruments were used: Delcourt and Kinzie's 1993 Attitudes Toward Computer Technologies scale which measured comfort/anxiety and perceived usefulness constructs and Shaft and Sharfman's 1995 Attitudes Toward Computers Instrument which measured a global computer attitude construct. These attitude measures were administered at the beginning of the self-paced computer-training program and again at the completion of the last module. The Compeau and Higgins' 1995 Computer Self-Efficacy measure was administered upon completion of each module for the purpose of assessing the impact of each module on the participants' sense of computer self-efficacy. Results indicate that participation in a training program that meets the needs of the inservice teacher and includes self-pacing, independent and collaborative learning opportunities, and the presence of support personnel positively impacts the attitudes of comfort with computers and perceived usefulness of computers as well as a global attitude toward computers. The participants' sense of computer self-efficacy is also impacted positively. In-service teachers who feel positive toward and efficacious with computers are more likely to feet comfortable bringing the tools of technology to their classrooms and their students.

A comparison of paper-based, computer-based, and voice-mail study media in relationship to student achievement in information systems courses

The problem investigated in this study was the use of paper-based, computer-based, and voice-mail-based study media and their relationship to student achievement in information systems courses. Providing information on the usefulness of study media to schools, businesses, and textbook publishers to assist them in decision making was central to this study. This study may be useful to professionals interested in the larger framework of comparing study media and test performance. This research also examines the relationship between student achievement and a particular study medium when compared with number of questions studied, amount of study time used, age, income, gender, distance from campus, grade-point average, full-time employment, part-time student classification, previous computer skills, and access to a computer. An experiment was conducted using a quasi-experimental posttest-only control group design. Statistical procedures were used to pretest the data to determine randomness of the groups. Two information systems courses were used to test each study medium. An introductory business course in information systems and an advanced course in which all students would have computer experience were used to test each study medium. This experiment was conducted at a public university. The majority of the students were part-time students who were employed full-time. The university does not have residential students. Quiz, midterm examination, and final examination grades were used as the measure of student performance to determine if there was a significant relationship between study medium and student achievement. The hypothesis that there is a significant relationship between study medium and student achievement was not rejected.

Utilization of computer technology by teachers at Carl Schurz High School, a Chicago public school (Illinois)

This case study investigated computer use by teachers at Schurz High School and identified the factors affecting their use. Current and desired computer skills were also evaluated to make appropriate recommendations regarding inservice training to help increase the use of computers among faculty at Schurz. Descriptive data was gathered on Schurz by interviews, sign-up sheets, software documentation, and reports and pertained to demographics, academic probation, technology plan, school improvement plan, staff development, funding, computer inventory, computer labs, vocational educational programs, and technology support. A survey was used to gather descriptive information on how computers were used in classrooms and interactive labs. Survey items were designed and revised to gather data relevant to seven research questions. The population for this study involved the 133 classroom teachers on staff at Schurz High school during the first semester of the 1998–99 school year. One hundred usable surveys represented a response rate of 75%. The respondents represented 12 departments in the school, including business/computer education, math, physical education, English, special education, technical, foreign language, science, music, social studies, art, and English as a Secondary Language. The major findings of this study show that the vast majority of teachers used a computer for personal or school use; almost all teachers with 1–10 years of teaching used a computer; teachers with 31–35 years of teaching represented the largest group of noncomputer users; the highest percentage of use for both computers and the Internet was for preparing instructional materials; the lowest percentage of use of computers and the Internet was for instructional use for students; teachers used word processing the most for preparing instructional materials, for instructing students in the classrooms, and in the interactive labs; the second greatest computer use was for web searching; and few teachers used software other than word processing in their classrooms. The factors that affected computer use included the direct relation between use of computers and number of computers in the classroom; lack of computer projection devices in the classrooms; lack of duty-free time to

prepare lessons including technology; other educational commitments; and insufficient teacher training, support, and follow-up.

Secondly, there are various previous studies which pointed out the importance of using computer in teaching Arabic in particular such as the following :

1. Analysis of heritage for determining the date of its emergence and its source; the ***Illiade*** as a myth was analysed by computer; it was found that it is composed of 15694 lines of verse, 112000 words and it was ascertained that Homer is its poet. Also the plays of Shakespeare have been analysed to ensure that he is the writer.(10)

2. Thematic identification of the degree of influence of men –of- letters on others. The most well known uses of computer in that field is that study which was performed to know how far the poet Shelly was influenced by his predecessor Milton. The statistic comparsion of Shelly's famous poem "***Prometheus unbound***" and Milton's "***Paradise Lost*** " the sphere of common lexicon and the relative distribution of the ranges of the two poets using of them. A comparison of the sentences of both poems -which included the most common lexicon- was performed to give a quantitative criterion of Shelley's being influenced by his predecessor.(10)

A comparative discourse analysis of output produced by learners of German in a chatroom and a face-to-face discussion group, and its potential implications for foreign language instruction

The purpose of this research project is to contrast written German discourse as it was produced by 63 learners of German as a foreign language in 4th semester German in a synchronous computer-mediated communication environment, i.e. in a chatroom, with the oral discourse produced by 63 learners of German in a small group face-to-face discussion groups. This study uses a variety of measurements to better describe and define the language produced in chatrooms and face-to-face discussion groups. First, the level of participation is measured by coding the data with communication-units, or c-units. The final statistical analysis indicated that the different levels of participation in the chatroom and the face-to-face discussions were significantly different. Second, this study hypothesizes that the output produced in real-time synchronous computer-mediated communication constitutes a new type of orality in a virtual world, a hybrid between spoken and written discourse. Communication in a chatroorn environment allows students to write as they would speak. The written output produced in a chatroom during this experiment shows features of oral language. The term <italic>virtual orality</italic> describes this type of orality in a virtual space. <italic>Virtual orality</italic> is derived from Walter Ong's <italic>secondary orality</italic>, which delineates an orality that is produced by speakers in our society who have the awareness and consciousness of literacy, i.e. they live in a society that is knowledgeable of and influenced by writing. In the third part of this study, the Type-Token Ratio is used to measure the variety of different words in relation to the total number of words produced. In an effort to determine the language level of the students, this study uses a scale of language stages as they are described by Erwin Tschirner, followed by an analysis of verb morphology, and attributive and predicative adjectives. The last chapter asks if and how computer-mediated communication can be productively employed in a foreign language teaching environment. Tentative recommendations about the use of real-time computer-mediated communication and face-to-face discussion groups for instructors conclude this study.

Reading instruction of first-grade students within a whole learning reading program using CD-ROM versus traditional print storybooks

This researcher investigated the use of technology within a whole learning reading program to determine whether statistically significant differences in reading achievement develop between instruction using traditional text in a classroom setting and electronic print in the form of books on CD-ROM used in a computer lab setting. Participants were 92 first-grade students from a large, semi-rural elementary school in Orange County, New York. All of the subjects received instruction under both control and treatment conditions. Subjects scores on a district-wide fall reading matrix were used as pre-treatment observations to determine equality of groups. Three days following a sequence of instruction led by the teacher were conducted using traditional and electronic print books. Three books were completed under each method/medium. The books on CD were selected from Level B in the Scholastic Beginning Literacy System WiggleWorks. The same books used on CD were used in traditional print. Post testing was conducted individually after instruction on each book. Assessment included a 20 item word list, a 70–80 word passage (both taken from the text of the book used), 5 factual comprehension questions, and a retelling. Information on or about the computer's effectiveness as a source of language development through pre-literacy experiences to increase sight word vocabulary and in improving comprehension were addressed. The study served to evaluate the effectiveness of books on CD as a delivery mode for whole learning instruction in reading. Results indicate that the use of books on CD are particularly effective in increasing beginning readers' sight word vocabularies (word list) and their ability to retell a story. This outcome was particularly found to be true for low achievers, who performed better on these tasks using electronic books than traditional print. Students generally gained more on reading from context (word passage) and answering questions using traditional print.

Synchronous computer-mediated communication in the intermediate foreign language class: A sociocultural case study

Synchronous computer-mediated communication (also known as *chatting*) has become an extremely popular Internet application in contemporary society, as a way to communicate electronically with persons from all corners of the globe. While members of academic and business communities are increasingly using synchronous CMC to hold serious discussions, conferences and classes, chat communication is still for the most part recreational in character (Werry, 1996). Only recently have educators come to realize that chatting may provide valuable learning experiences to its participants. The purpose of this study was to investigate interactional and linguistic features of communication among intermediate-level Spanish learners and their teacher in a synchronous CMC context. The study evoked some fundamental constructs of Vygotskian sociocultural theory in order to describe and explain how learners and their teacher collaborated with each other to co-construct meaning in chat rooms. General patterns of learner-learner and learner-teacher interaction were analyzed, as well as learner and teacher perceptions of the use of chat as a language learning tool, and finally, changes in learner output over time. First, it was found that learners appropriated the chat room environment to create their own community of language practice in which they transformed tasks that were assigned to them, went off-task when they wanted to, and had the opportunity to make use of language functions that are not typical of the L2 classroom environment. Second, the learners and the teacher put forth a great deal of perceptions regarding the use of chat rooms in the L2 class, which brought an emic perspective to the study. Third, the Spanish verbal morphology system served as a springboard for illustration and discussion of changes in learner output over time. Specifically, learners made unique uses of the Spanish verbal morphology system, which the emergent grammar perspective was called upon to explain. Also, learners branched out from overuse of the Spanish present tense, gradually using the other available verb tenses and moods more of the time. The study suggests pedagogical uses for synchronous CMC, as well as future research directions.

The relationship of universal grammar to second language acquisition: A meta-analysis

The purpose of this investigation was to synthesize (by means of a meta-analysis) the results of primary research studies, which examined the relationship between Universal Grammar and Second Language Acquisition, in order to discern whether second language learners do have full access to Universal Grammar. In order to proceed with this investigation, primary research studies were retrieved through a multiple channel approach: a combination of manual and computer searches. A set of criteria was established to determine which of the retrieved studies would be included in this meta-analysis. Using these criteria, fifteen primary research studies could be included in this meta-analysis. The unit of analysis for this study is the sample unit of analysis. These fifteen studies yielded 22 independent samples, on which the subsequent analyses were performed. Using effect sizes (Cohen's d-index) as the measure of the outcome of the primary study's sample(s), 70 effect sizes were generated. Each of these effect sizes was weighted and averaged to produce an overall effect size for this meta-analysis. The overall mean effect size produced was 1.25 with a standard deviation 0.68, a very large effect size. In addition, a confidence interval was calculated on this mean effect size. The lower limit was 1.17, and the upper was 1.31. Based on the premise that the mean effect size would approach zero if second language learners do have full access to Universal Grammar, the above results indicate that they do not. Moreover, the confidence interval test does not contain zero, which confirms that second language learners do not have full access to Universal Grammar. Sixteen variables associated with the Publication, Participant and Design characteristics were analyzed to determine if any of these variables had an influence on the effect size generated for each sample. This examination shows that the Target Language being tested does have an influence on the effect size associated with each particular sample. Overall, the results of this investigation contribute to a better understanding of the relationship of Universal Grammar to Second Language Acquisition. Implications for future research are discussed. In addition, implications for teaching of a Second Language are discussed.

From such previous studies, we see clearly the importance of using computer in Education in general and in teaching language in particular; while the teacher of Arabic does not study computer as a syllabus in the programms of his preparation in the Faculties of Education in Egypt and he does not use it in studying any of the other syllabi till he graduated as a teacher.

It has appeared clearly the impotence of the printed book as a means of presenting the educational matter and also the inefficiency of the other conventional educational aids in face of the inflation of the educational matter and its complexity. All this makes us suggest the computer as a logical substitute to increase the efficiency of education, the productivity of education and facing the deeply rooted problems from which educational system suffer especially those of surficial and demanding nature. Many view the computer as a source of hope to make the inevitable change that has long been waited for in the programmes of preparing the teacher in general and the teacher of Arabic in particular. Our success in this depends, primarily, on how successful we are in preparing flexibly the technical means of the requirements of teaching Arabic language.

Problem of the Research:

The problem of this research may wholly be determined in the following questions:

1. What are the linguistic requirements for teaching Arabic using computer in the programmes of preparing the teacher of Arabic in the Faculty of Education at Fayoum?
2. What are the linguistic difficulties concerned with the unavailability of Arabic programing languages?
3. What are the suggestions of treatment so that Arabic may become a computer language?

Aims of Research:

The present research aims at the following:

1. Determining the linguistic demands for teaching Arabic using computer in the programmes of preparing teachers of Arabic in the Faculty of Education.
2. Determining the linguistic difficulties concerned with the unavailability of Arabic programming languages.
3. Determining the treatment procedures so as for Arabic to become a computer language in the programmes of preparing teacher of Arabic in the faculties of Education.

Hypotheses of Research:

The present research attempted to test the two following hypotheses:

1. There are no significant statistical differences between original and expected repetitions of the marks of the student teachers specialized in Arabic on the vocabulary of the questionnaire. The linguistic demands for teaching Arabic using computer in the programmes of preparing the teacher of Arabic in the faculties of Education; this is shown in test (CHI2).
2. There is not any significant statistical difference between original and expected repetitions of the marks of those specialized in computer science engineering and programming on the vocabulary of the questionnaire; the linguistic difficulties concerned with the unavailability of Arabic programming languages; this is shown as such in test (CHI2)

Limits of Research:

The research consists in

1. A sample of student – teachers of Arabic in the Faculty of Education at Fayoum (number:120) to identify their linguistic demands for teaching Arabic using computer in the programmes of preparing teacher of Arabic in the Faculty of Education.
2. A sample of students specialized in compuer science engineering and programming in the Faculty of Education (number: 63) to identify the linguistic difficulties concerned with the unavailability of Arabic programming languages.

Sample of Research:

Table no. 1 shows the sample of research.

Table no. 1

no.	Aim/type of sample	Teachers of Arabic	Specialists in computer science programming
1	Determining the linguistic demands for teaching Arabic using computer.	120	
2	Determining linguistic difficulties in Arabic programming.		63

From the previous table (no.1) it is clear that the sample of this research consisted of two groups as follows:

1. Fourth year students, department of Arabic, Faculty of Education at Fayoum in the academic year 2011-2012.
2. Staff members, specialists in computer science engineering and programming in the Faculty of Engineering at Fayoum, in the academic year 2012.

Tools of Research:

The researcher designed the two following tools:

1. A questionnaire about the linguistic demands for teaching Arabic using computer in the programmes of preparing the teacher of Arabic in the Faculty of Education.
2. A questionnaire about the linguistic demands concerned with the unavailability of Arabic programming languages.

Following is a display of the design of each of them:

First, the questionnaire of the linguistic demands for teaching Arabic using computer in the programmes of preparing teachers of Arabic in the Faculty of Education:

This questionnaire consisted of two parts:

The first was concerned with marshalling primary data about the student – teacher of Arabic. The second consisted of 17 phrases focusing on the main linguistic, speaking, reading and writing. In front of each phrase was written three levels showing the degree of agreement. An open-ended phrase was formed where the teacher writes other linguistic demands that he may add because of being not written in the questionnaire.

Validity and reliability of the linguistic demands questionnaire:

The questionnaire was given to some staff members specialists in Arabic language in the Faculty of Education at Fayoum, in the light of their notes it was modified and some phrases were reformed to guarantee the validity and that the items are comprehensive and have an organic relation to the required linguistic skills for teaching Arabic in the programmes of preparing the teacher of Arabic. After ensuring the validity of the questionnaire it was applied in a pilot study on 18 students – teachers of Arabic in the department of Arabic, Faculty of Education at Fayoum, so as to calculate the reliability of the questionnaire. Table no.2 shows the calculation of the reliability of the questionnaire:

Table no.2

Calculating reliability of the questionnaire of the linguistic demands for teaching Arabic using computer:

Sets of marks	Repetition	Focuses of sets	Deviating from the mean	Repetition *deviating from the mean	Repetition *square of deviation
8-	11	10	Zero	Zero	Zero
12-	3	14	1	3	3
16-	2	18	2	4	8
20-	1	22	3	3	9
24-28	1	26	4	4	16
	18			14	36

Arithmetical mean = $10 + \frac{14}{18} \times 4 = 13.11$

Normal deviation = $4\sqrt{\frac{36}{18} - \left(\frac{14}{18}\right)2} = 4.73$

Calculating reliability was done using the formula: kuder & Richardson. It is as follows(21:535)

$$\text{CRQ}= \frac{N \ldots NDS^2 - M(N-M)}{(N-1)NDS^2} = \frac{17(4.73)^2 - 13.11(17-31.11)}{(17-1)(4.73)^2}$$

Where CRQ = coefficient of reliability of questionnaire

N= Number of times of questionnaire

NDS^2 = Normal devotional square

M= Mean proportional of the marks of agreement

Applying the above – mentioned formula, the coefficient of reliability of questionnaire was equal: **0.92** which made the researcher psychologically at ease using it.

The questionnaire was as mentioned in appendix no.1 in this research:

Secondly, questionnaire of linguistic difficulties concerned with the unavailability of Arabic programming languages: it consists of two parts: the first is devoted to collecting primary data about the specialist in computer science programming. The second consists of 15 phrases focusing on the linguistic difficulties in programming Arabic mechanically: listening, speaking, reading and writing. In front of each phrase was written three levels showing how far one agrees at it. As open-ended phrase was formed where the specialist in computer science programming writes other difficulties that are not mentioned in the questionnaire.

Validity and reliability of the linguistic demands questionnaire:

The questionnaire was given to some staff members specialists in computer science programming and engineering in the Faculty of Engineering at Fayoum, in the light of their suggestions some phrases were modified and rephrased to guarantee validity, comprehensiveness of items and that they have organic relation with the linguistic difficulties in programming Arabic mechanically. After insuring the validity of the questionnaire it was applied to a pilot study of 15 staff members of specialists in computer science programming and engineering in the Faculty of Engineering at Fayoum; this was done to calculate the reliability of the questionnaire.

Table no.3 shows the reliability of the questionnaire

Table no.3
Calculating reliability of the questionnaire3 of linguistic difficulties in Arabic programming

Sets of marks	Repetition	Focuses of sets	Deviation marks	Repetition × deviation	Repetition × square of deviation
10-	9	11	Zero	Zero	Zero
12-	2	13	1	2	2
14-	2	15	2	4	8
16-	2	17	3	6	18
	15			12	28

Mean Proportional = $11+\frac{12}{15}\times 2=12.6$

Normal deviation $2\sqrt{\frac{28}{15}-\left(\frac{12}{15}\right)^2}=2.215$

Calculating reliability was done using the above-mentioned equation of Kuder and Richardson. The coefficient of reliability was equal to **0.631**.This has made the researcher at ease in applying it. The questionnaire in its final form was as mentioned in appendix no.2 in this research.

Application:

After the approval of the Faculty of Education at Fayoum(see appendix no.3) in this research), the two questionnaires were applied to the sample of research.

Statistical treatment:

To handle the results of this research the researcher use the two following tests:

1. CHI^2 test: this is to identify :
   a. the linguistic demands for teaching Arabic using computer in the programming of preparing teachers of Arabic in the Faculty of Education.

b. The linguistic difficulties in the Arabic programming. The following equation was used(10:228)

$$CHI^{2} = \sum \frac{(R - R^{/})^{2}}{R^{/}}$$

Where R = empirical observed repetition

$R^{/}$ = theoretical repetition according to the hypothesis

2. test of calculating the relative weight of each phrase in both questionnaires. This is to arrange phrases according to the degree of approvals concerned with each phrease. Likert Equation was used .(11:483)

$$\text{Relative Weight} = \frac{R^{1}.3 + R^{2}.2 + R^{3}.1}{N \times 3}$$

Where R^{1} = repetition of approval

Where R^{2}=repetition of "I am not sure"

Where R^{3} = repetition of refusal

Where N = number of respondents to the questionnaire

Results and Interpretation of Research:

First; Results of the application of the questionnaire of linguistics demands for teaching Arabic using computer in the programmes of preparing teachers of Arabic in the Faculty of Education.

Table no.4 shows the results:

Table no.4

Linguistic demands for teaching Arabic using computer in the prormmes of preparing teachers of Arabic in the Faculty of Education.

NO.	Agree	Not sure	disagree	CHI^{2}	Relative Weight	arrange
1	55	27	38	9.95	0.714	8
2	40	38	42	0.20	0.661	15
3	27	34	59	14.15	0.578	17
4	58	25	37	13.95	0.725	4
5	52	33	35	5.45	0.714	9
6	63	21	36	22.65	0.742	1
7	61	24	35	18.05	0.739	2
8	33	59	28	13.85	0.681	13
9	54	26	40	9.80	0.706	10
10	58	22	40	16.20	0.717	6
11	60	23	37	17.45	0.731	3
12	33	31	56	9.65	0.603	16
13	52	36	32	5.60	0.722	5
14	35	61	24	18.05	0.697	12
15	43	37	40	0.45	0.675	14
16	53	32	35	6.45	0.717	7
17	52	30	38	6.20	0.706	11

If we refer to table CHI^{2} when the degree of freedom equals two marks at the rate of **0.05**, CHI^{2} then must reach **5.991** so as to be statistically significant. At the rate of **0.01** it must reach **9.210** so as to be statistically significant.

(reference no. (11) P. (370) in the end of research).

Therefore , it is evident form table no.4 that:

1. CHI^2 has a statistical significance for each number of the following phrases: (6), (7), (11), (4), (13), (10), (16), (1), (5), (9), (17)

This means the following

a. The linguistic demands for teaching Arabic using computer in the programmes of preparing teachers of Arabic in the Faculty of Education seen by the respondents (in the sample of research) are: (6), (7), (11), (4), (13), (10), (16), (1), (5), (9), (17)

b. It is also shown from table no.4 that CHI^2 has a statistical significance disagree in what concerns the following phrases:(11), (3)

This means that the respondents do not agree that phrases (12), (3) from the linguistic demands for teaching Arabic using computer in the programmes of preparing teachers of Arabic in the Faculty of Education.

c. The respondents have an attitude of being not sure of the linguistic demands of teaching Arabic using computer in the programmes of preparing teachers of Arabic in the Faculty of Education in what concerns the following phrases.(14), (8)

d. There is no statistical significance differences between the individuals of the sample in the following phrases : (11), (2)

Secondly, results of applying the questionnaire of linguistic difficulties concerned with the unavailability of Arabic programming languages.

Table no.5 shows those results:

Table no.5
Linguistic difficulties related to the unavailability of Arabic programming languages

NO.	Agree	Not sure	disagree	CHI^2	Relative Weight	arrange
1	33	11	19	11.81	0.741	2
2	16	14	33	10.38	0.577	15
3	31	12	20	8.67	0.725	6
4	30	15	18	6.00	0.730	4
5	16	16	31	7.14	0.587	14
6	32	12	19	9.81	0.735	3
7	29	12	22	6.95	0.704	10
8	28	11	24	7.52	0.688	11
9	32	11	20	10.57	0.730	5
10	30	14	19	6.38	0.725	7
11	17	32	14	8.86	0.683	12
12	33	12	18	11.14	0.746	1
13	31	11	21	9.52	0.720	8
14	29	13	21	6.10	0.709	9
15	21	20	22	0.10	0.661	13

From table no.5, it is clear that:

1. CHI^2 has statistical significance of agreement in the numbers of the following phrases: (12), (1), (6), (4) , (9), (3), (10), (13), (14), (7), (8)

this means the following:

a. The linguistic difficulties concerned with unavailability of Arabic programming languages as seen by the respondent (staff members specialists in computer science programming and engineering in the Faculty of Education at Fayoum) are: (12), (1), (6), (4) , (9), (3), (10), (13), (14), (7), (8)

As it is shown in the questionnaire

b. It is also evident from no.5 that CHI^2 has a statistical significance of non-agreed concerning the following phrases: (5), (2)

This means that the respondents do not agree that the phrases (5), (2),from the linguistic difficulties related to the unavailability of Arabic programming languages.

c. the respondents have an attitude of being (not sure) that the phrases no. (11) are from the linguistic difficulties related to the unavailability of Arabic programming language.

e. There is no statistical significance differences between the individuals of the sample in the following phrases : (15)

RECOMMENDATIONS AND SUGGESTIONS OF RESEARCH:

1. rethinking of the problem of ***tashkeel*** (marks over letters to indicate correct pronunciation)
2. considering accidence one of the main entries for handling Arabic language mechanically.
3. Availing of the available means in other languages, especially English, French, Japanese and German.
4. Rediscussing the rules of Arabic in the frame of modern linguistic theory.
5. Using computer in modernizing the Arabic dictionary.
6. Inserting computational linguistics in the departments of languages and computer science engineering.

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APPENDIX NO. 1

A questionnaire Of

The linguistic needs for teaching the Arabic Language through the use of computers in Arabic language teacher's preparation at the Faculty of Education

Dear Student- Teacher of the Arabic Language.

As the Arabic Language teacher in Egypt does not study computer during the preparation period devised for him at the Faculties of Education. As it is not used as well in studying any of the courses presented during his studying days till the day of graduation.

The researcher has prepared the present questionnaire through the use of computers in Arabic language teachers preparation programs at the Faculty of Education.

This questionnaire is made up of 17 items derived from the results of previous studies and research works carried out in the field.

You are kindly requires to put a tick (√) in one of the columns according to the degree of accordance of each item. Pleas read the items carefully and try to be as specific as possible.

Dr. Abd El- Rahman Kamel
Prof. At the curricula and Methodology Dept. Faculty of Education.
Fayoum University

First: Preliminary data:

1. Name: (Optional)
2. Date of birth:
3. Sex (male- female)
4. University:
5. Faculty:
6. Year:
7. Section /specialization:

Second : Questionnaire items:

Tick (√) in one of the columns according to the degree of your accordance with the content of the item, for each of the items provided.

No	The item	Degree of accordance		
		Agree	Not sure	Disagree
1-	The quantitative assessment of some quantitative features of linguistic expressions such as the frequent reputation of letters, words, morphological forms and types of grammatical types.			
2-	Differentiating sounds and identifying the speakers' voice whose parterres have been previously saved.			
3-	Transforming texts typed or scanned to a naturally spoken text.			
4-	Writing analysis: differentiating patterns of latter's automatically by maximizing and erasing them through the use of scanners.			
5-	**Showing typed texts automatically including automatic printing seeing letters on screens.**			
6-	Analyzing sentences grammatically and deriving the different grammatical transformations and applying them clearly.			
7-	Automatic grammatical generation to form sentences, negating its original formation and carrying out different processes of grammatical transformation such as precedence and postponement.			
8-	Analyzing literature to specify date of its start and resource.			
9-	The objective identification of the extent of the previous novelists, playwrights and poets influence on the new ones.			
10-	Comprehending the relations connecting concepts together through what we call conceptual schemes or meaning webs.			
11-	Loading dictionaries on electronic shops or CDs to be used for educational purposes' discovering misspelling.			
12-	Electronic translation to be used for tests and linguistic experimentation.			
13-	The ability to get the required information from the great amount of saved enteries.			
14-	Carrying out electronic indexing.			
15-	Knowing the background of the topic discussed in aspects of its conceptual scheme, meaning of its terms and abbreviation.			
16-	Building and processing information bases.			
17-	Building and processing knowledge bases.			

- Other linguistic needs not mentioned in the questionnaire and should be added.

APPENDIX NO.2

A questionnaire

The linguistic difficulties hindering the availability of Arabic programming languages

Dear Specialist in computer Science,

The researcher is trying to carry out a study about using computer in Arabic language teacher preparation at the Faculties of Education in Egypt.

The English base forced certain technical conditions on the automatic processing of most languages. These conditions increase with the increase of diversion between the intended language and the English language. Considering that Arabic and English are two extremes, a lot of obstacles faced the process of computer arabization. In this way, the hinder of language stands in the way of the Arabic language teacher when using computers.

Thus, the researcher has prepared this questionnaire to specify the linguistic difficulties that may face the arabization process.

The questionnaire is made up of 15 items all derived from the results of previous studies in the field.

You are kindly requested to read the items carfully and tick (√) in the column that matches the degree of your accordance with the content of the item. Thank you very much.

Dr. Abd El- Rahman Kamel
Prof. at the curricula and Methodology Dept. Faculty of Education.
Fayoum Cairo University

First: Preliminary information:

1. Name: (Optional)
2. Date of birth:
3. Sex (male- female)
4. University:
5. Faculty:
6. Year:
7. Specialization:

Second: The questionnaire items:

Tick (√) in the columns that matches your degree of with accordance the content of item.

No	The item	Degree of accordance		
		Agree	Not sure	Disagree
1-	The clarity of computer and the ambiguity of the Arabic language that prefers to be ambigious i.e. making use of shades of meaning uncertainty, ect.			
2-	The computer science is known for its practical nature while the Arabic language is basically theoretical.			
3-	The Arabic language is not purely phonemic as Spanish or Finnish- On the contrary it is made up of syllables (a consonant followed by a vowel such as: يا ما كا. In spite of the Arabic language being basically phonemic, its written from contain many syllabic letters such as: ئ ، ؤ ، إ ، أ ، لأ ، لا (a consonant followed or preceded sometimes by a long or a short vowel.			
4-	The Arabic language allows the connection of pronouns, definite and indefinite articles and negation articles sometimes.			
5-	The hardness of the Arabic language morphology that allows consecutive succession and numerous formations.			
6-	The parsing nature of Arabic that shows many functional relations connecting words such as precetion, deletion, hiding, addition, cannecting, ect.			
7-	The figure of the Arabic letter depends on the proceeding and following letters.			
8-	Some letters call certain pronunciation when following or preceeding other letters, such as pronouncing two letters as one, hiding or changing the sound of a letter to another.			
9-	The diversity of Arabic writing techniques. There are three ways of writing: a. Writing with full symbols. b. Writing with partial symbols. c. Writing without symbols.			
10-	The order of Arabic language depends on the root of the word. It dose not put words in alphabetical order as in English dictionaries.			
11-	The great interference of morphology and phonology of Arabic. A fact best shown through the speculation of the decisive role of various conditions of changing the sound of a letter to another and turning a latter to another			

12-	A sentence could be grammatically sound nut meaningless. Ex. The rocks slept on the bosom of their mother.			
13-	The linguistic and technical imbalance.			
14-	The lack of a scientifically- based communication language between specialists in linguistics and those specialized in computer science.			
15-	The rarity of research work in the field of computer arabization.			

- Other linguistic needs not mentioned in the questionnaire and should be added.

International Journal of Innovation and Scientific Research
ISSN 2351-8014 Vol. 2 No. 1 Jun. 2014, pp. 24-28
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http://www.ijisr.issr-journals.org/

The effect of using some enrichment activities in developing some written composition skills for the first grade preparatory students

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ABSTRACT: This research includes a statement of the research problem and its applications, identifying written composition skills for the first grade preparatory students which need to be developed, defining composition topics appropriate for the first grade preparatory students, and the effect of enrichment activities on written composition. It also includes results, recommendations and suggestions of the study. Following is a summary of the above.

Language is one of the most important means of communications among people. Written language in particular is so important, for it is used to write down meanings and thoughts, and it constitutes a reference for people in communication with others.

The relationship between activity and composition skills is evident in the various speaking and writing classroom activities performed by students. Such activities enable students to employ the language in written composition; it is through language that students speak together, discuss topics and edit files.

KEYWORDS: enrichment activities, written composition skills, first grade preparatory students.

RESEARCH PROBLEM:

Many previous studies have proved that the first grade preparatory students possess weak composition skills. In addition, the researcher observed that many Arabic Language teachers follow traditional methods in teaching composition, which gave few opportunities for their students to participate in the learning situations, and which, in turn, resulted in such weak written compositions skills for the students who became unable to plan the composition topic, or define its terms, or classify their ideas, or even use quotations or citations in their written composition.

Since enrichment activities are related directly to the students' lives, these activities can be useful for developing some of the students' written composition skills.

RESEARCH QUESTIONS:

The current study seeks to answer the following main research question:

- What is the effect of using some enrichment activities in developing some of the written composition skills for the first grade preparatory students?

SUB-QUESTIONS:

In order to answer the above mentioned research question the study seeks to answer the following sub-questions:

1. What are the written composition topics appropriate for the first grade preparatory students?
2. What are the written composition skills that need to be developed for the first grade preparatory students?

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3. How could some composition topics be taught through enrichment activities for the first grade primary students?

4. What is the effect of some enrichment activities in developing some of the written composition skills for the first grade preparatory students?

RESEARCH OBJECTIVE:

The current research aims at investigating the effect of using some enrichment activities in developing some of the written composition skills for the first grade preparatory students.

SIGNIFICANCE OF THE STUDY:

The current research is of significant importance in terms of the following:

- Improving the students' level in written composition.
- Reconsidering the currently used methods for teaching written composition.
- Exploring the significance of using enrichment activities in developing some of the written composition skills.
- Developing the performance of the Arabic Language teachers through training them on employing the enrichment activities in teaching written composition to students.
- Providing other researchers with new prospects and suggestions that help them conduct more studies especially on the role of enrichment activities in teaching various branches of Arabic language.

LIMITATIONS OF THE STUDY:

The current study focuses mainly on:

1. A sample taken from the first grade preparatory students in Fayoum city.
2. The following enrichment activities:

- Facts, terms, and concepts related to the composition topics.
- Citations that support thoughts and opinions in the written composition such as Quran verses, Hadith, poetic verses, and meaningful sayings.
- Some reports, related to the written composition topics, which are issued by universal, local or international organizations.
- Some pictures, charts, tables, and illustrative maps
- Free reading.

3. Some written composition topics such as: supporting the Prophet (peace be upon him), the importance of friendship, cleanliness is next to godliness, the importance of computer, and the striving merchant.
4. The composition skills that need development (planning, description, classification, inference, and evaluation)
5. The study was conducted in the first school semester.

RESEARCH METHOD:

1. Descriptive Design: it is used to define the research problem, limitations, hypotheses, and significance. It is also used to describe the research instruments (a test of some written composition skills for the first grade preparatory students).

2. Quasi-Experimental Design: it is used to define the effect of using some enrichment activities in developing some of the written composition skills for the grade preparatory students.

The instruments used by the researcher were classified into:

Firstly: Preparation of the experimental tools which include:

- A questionnaire of the composition topics appropriate for the first grade preparatory students.

- Observation card for the teaching performance of the Arabic Language teachers.

Secondly: Preparation of educational tools which include:

- A student booklet

- A teacher's Guide

Thirdly: Preparation of measurement tools which include:

- A test of some of the written composition skills
- A content analysis for students' pre and post writings.

HYPOTHESES OF THE STUDY:

The hypotheses of the study are:

- There is no statistically significant difference between the mean (average) of the experimental group and the average of the control group in the pre-test for some of the written composition skills for the first grade preparatory students.
- There is no statistically significant difference between the mean (average) of the experimental group and the average of the control group in the post-test for some of the written composition skills for the first grade preparatory students.

RESEARCH PROCEDURES:

The current study followed the following procedures:

- To answer the first research questions: What are the written composition topics appropriate for the first grade preparatory students?
- The researcher prepared a questionnaire that included the written composition topics appropriate for the first grade preparatory students. The questionnaire was introduced to a group of expert raters to check its validity and reliability, the topics were modified according to the raters' suggestions, and they were employed by the researcher. The results were presented in tables for analysis and interpretation.

Table 1. Observed Frequencies, Expected Frequencies, and the Values of X^2 for the opinions of the teachers and supervisors of the Arabic language - the research sample for the written composition topics appropriate for the first grade preparatory students.

Order by Significance	Relative Weight	Significance	X^2	Appropriateness			Item
				Low	Medium	High	
				K	K	K	
1	.975	0.01	55.26	0	2	38	**1**
8	.9	0.01	29.6	0	12	28	2
13	.883	0.01	26.60	2	10	28	3
3	.958	0.01	53.75	0	5	35	**4**
7	.908	0.01	32.15	0	11	29	5
13	.883	0.01	31.40	4	6	30	6
21	.733	Not Significant	2.45	9	14	17	7
2	.960	0.01	53.83	0	3	37	8
16	.875	0.01	27.95	4	7	29	9
8	.9	0.01	32.60	2	8	30	10
19	.841	0.01	24.35	7	5	28	11
4	.933	0.01	44.45	1	6	33	**12**
13	.883	0.01	31.40	4	6	30	**13**
10	.891	0.01	27.95	1	11	28	14
17	.858	0.01	27.65	6	5	29	15
17	.858	0.01	20.45	3	11	26	16
10	.891	0.01	29.45	2	9	29	17
10	.891	0.01	29.45	2	9	29	18
5	.930	0.01	48.20	2	4	34	**19**
19	.841	0.01	21.05	6	7	27	20
6	.925	0.01	38.15	0	9	31	21

Table 1: It shows that the order of the written composition topics by relative weight is as following:

Supporting the Prophet (peace be upon him), Relative Weight (.975).

1. Friendship and choosing the good friend, Relative Weight (.960).
2. Cleanliness is next to godliness, relative Weight (.958).
3. The story of a poor merchant who became rich, Relative Weight (.933).
4. The importance of computer, Relative Weight (.930).
5. The role of science and work in our life, Relative Weight (.925).
6. 6th of October War, Relative Weight (.908).
7. Birth of the Prophet, Relative Weight (.9).
8. How to maintain school facilities, Relative Weight (.9).
9. River Nile and its bounty to Egypt, Relative Weight (.891).
10. A historical character, Relative Weight (.891).
11. A sound mind in a sound body, Relative Weight (.891).
12. The role of fasting in our life, Relative Weight (.883).
13. How sports refine our souls, Relative Weight (.883).
14. The 25th of January Revolution, Relative Weight (.883).
15. Benefits of journey and what you like most about them, Relative Weight (.875).
16. Egypt winning the African Cup, Relative Weight (.858).
17. Tourism in Egypt, Relative Weight (.858).
18. Mother's Day and it impact on society, Relative Weight (.841).
19. The role of library in your life, Relative Weight (.841).
20. Elections and current events, Relative Weight (.733).

1. To answer the second research question: What are the written composition skills appropriate for the first grade preparatory students?

- The researcher reviewed the literature on written composition skills.
- The researcher prepared a composition test and it was introduced to raters to check its validity and reliability. A pre-test and a post-test were presented to the control and experimental groups (research sample).

2. To answer the third research question: How could some composition topics be taught through enrichment activities for first grade primary students?

- The researcher prepared a student's book.
- The researcher prepared a teacher's guide.
- The researcher trained the research sample (control group) only on using the enrichment activities to write composition topics.

3. To answer the fourth research question: What is the effect of some enrichment activities in developing some of the written composition skills for the first grade preparatory students?

- The researcher applied a post-test on the sample, and the data were statistically analyzed.

Table 2. The experimental group achieved higher scored in the post-test of composition skills than the control group.

Sig.	Calculated t value	df = 53	Control (28)		Experimental (27)		Statistical Data / Skill
Significant at 0.01 level	10.913		1.13	2.39	0.70	5.22	Planning
Significant at 0.01 level	11.050		571.1	2.29	0.76	5.26	Description
Significant at 0.01 level	10.406		1.14	2.96	0.58	5.56	Classification
Significant at 0.01 level	11.625		1.73	3.43	1.30	8.33	Inference
Significant at 0.01 level	8.236		0.98	1.71	0.64	3.59	Evaluation
Significant at 0.01 level	11.540		1.36	2.71	0.85	6.22	Writing Composition

Table 2: It shows that the scores of the experimental group on the post-test application were higher than the scores of the control group in the following skills:

1. Planning skill, calculated t value .10.913.
2. Description skill, calculated t value .11.050.
3. Classification skill, calculated t value .10.406.
4. Inference skill, calculated t value .11.625.
5. Evaluation skill, calculated t value .8.236.
6. Writing composition skill, calculated t value .11.540.

RESULTS:

The results of the research are summarized as following:

1. There are statistically significant differences between the observed frequencies and expected frequencies for the opinions of the Arabic language teachers and supervisors concerning the written composition topics appropriate for the first grade preparatory students. The five topics with the highest relative weights are:
   a. Supporting the Prophet (peace be upon him), Relative Weight (1).
   b. Friendship, Relative Weight (.975).
   c. Cleanliness is next to godliness, relative Weight (.958).
   d. Struggling Merchant, Relative Weight (.933).
   e. The importance of computer, Relative Weight (.930).
2. There are statistically significant differences between the average scores of the research sample before and after the application of treatment i.e., teaching composition skills using enrichment activities; there are significant differences at the levels of (0.01) and (0.05) between the experimental group and the control group in the post-test and written composition skills in favor of the experimental group. These results indicate that:

- The experimental group that studied written composition through using enrichment activities had their following written composition skills developed:

1. Planning skill, calculated t value .10.913.
2. Description skill, calculated t value .11.050.
3. Classification skill, calculated t value .10.406.
4. Inference skill, calculated t value .11.625.
5. Evaluation skill, calculated t value .8.236.
6. Writing composition skill, calculated t value .11.540.

RECOMMENDATIONS OF THE STUDY:

1. Employing enrichment activities in Arabic language lessons especially written composition.
2. Training Arabic language teachers on employing the student's booklet in classes assigned specially for written composition at schools.
3. Considering students' preferences when choosing the topics for written composition classes.
4. Linking written composition to other branches of Arabic language lesson.

SUGGESTIONS FOR FURTHER RESEARCH:

- Future research may seek to:

1. Develop other written composition skills.
2. Employ enrichment activities to develop skills in different other branches of Arabic.
3. Employ enrichment activities on students of primary and secondary stages.

International Journal of Innovation and Scientific Research
ISSN 2351-8014 Vol. 2 No. 1 Jun. 2014, pp. 29-39
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http://www.ijisr.issr-journals.org/

Systematic Data Management for Real-Time Bridge Health Monitoring Using Layered Big Data and Cloud Computing

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ABSTRACT: Current paper presents a layered big data and a real-time decision-making framework for bridge data management as well as health monitoring. There are emergency conditions that prevent timely fixing of bridge's damage. At these situations, road users are the right decision makers who should directly be informed about the bridge condition. Using this framework, sensors embedded on bridges could be designed to send warning messages to Variable Message Signs and cell phones within a defined region. To address difficulties of real time communication with road users and/or experts in central management office, the emerging technology of big data and cloud computing could be utilized.

KEYWORDS: Asset Management; Big Data; Bridge Health Monitoring; Cloud Computing; Variable Message Sign.

1 INTRODUCTION

Transportation facilities constitute one of the most important and vital public assets and account for a major portion of capital expenditure worldwide. These facilities serve to be well constructed, rehabilitated and maintained to support safe movements of people and goods. Efficient and safe transportation is essential to general public to meet higher level of welfare. With the increasing travel demand, it is getting, however, more critical to provide transportation services. Recently, transportation agencies are more interested in applying systematic approaches for proper management of existing assets and at the meantime conducting appropriate planning to cater future needs. This strategic movement is referred to as Transportation Asset Management (TAM), which makes investment decisions to preserve, expand and operate transportation facilities using comprehensive datasets in project and network scales. The overall, long-term objective of the asset management program is to optimize, or fully leverage, the asset portfolio to provide reliable and sustainable assets that fully meet current and known future agency business needs in order to ensure performance and condition standards that comply with all applicable regulations while minimizing the life cycle costs.

A highway system has a number of physical facilities including pavements, bridges, roadside elements and traffic control devices, all of which have their own service characteristics and require specific approaches for maintenance. For instance, bridge management system as a part of TAM, seeks to identify current and future deficiencies in order to assist in making cost-effective decisions. Therefore, it is crucial to have sufficient data to identify the optimum case for bridge repair and

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rehabilitation over given time periods and available funds. Enhancing user benefits in terms of bridge safety and reliability in operations requires continuous bridge health condition monitoring to ensure preventing catastrophic events.

The current situation and future of surface transportation infrastructure in the United States is at a critical point. Approximately, one-third of bridges in U.S. are approaching to the end of their service life. This may be attributed to increasing travel demand along with constant or even decreased investment in highway infrastructure, especially bridge maintenance.

As was discussed earlier, availability of valid datasets enables decision makers to apply timely bridge maintenance programs and extend its service life to prevent or minimize subsequent additional construction costs and burden on agencies as well as society. Although, there has been significant progress in sensor technologies for collecting structural condition of bridges and conducting timely treatment, however, Bridge Health Monitoring (BHM) still remains a challenge. BHM seeks to determine whether structural condition of bridge performs as expected or there is some kind of deterioration in its behavior. It can greatly enhance the service life of the structure and improve users' satisfaction in general.

With the advancement of data-acquisition and storage programs, faster and easier approaches can be conducted for bridge health monitoring. Application of social media, mobile devices, sensors, video, and imagery technologies are some examples in this regard. This study intends to discuss applying big data and cloud computing for data management pertinent to bridge health monitoring. A new framework for real time BHM will also be proposed.

1.1 RELATED WORK

Condition monitoring of bridges have long been practiced. Cheng and Melhem [1] investigated the effectiveness of using fuzzy case-based reasoning model for bridge health monitoring. Their developed model produced reliable results with small errors. Gul et al. [2] proposed a low-cost practical monitoring approach to perform proper lubrication level in an open gear of a movable bridge by using video cameras. They developed two indices for monitoring of the open gear by investigating two different image processing methods. Im et al. [3] conducted a study reviewing GPS application for structural health monitoring. They pointed out that although the application of GPS as a Structural Health Monitoring (SHM) method cannot be applied in all different types of structures, however, it is useful in cable-supported bridges. Kallinikidou et al. [4] carried out a study with concentration on the areas of data management, data quality control, and feature extraction of meaningful parameters to describe the response of large-scale infrastructure systems for SHM. Based on the associated data, appropriate action could be taken for proper treatment on the bridge. Smarsly and Law [5] presented the design and implementation of an agent-based wireless system for SHM which resulted into 95% and 96% reduction in sensor data transmitted and the power consumption, compared to the case when all raw data had to be transmitted to a remote computer for analysis. Kaloop et al. [6] used GPS technology with wavelet principal component analysis and spectrum methods for monitoring of bridge deck deformation and analyzed the behavior and movement of bridge under moving traffic loads. Kurata et al. [7] developed a new wireless internet based SHM system for large-scale civil infrastructure. The proposed method was validated on the New Carquinez (Alfred Zampa Memorial) Bridge in Vallejo, California. Laory et al. [8] presented a novel model-free data-interpretation methodologies that combined moving principal component analysis with each of four regression-analysis methods: i) robust regression analysis; ii) multiple linear analysis; iii) support vector regression; and iv) random forest for damage detection during continuous monitoring of structures. For the combined data-interpretation methods, the best regression analyses were found to be those that are compatible with eigenvector-correlation characteristics. Wijesinghe et al. [9] presented a development work for an in situ sensor which is based on the strain-life fatigue analysis method for the detection of fatigue damage in steel bridge.

1.2 MOTIVATION AND OVERVIEW OF THE CURRENT STUDY

Bridge data collection and storage, as well as making timely decisions in order to deal with damages on bridge's structure and prevent catastrophic events, is still a challenge and requires more advanced approaches. The current study endeavors to incorporate big data and cloud computing technologies with principles of Transportation Asset Management (TAM) strategy to develop new framework for bridge data management, health monitoring, and decision making.

1.3 OUTLINE

The remainder of this paper is organized as follows: Section 2 introduces concept of big data and the way it relates to cloud computing. Application of Global Positioning System (GPS) and Geographic Information Systems (GIS) in transportation field, have also been discussed here. Section 3 upgrades existing commonly used bridge management flowchart and creates a

layered big data framework for bridge data management and health monitoring. A real-time decision making framework for bridge health monitoring has also been proposed. Finally, Section 4 presents a study summary and draws conclusions.

2 BIG DATA AND CLOUD COMPUTING

The size of data in different fields including transportation is booming up all around the world. By passing the time, new angles of technology in different fields like computer science, information processing, and transportation have been identified and human beings are getting more and more curious to make interdisciplinary application of emerging technologies. For instance, in order to extract useful information from large unstructured datasets and create harmonized and well organized data, a computational process called data mining was introduced which comprises of data classification, regression, clustering and summarization.

Michael Cox and David Ellsworth introduced the term big data in 1997 to be applied for large volumes of data [10]. The term big data has been recently used in many studies to capture features of huge datasets [11], [12], [13], [14], [15], [16]. As its two words imply by themselves, it is large and unusual size of datasets that cannot be handled efficiently using the conventional and routine manners and tools. Due to its huge size, it requires special way to be processed and get ready for utilization. Two main points which need special attention in dealing with big data for critical decision making are i) physical design and conceptual correlation between various datasets; and ii) maintenance and processing. Main features of big data can be summarized in four-V as volume, velocity, variety, and value. Volume represents big size of datasets; velocity indicates speed of data collection and transferring; variety stands for different data types which involve in collected datasets; and finally value represents the importance of data for utilization.

Big data investments in 2013 shows that 64% of organizations invested or planned to invest in big data technology compared to 58% in 2012 [17]. Big data requires fast analytical processes and algorithms to organize and analyze these massive datasets. They can receive the information from several sources such as social media, mobile devices, sensors, video, and imagery. Collected datasets are usually unstructured that are not easy to be utilized. In order to clean up and create structured datasets, they need to be so called correlated and harmonized.

There are several techniques to address unstructured datasets. MapReduce is a framework for distributed computing to address processing large unstructured data sets. In simple words, MapReduce divides input files into chunks and processes these in different steps. Hadoop is an open source version of MapReduce. Hadoop clusters are useful for processing massive datasets. It has a distributed file system as its data storage layer called Hadoop Distributed File System (HDFS) and HBase distributed database. Hadoop is a Java-based MapReduce application for big data processing. What Hadoop does is mapping a single large workload into smaller sub-workloads. Then merges (reduces) these smaller workloads to get the final result. MapReduce framework can be leveraged to process large datasets using “cloud” resources.

Cloud computing has emerged as a subject of interest for researchers and practitioners. It has received lots of applications along with lower IT costs, which turns into significant efficiency level [18]. A general and simple definition of cloud computing is remote control or software virtualization [19]. Cloud has five main layers as follows [20]: Layer 1) Cloud Application: provides interface and access-management tools for specific application services to the cloud end users. This model is referred to as Software as a Service (SaaS). Layer 2) Cloud Software Environment: providers of the Cloud software environments assist users as well as developers of cloud applications in terms of programming language level. This services are called as Platform as a Service (PaaS). Layer 3) Cloud Software Infrastructure: this part provides essential resources to other higher layers. These services can be categorized as: Infrastructure as a Service (IaaS) for end users, Data Storage as a Service (DaaS) which allows users to store their data at remote disks and access them anytime as they want, and Communication as a Service (CaaS) which provides communication possibilities in different aspects. Layer 4) Software Kernel: this layer provides the core management points for taking care of software. Layer 5) Hardware and Firmware: end users, those who directly interact with the cloud, require a lot of IT subleasing Hardware as a Service (HaaS).

Cloud computing gives the opportunity to users to access computing infrastructures and software resources as different parts of a network. A cloud service can determine a very good quality of any transportation assets’ location from a raw data using Geographical Positioning System (GPS) [21]. It can also provide strong fitness and an opportunity for Geographic Information Systems (GIS) in creating multiple layers of traffic and transportation assets’ data [22].

2.1 GLOBAL POSITIONING SYSTEM (GPS)

There are a number of satellite-based positioning systems like GPS and GSM in use. GPS is a navigational system that is based on satellite and was initially started by the US department in Defense in 1973. Soviet Union developed the Global

Navigation Satellite System (GLONASS) which is currently running by the Russian Government. European Union built the Galileo system which is expected to be completed in 2014. At the meantime, Chinese government is also planning to fully develop BeiDou (COMPASS) Navigation Satellite System by 2020 [23].

GPS technology has recently received more attention in transportation studies. Venter and Joubert [24] described the use of GPS data to analyze the travel behavior and fuel consumption patterns of motorists in Gauteng Province, South Africa. Hongxia et al. [25] analyzed collected individual travel data from GPS to investigate travel behavior and develop models for urban traffic planning. Huang et al. [26] proposed an approach for estimating travel time along roadways using collected data from GPS. Zhao et al. [27] developed a methodology for identifying and ranking the road bottlenecks using data from GPS mounted on trucks.

There are three main components in GPS including: i) Satellite Vehicles or the Space Segment; ii) Control Segment; and iii) User Segment. As the name of Satellite Vehicles implies, they are satellites in space. In order to monitor and control the satellites, Control Segment can be used which is a network of ground-based facilities and is composed of a master control station, an alternate master control system, 12 command and control antennas, and 16 monitoring sites. The User Segment is the receiver equipment and uses the signals from Satellite Vehicles to arrive at a location [23].

GPS can significantly help to find out the desired location. However, it cannot assist in finding other attributes of that specific location. As Abler [28] noted, "GPS equipment will tell me where I am with great precision. But knowing precisely where I am may not be very helpful. Location, no matter how precisely specified, is sterile in and of itself. Context determines whether knowledge of location is invaluable. Contextual knowledge immensely enriches the value of locational information". To address this issue, providing that all required data are collected, GIS is the right tool for storing and mapping all attributes of associated link or node within a transportation network.

2.2 GEOGRAPHIC INFORMATION SYSTEMS (GIS)

GIS based analysis enables decision makers to organize available datasets and apply proper management procedure on them. By utilizing the advanced information technology in transportation field, it is possible to determine the relationship among road network, vehicles, traffic stream, environment, and other attributes in order to get closer familiarity with desired locations and make the right decision.

More than half a century ago, in 1963, Tomlinson proposed the Canadian GIS based technology for data management and mapping of information [29]. Since then, it has vastly been used in academia and industry for digitizing and analyzing the corresponding data. GIS creates dynamic and somehow smart maps which embeds several attributes of a specific node or link into a readable box. Having all these detailed information at the same time, enable experts to get full view of different locations simultaneously.

Thill [30] introduced the concept of GIS transportation and emphasized on primary requirements to apply this technology in transportation domain. Shaw and Xin [31] presented a temporal GIS design for analyzing the interaction between land use and transportation. Loo [32] used crash, road network and district board databases in GIS to validate crash locations. Juan and Feng [33] proposed a component-oriented GIS based framework for traffic management. Kuo et al. [34] utilized ArcGIS for geocoding of the crime and crash data as well as defining the hotspots and organizing the best patrol routes within a network. Miller [35] discussed the role of GIS and social medial for cultivating transportation systems. Richardson [22] addressed impacts of real-time space-time functions on GIScience and how more progress can be made in this field. Tao [29] reviewed advancements of GIS for city management in terms of facilitating urban modeling and decision-making.

GIS plays an important role in organization, harmonization and analyzing of temporal-spatial data and also improves energy efficiency and the need for man power in data storage and retrieval. It is a very useful cartographic tool for the computerized storage as well as graphic display of multiple layers of locational data and associated information. Considering the fast development of urbanized and surrounding areas, it would have been complicated to create non-digitized maps for planning and management purposes. In compare to non-computer-based maps, GIS has greatly improved the efficiency of making and updating maps. It has brought many advantages for decision-makers as well as general public to investigate various alternatives to end up with clear understanding and right decision for implementation.

3 LAYERED BIG DATA FRAMEWORK FOR BRIDGE DATA MANAGEMENT AND HEALTH MONITORING

Figure 1 illustrates detailed procedure for bridge data management and health monitoring using concepts of big data and cloud computing. It incorporates the big data application and cloud computing with transportation asset management fundamentals. There are two phases involved in this framework, phase 1 is "cloud" based while the second phase is

"decision" based. First phase is comprised of three layers including data collection, data transfer, and data storage as well as visualization. These three layers could get benefit of cloud computing technology and handle the processing of datasets using cloud resources. In the second phase, which is mainly coming from asset management strategy, experts and decision makers viewpoints are closely embedded into the framework. This phase has also three different layers as i) Data evaluation; ii) Projects prioritization; and iii) Projects implementation.

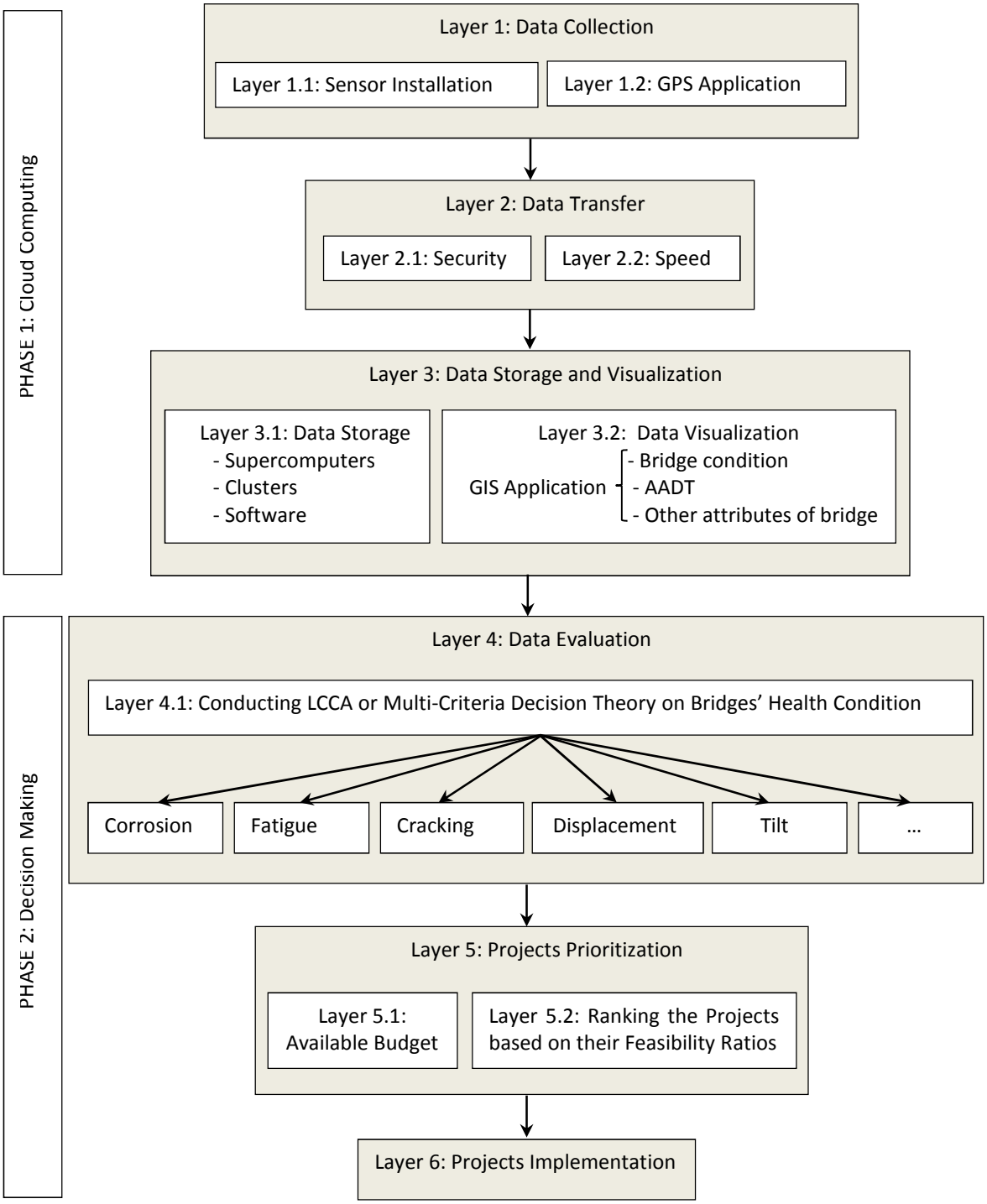

Fig. 1. Layered Big Data Framework for Bridge Data Management and Health Monitoring

Layer 1: Data Collection. In order to collect associated data of bridges' health condition, appropriate sensor types could be installed on desired locations. The sensors, by nature, capture structural condition of bridge and send the information to monitor center via GPS facilities.

Layer 2: Data Transfer. Information security is one of the main issues involved in today's data transferring. Despite proposed secure algorithms by computer science experts, it is also important to consider speed of data transfer from sensor/GPS to storage places. A trade-off analysis needs to be performed between security and speed in order to have an efficient data transfer.

Layer 3: Data Storage and Visualization. It is a struggling point to see how received data could be stored before utilization. In order to address this issue, supercomputers and clusters which are able to store huge datasets, can be used. In pursuant of having all information available, it is worthwhile to create visualized system of data and make organized layers out of them. As was discussed earlier, GIS which has extensively been used in transportation field, is a proper choice for handling this issue. Geo-coding of unstructured data and creating multiple visualized layers in GIS will assist to get easier access to corresponding datasets along with exact location of a bridge and all its attributes including health condition and etc. As such, the unstructured data can somehow be converted to organized and structured information.

Layer 4: Data Evaluation. In order to make the most appropriate decision in regard of bridges' health condition, it is essential to get the viewpoints of experts to see which deterioration type needs to be fixed first to end up with overall network-wide benefits. The overall benefits of the investment option can be determined on the basis of multiple benefit items as captured by changes in related performance measure values. Of the individual benefits items, some of them including reduction in i) construction; ii) deck rehabilitation; iii) superstructure replacement; and iv) maintenance costs and decrease in vehicle operating costs resulted from the investment could be estimated in dollar values. Two general approaches can be used to combine the individual benefit items measured in non-commensurable units into the total benefits measured in a commensurable unit. One approach is to convert the non-dollar valued benefit items into dollar values. The present worth or equivalent uniform annualized dollar values of total benefits in facility service life-cycle are then computed using the life-cycle cost analysis (LCCA) approach. The other approach is to convert non-commensurable benefit items into none-dollar scaling values using the multi-criteria decision theory. Analytical Hierarchy Process (AHP) is a multi-criteria decision approach which could be used for assigning different weighting factors between various damage types, in order to evaluate each project. In terms of bridge condition, there are several structural parameters including corrosion, cracking, fatigue, displacement, force, settlement, strain, temperature, tilt, vibration, and etc [36].

Level 5: Projects' Prioritization. The evaluation of proposed investment options will help screen out economically infeasible options. Selection and programming of the remaining economically feasible investment options can then be conducted on the basis of estimated life-cycle benefits and the investment amount for each investment option. Due to limited budget available, only a portion of the economically feasible investment options can be selected for implementation. From the network-level investment decision perspective, the selection and programming of investment options aim to select a subset from all economically feasible investment options to yield the maximized overall benefits subject to budget and other constraints. The optimization modeling for investment selecting and programming is known in the literature as the capital budgeting problem. More generally, it falls in the category of the doubly constrained multidimensional Knapsack problem, where a certain amount of budgets is designated for a specific type of physical asset or system operations and the designated budget is further restricted for each year of the multiyear resource allocation period.

Layer 6: Projects Implementation. It should be noted that there might be institutional or technical issues that will impede implementation of selected projects. In addition, other qualitative factors such as public support may also impact the actual sequence in which projects are deployed. It is important that the analysis be made flexible to keep abreast of the changing needs of highway transportation, yet robust enough to be applicable in a wide variety of areas related to bridge management.

3.1 PROPOSED REAL-TIME DECISION MAKING SYSTEM FOR BRIDGE HEALTH MONITORING

Bridge maintenance is a kind of work which requires routine inspection and fast treatment implementation. Proposed framework in Figure 1 discussed a detailed procedure from data collection through conducting the appropriate treatment for fixing bridge related damages. One of the crucial elements which might be a part of limitations in that framework, is the matter of time. When collected data are delivered to central management office, experts could go through them to make best decision for treating the issue, however, the remaining question is how long would it take from data collection, transfer, storage, evaluation till decision making by experts and applying the right treatment? Don't we need to also include road users (drivers) as a part of decision making process?

There might be situations at which bridge damage needs immediate treatment and failing to do so would cause catastrophic consequences on road users. During the time of and also after extreme events, such as earthquakes or blast loading, SHM could be designed to provide real-time or near-real-time, reliable information about the health condition of structure. Sensors could be utilized to provide real time monitoring of various structural changes and transmit them to a remote data acquisition center for decision making. The sensors include accelerometers, strain gauges, tilt sensors displacement transducers, level sensing stations, anemometers, temperature sensors and dynamic weight-in-motion sensors. These sensors are part of the early warning system for bridges, providing the essential information that helps Department of Transportation (DOT) to accurately monitor the general health conditions of bridges. By using these instruments the factors that eventually lead to structural failure can be measured in real time. This monitoring in countries with high potential seismicity, like U.S, has more importance and needs to be preciously conducted. Seismic monitoring of a bridge also starts with the selection and arrangement of a sensing system and associated data acquisition procedure. Commonly used sensors for seismic monitoring of a bridge include seismometers for induced bridge acceleration response. Seismometers are sensors for measuring motion of the ground, including earthquake related waves, and nuclear explosions. Additionally, dynamic displacement response of a bridge to seismic loading can be measured using displacement transducers, tilt-meters and GPS. In case of measuring dynamic acceleration and stress responses of bridge to seismic loading, piezoelectric, servo-type tri-axial acidometers, and strain gauges, optical fiber sensors, can be utilized, respectively [37].

As was discussed earlier, there are situations where bridge needs immediate treatment to fix the damage. However, there are many emergency conditions that bridge damage could not receive immediate treatment. Some of the common types of these situations have been summarized in Table 1. As such, road users are the right decision makers, at these points, who should directly be informed. One of the common ways, in order to communicate with drivers, is via Variable Message Signs (VMS) installed along roadways. SHM sensors embedded on bridges could be designed to send warning messages, regarding the bridge damage or failure, to VMSs installed within at least 1 mile before that bridge. Additionally, sending warning messages to cell phones within a defined region, depending upon the location of bridge, is another way in order to facilitate real time communication with road users. Having done that, drivers could make the right decision accordingly to either stop their trip or take another route towards destination. The challenge is how this many information can be coordinated to address data processing and implementation. Strategy of big data and cloud computing, as was discussed in preceding sections, is an appropriate way to properly manage these tasks.

Table 1. Some of the Emergency Conditions when Warning Messages about Bridge Damage should be sent to Drivers via VMS and Cell Phone

Issue Type	Detailed Issue Item	
Emergency recovery	Natural incidents	- Hurricane - Flood - Wildfire - Earthquake - Landslide
	Manmade hazards	- Terrorist attacks - Chemical spills - Nuclear accidents
	Construction	- Deck failures - Bridge sub-structure damage
Evacuation	- Bridge over a railroad - Bridge over a navigation channel	
Site issues	- Accessibility of the construction site is not easy for DOT contractors - Prefabrication of deck, superstructures, substructures, and foundations is required	
Construction time	- Restriction of construction time due to adverse economic impact - Where a project is of a complex nature, for example, on an existing acute hospital site - If there are many number of on-site construction tasks - Rolling spans on runway - Floating spans on barges - Weather constraints - Natural or endangered species	
Safety concerns	- Workers are exposed to dangerous situations like working close to traffic, near power lines, or over water - On complex projects which involve the use of specialized work methods or equipment	
Environmental issues	- Involvement of environmentally sensitive area - Historical bridge - Land use and ecosystem - Drainage	
Standardization	- Availability of Federal, state, industry and local prefabricated bridge standards - Incorporation of aesthetic or context sensitive design requirements - Special superstructures of the trusses, cable stayed and movable (bascule, lift and swing) - High strength bolt installation and inspection	
Maintenance of traffic	- Concerns of excessive work zone induced user delays and crashes - Congested urban areas where costs associated with traffic control increase substantially - Reduce access to the business - Congestion in front of businesses - Improvements in level of service, lane mile hours at LOS E or worse	

Figure 2 illustrates proposed real time decision making process for bridge health monitoring. Depending upon the emergency level of bridge's damage, the appropriate message could be sent to either drivers or experts at associated DOT, to make timely decision.

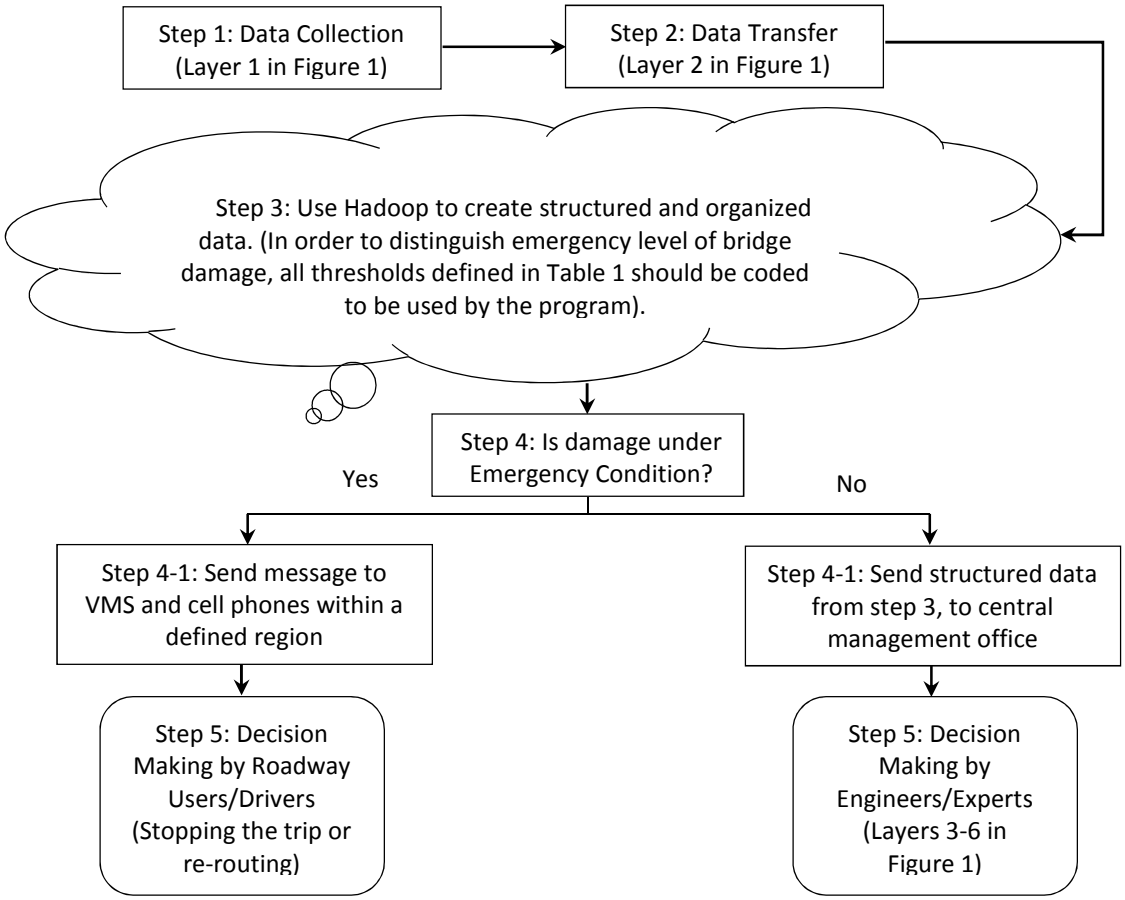

Fig. 2. Proposed Real-Time Decision Making Framework for Bridge Health Monitoring

4 SUMMARY AND CONCLUSION

With the advancement of data-acquisition and storage programs, fast and easier approaches can be conducted for bridge health monitoring. Utilizing social media, mobile devices, sensors, video, and imagery technologies are some examples in this regard. The current study incorporated big data and cloud computing technologies with principles of transportation asset management strategy and developed new framework for bridge data management and health monitoring as well as real time decision making to deal with bridge's health condition. MapReduce which is a framework for distributed computing to address processing large unstructured data sets was discussed. In simple words, MapReduce divides input files into chunks and processes these in different steps. Hadoop was also introduced which is an open source version of MapReduce. Hadoop clusters are useful for processing massive datasets. It was mentioned that MapReduce framework can be leveraged to processes large datasets using "cloud" resources. Cloud computing has received lots of applications along with lower IT costs, which turns into significant efficiency level. A general and simple definition of cloud computing is remote control or software virtualization. A cloud service can determine a very good quality of any transportation assets' location from a raw data using GPS. It can also provide strong fitness and an opportunity for GIS in creating multiple layers of traffic and transportation assets' data.

The conventional framework for bridge data management and health monitoring was upgraded. In this framework, big data application and cloud computing were incorporated with transportation asset management fundamentals. There are two phases involved in this framework, phase 1 is "cloud" based and phase 2 is "decision" based. First phase is comprised of three layers including data collection, data transfer and data storage as well as visualization. These layers could get benefit of cloud computing technology and handle the processing of datasets using cloud resources. In the second phase, which is mainly coming from asset management strategy, experts and decision makers viewpoints are closely embedded into the

framework. This phase has also three different layers as i) Data evaluation; ii) Projects prioritization; and iii) Projects implementation.

There are many emergency conditions that bridge damage needs to be immediately fixed, however, due to many circumstances it cannot be done. At these situations, road users are the right decision makers, who should directly be informed about the bridge condition. In order to communicate with drivers, one of the common ways is via Variable Message Signs (VMS) installed along roadways. SHM sensors embedded on bridges could be designed in a way to send warning messages, regarding the bridge damage, to VMSs installed within at least 1 mile before that bridge. Additionally, sending warning messages to cell phones within a defined region, depending upon the location of bridge, is another way in order to facilitate real time communication with road users. To address difficulties of real time communication with road users and/or experts in central management office (like DOT), the emerging technology of big data and cloud computing could be utilized.

Although, the proposed procedure for real time communication with road users and decision makers at DOTs, seems to be a new path in terms of transportation asset management, however, it still requires additional work before implementation.

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International Journal of Innovation and Scientific Research
ISSN 2351-8014 Vol. 2 No. 1 Jun. 2014, pp. 40-58
© 2014 Innovative Space of Scientific Research Journals
http://www.ijisr.issr-journals.org/

Evaluating the Teaching Performance Of Student – Teachers specialized in Arabic Language at the Faculty of Education Fayoum University in the light of some thinking skills

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INTRODUCTION

See linguists that scientific and technological variables imposed on us the process of improving the educational process and the development of input core; and because the teacher is the key element is important in these inputs in addition to the input of other books and curriculum and others, and reflected the evaluation on the development and improvement of teacher performance education and increase its effectiveness

Hence, the attention of teaching profession is one of the most important steps on the road to education reform because the development of the quality of education is not only through the teacher with professional competence required, and attention the teaching profession in any society stems from fingerprints left by the teacher on the behavior of students and their morals and their minds and personalities.

To evaluate the teacher is particularly important as one of the important aspects; because it includes diagnostic alike; is effective as a laboratory to determine the level of teacher that fits scientific and technological variables through use thinking skills to teach Arabic.

Arabic language teacher in good pronunciation, and directed by characters from the exits of origin, according to assets known scientifically, and the link between general and specific objectives, the availability amount of information and knowledge, and expertise to allow him to simplify faces student in the subject of specialization, and to act as guide through the educational process, The proper understanding of the characteristics of the students and their motives and interests, and respect for students, and a good pronunciation, and skill in the use of evaluation methods different, to suit different levels, and the ability to persuade, and the exploitation of the resources available at the school, and the surroundings to upgrade article.

These training programs that prepare them by the service must be going according to clear plans for achieving student teachers the basic constructs needed before entrusted with educational tasks.

Therefore it should guide the care and attention it either through setting or through training of student Faculty of Education ongoing training in the light of thinking skills and modeling to evaluate the performance of the student parameter commensurate with the nature of the work under the direction towards the formulation of national standards for the preparation of accounting.

Based on the progress of the revision in the philosophy of teacher preparation in general - the privacy of the scientific era - is essential to meet the requirements of the next era, and to meet contemporary challenges. The importance of the quality of education depends on the quality of the teacher, and practical education field are the most important elements of teacher preparation that were not the most important all, they are the right of the most fertile periods in the life of the future teacher idea of this study: evaluating teaching performance of students teachers who specialize in Arabic - Faculty of Education Fayoum University - in light of some thinking skills.

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PROBLEM OF THE STUDY:

The present study attempts to answer the following main question:
- Teaching performance for students of teachers who specialize in Arabic in the light of the thinking skills necessary deems experts, teachers, mentors and student teachers are required to teach Arabic to first year secondary students?
The previous question can be analyzed to the following questions:
- Thinking skills necessary deems experts, teachers, mentors and students required to teach Arabic to first year secondary students?
- How can the design manual for the training of female teachers on thinking skills in their teaching Arabic to first year secondary students?
- What levels of teaching performance of students (sample) in terms of skills, which he saw experts and mentors and students required to teach Arabic language for high school students?
- What levels of performance for first grade students in general secondary (sample) in linguistic achievement while teaching students to them?

THE LIMITS OF THE STUDY:

1 - Sample of Girls parameters fourth year at the Faculty of Education, University of Fayoum specialists in Arabic language 2012 - 2013 AD.

2 - some thinking skills necessary which is determined by the study.

3 - Sample of students in the first grade of secondary school Ain Shams and secondary girls Bandar Fayoum 2012 - 2013, the first unit of the branches of the Arabic language (some texts, the term).

STUDY TOOLS:

- A questionnaire to determine the thinking skills needed in teaching Arabic to first year secondary students, and make sure of his sincerity and firmness and objectivity.
- Activity Handbook for students on the thinking skills necessary to teach English to first year secondary students, and in the light of thinking skills necessary to teach Arabic to first year secondary students year.
- Note card to see the levels of Arabic language students in thinking skills in English Language Teaching to first grade students general secondary .
- Thinking skills test to determine the levels of first year secondary students in linguistic achievement, and make sure of his sincerity and persistence, objectivity and set scientifically.

STUDY HYPOTHESES:

The study will seek to correct the following two hypotheses:
1 - There are no statistically significant differences between the mean scores of students (sample) in the pre and post application for teaching performance card in a note card.
2 - There are no statistically significant differences between the mean scores of first year secondary students in thinking skills to collect linguistic information in the two applications pre and post test thinking skills.

STEPS OF THE STUDY:

This study goes according to the following steps:

1 - To answer the first question, which is: What thinking skills necessary, which he saw Mentors and students required to teach Arabic to first year secondary students?

The researcher applying thinking skills necessary questionnaire in English Language Teaching to first year secondary students and to identify those skills in the light of the results of the test "Ka 2" to the views of teachers and students of the and the Arabic language guides.

2 - To answer the second question, which is: How can design manual for the training of female teachers on thinking skills in their teaching Arabic to first year secondary students?

The researcher evidence in the light design thinking skills, which he saw all of the teachers and students comprehensive Arabic-formers typical models are some of the lessons of the thinking skills training in the collection of linguistic information.

3 - To answer the third question, which is: what levels of teaching performance parameters for students in terms of skills, which he saw experts and students required to teach Arabic to first year secondary students?

The researcher applying observation card application tribal on students parameters and then train them on the evidence prepared for this and based on the thinking skills to teach Arabic language to students first grade general secondary will also researcher applying observation card to the students parameters (sample) application Uday In light of the outcome of the values of Ca 2 Results are analyzed and interpreted.

4 - To answer the fourth question, which is: what levels of thinking first year secondary students (sample) in the collection of linguistic information while teaching students parameters to them?

The researcher applied all of thinking skills in the collection of linguistic information to students first grade secondary (sample) and monitor results, analyze and interpret will also researcher applying the same test application Uday and monitor results, analyze and interpret After measuring the differences between the averages of students in the two applications pre and post in the light of what this title produces this Results test.

- The preparation test thinking skills linguistic achievement for first grade students and restraining public secondary scientifically .

- Applied and tribal monitoring results.

- Applied Uday and monitoring results and treatment.

- Analysis and interpretation of results.

- Make recommendations and proposals.

In light of the procedures followed by the researcher:

RESULTS FOLLOWING:

1 - There are significant differences between the mean scores of students (sample) in the pre and post application for teaching performance card in a note card.

Secondly - the results , analysis, and interpretation of the application of the note card, :

The researcher used Ca 2 and the relative weight in the card application note titled "the extent to which the student teacher thinking skills necessary to teach Arabic language to students first grade general secondary" 0 to determine levels of performance students in their teaching subjects Arabic assessed and identified within the limits of the search, was monitoring the results of the card as described in tables (1, 2 ,3 ,4 ,5 ,6 ,7 ,8 ,9 ,10 ,11 ,12 ,13 ,14)

The researcher analyzed the observation forms, to answer the third question of the problem of this research, which is: what levels of teaching performance for students in terms of skills which experts saw teachers and students are required to teach Arabic to first year secondary students?

The researcher applied observation card application tribal then trained on the evidence prepared for this and based on the thinking skills to teach Arabic language to students first grade general secondary will also researcher applying observation card to the students (sample) application Uday In light of the outcome of the values of Ca 2 is analyzed results and interpreted.

A - pre application note card:

The researcher applied observation card application tribal on students research sample, where the account the original and expected frequencies degree of research sample of students received in the vocabulary observation card seven fields: (observation and description, and comparison and discrimination, and the conclusion, and inference , and classification, and interpretation, and evaluation and sentencing linguistic rules) and applied researcher Test (Ka) 2, and the results were as outlined for each observation fields as follows:

1-skill of observation and description:

Table No. (12) follows the original frequencies, and values (Ca 2) and percentages, the levels of student performance - sample - in terms of how much exercise students thinking skills necessary to teach Arabic to first year secondary students year 0

Table (1)

The original frequencies , and the values of (Ca 2), and percentages, the levels of student performance - sample - in terms of the extent to which the student is thinking skills necessary to teach Arabic to first year secondary students.

Number	Excellent		Very Good		Good		Fair		Poor		
	Repetition	%	Repetition	%	Repetition	%	Repetition	%	Repetition	%	Ka 2
1	1	2.86	1	2.86	10	**28.57**	11	**31.43**	12	**34.29**	17.43
2	1	2.86	1	2.86	8	**22.86**	10	**28.57**	15	**42.86**	20.86
3	2	5.71	3	8.57	8	**22.86**	17	**48.57**	5	**14.29**	20.86
4	1	2.86	1	2.86	4	**11.43**	9	**25.71**	20	**57.14**	36.29
5	1	2.86	1	2.86	9	**25.71**	11	**31.43**	13	**37.14**	18.29
6	1	2.86	1	2.86	6	**17.14**	6	**17.14**	21	**60.00**	38.57
7	1	2.86	2	5.71	4	**11.43**	9	**25.71**	19	**54.29**	31.14
8	1	2.86	1	2.86	8	**22.86**	12	**34.29**	13	**37.14**	19.14
9	1	2.86	1	2.86	5	**14.29**	11	**31.43**	17	**48.57**	27.43

If we go back to the table Ca 2 when the degree of freedom equal to four degrees, we find that the rate of 0.05 must reach Ka 2 to 9.488 even be statistically significant, and when 0.01 per must reach Ka 2 to 13.277 even be statistically significant .

And this can be seen from Table (1) previously described in this research as follows:
A Ca 2 statistically significant for each number of digits following phrases:

(6, 4, 7.9, 2, 3, 8, 5, 1)

This means the following:

1 The performance level of students sample - in terms of where the practice of female teachers thinking skills necessary to teach Arabic language to students first grade of secondary skill of observation and description - did not live up to the level (Excellent), or (very good), or well.

2 The performance level of the students sample - in terms of how much exercise students thinking skills necessary p to teach Arabic to first year secondary students - the research sample was acceptable in the skill of one of the skills of observation and description only, namely:
3 - identifying characteristics of the linguistic concept.

3 - The performance level of the students sample - in terms of how much exercise students thinking skills necessary to teach Arabic to first year secondary students - the research sample was weak in the skills of observation and description of the following: They are:

(6.4, 7, 9, 2)
6 - Examples of configuration linguistic concept modeled on the pre-prepared examples.
4 - Get Changes in terms which belong to the concept of a particular language.
7 - Note whether the sentence or phrase, is the word linguistic concept or word of his belongings
9 - Note the accuracy of the sentence, which includes rude to the concept of a particular language.
2 - Determine the functional meanings of words understood language.

4 - The level of performance students sample - in terms of the extent to which students thinking skills necessary to teach Arabic language to students first grade of secondary skill of observation and description - did not live up to the low level of skills of observation and description of the following: only they -: (5 , 8, 1)
5 - Get linguistic concept particles which make up.

8 - Get language uses words concept in different linguistic attitudes.
1 - Adjust the words linguistic concept contained in linguistic structures.

2 – Skill of comparison and discrimination:

Table No. (13) follows the original frequencies, and values (Ca 2) and percentages, the levels of student performance - sample - in terms of how much exercise students thinking skills necessary to teach Arabic to first year secondary students year 0

Table (2)

the original frequencies , the values of (Ca 2), and percentages, the levels of student performance - sample - in terms of the extent to which the student is thinking skills necessary to teach Arabic to first year secondary students.

Number	Excellent		Very Good		Good		Fair		Poor		Ka 2
	Repetition	%	Repetition	%	Repetition	%	Repetition	%	Repetition	%	
10	3	8.57	4	**11.43**	17	**48.57**	6	**17.14**	5	**11.43**	18.57
11	2	5.71	3	8.57	8	**22.86**	17	**48.57**	5	**11.43**	20.86
12	2	5.71	3	8.57	9	**25.71**	15	**42.86**	6	**17.14**	15.71
13	3	8.57	3	8.57	8	**22.86**	14	**40.00**	7	**20.00**	11.71
14	2	5.71	4	**11.43**	6	**17.14**	7	**20.00**	16	**45.71**	16.57
15	3	8.57	3	8.57	6	**17.14**	8	**22.86**	15	**42.86**	14.00
16	2	5.71	5	**14.29**	5	**11.43**	9	**25.71**	14	**40.00**	12.29
17	3	8.57	4	**11.43**	17	**48.57**	6	**17.14**	5	**11.43**	18.75

If we go back to the table Ca 2 when the degree of freedom equal to four degrees, we find that the rate of 0.05 must reach Ka 2 to 9.488 even be statistically significant, and when 0.01 per must reach Ka 2 to 13.277 even be statistically significant .
And this can be seen from Table No. (2)previously described in this research as follows:
A Ca 2 statistically significant for each number of digits following phrases:

(11, 10, 17.14, 12, 16, 13, 15)

This means the following:

1 The level of student performance - sample - in terms of where the practice of female teachers thinking skills necessary for teaching Arabic to first year secondary students in the comparison year and discrimination - did not live up to the level (Excellent), or (very good)

2 The performance level of the students sample - in terms of where the practice of female teachers thinking skills necessary for teaching Arabic to first year secondary students - the research sample was good in comparison and discrimination and are: 10, 17
10 - to clarify the differences between two concepts belong to the concept of a specific language.
17 - to define the relationship between the concept of linguistic and other linguistic concepts.

3 - The level of performance students sample - in terms of where the practice of female teachers thinking skills necessary to teach Arabic language to students first grade general secondary - research sample was acceptable in the skills of comparison and discrimination following: They are -: (11, 12, 13)
11 - to distinguish between what the linguistic sense and what does not respect him.
12 - Identifying inconsistencies between words concept uses linguistic attitudes.
13 - Examples of configuration linguistic concept in modern linguistic contexts new.

4 - The performance level of the students sample - in terms of where the practice of female teachers thinking skills necessary for teaching Arabic to first year secondary students - was weak in comparison and discrimination following: They are: (14, 15,

16)
14 - to determine whether the limits of the linguistic concept featured in the example or not.
15 - Determine relationships between words to each other within the framework of one sentence.
16 - Identify similarities between the concept of linguistic and related.

3- Skill of conclusion:

Table No. (3)follows the original frequencies , values (Ca 2) and percentages, the levels of student performance - sample - in terms of how much exercise students thinking skills necessary to teach Arabic to first year secondary students year 0

Table (3)
the original frequencies , the values of (Ca 2), and percentages, the levels of student performance - sample - in terms of the extent to which the student is thinking skills necessary to teach Arabic to first year secondary students.

Number	Excellent		Very Good		Good		Fair		Poor		Ka 2
	Repetition	%	Repetition	%	Repetition	%	Repetition	%	Repetition	%	
18	1	2.86	2	5.71	4	**11.43**	10	**28.57**	18	**51.43**	28.57
19	1	2.86	1	2.86	4	**11.43**	20	**57.14**	9	**25.71**	36.29
20	1	2.86	1	2.86	3	8.57	5	**11.43**	25	**71.43**	59.43
21	1	2.86	2	5.71	3	**11.43**	10	**28.57**	19	**54.29**	32.86
22	2	5.71	2	5.71	8	**22.86**	9	**25.71**	14	**40.00**	14.86
23	2	5.71	2	5.71	2	5.71	12	**34.29**	17	**48.57**	28.57
24	1	2.86	1	2.86	5	**11.43**	8	**22.86**	20	**57.14**	35.14

If we go back to the table Ca 2 when the degree of freedom equal to four degrees, we find that the rate of 0.05 must reach Ka 2 to 9.488 even be statistically significant, and when 0.01 per must reach Ka 2 to 13.277 even be statistically significant .
And this can be seen from Table (14) previously described in this research as follows:
A Ca 2 statistically significant for each number of digits following phrases:

(20, 19, 17.24, 18, 23, 22)

This means the following:

1 The performance level of the students sample - in terms of where the practice of female teachers thinking skills necessary for teaching the Arabic language to first grade students of secondary conclusion skills - did not live up to the (excellent), or (very good).

2 The performance level of the students sample - in terms of where the practice of female teachers thinking skills necessary for teaching Arabic to first year secondary students - research sample (acceptable) in the skill of one of the skills a conclusion: (19)
19 - to reach molecules lacking in the words of the linguistic concept lose its job.

3 - The performance level of the students sample - in terms of where the practice of female teachers thinking skills necessary for teaching Arabic to first year secondary students - the research sample was weak in the skills they conclusion:

(20, 24, 21, 18, 23, 22)

20 - Conclusion Criteria and Standards Special linguistic concept from other language concepts.
24 - Finding common characteristics between the linguistic concept and related .
21 - Conclusion concept of linguistic information actress and employee of the molecules that make up.
18 - To formulate an appropriate definition of the concept of linguistic unnoticed through.
23 - Functional meanings conclusion of words understood language in linguistic structures.
22 - Employ linguistic concept in linguistic structures utilize true.

4- Skill of reasoning:

Table No. (4)follows the original frequencies , and values (Ca 2) and percentages, the levels of student performance - sample - in terms of how much exercise students thinking skills that are necessary to teach Arabic language to first grade students in general secondary

Table (4) the original frequencies , the values of (Ca 2), and percentages, the levels of student performance - sample - in terms of the extent to which the student is thinking skills necessary to teach Arabic to first year secondary students.

Number	Excellent		Very Good		Good		Fair		Poor		Ka 2
	Repetition	%	Repetition	%	Repetition	%	Repetition	%	Repetition	%	
25	6	**17.14**	5	**11.43**	5	**11.43**	15	**14.29**	4	**11.43**	11.71
26	3	8.57	5	**11.43**	5	**11.43**	15	**14.29**	7	**20.00**	12.57
27	6	**17.14**	6	**17.14**	6	**17.14**	14	**40.00**	3	**8.57**	9.71
28	1	2.86	2	5.71	3	**11.43**	10	**28.57**	19	**54.29**	32.86
29	1	2.86	2	5.71	4	**11.43**	9	**25.71**	19	**54.29**	31.14
30	1	2.86	1	2.86	4	**11.43**	9	**25.71**	20	**57.14**	36.29
31	1	2.86	1	2.86	6	**17.14**	9	**25.71**	18	**51.43**	28.29

If we go back to the table Ca 2 when the degree of freedom equal to four degrees, we find that the rate of 0.05 must reach Ka 2 to 9.488 even be statistically significant, and when 0.01 per must reach Ka 2 to 13.277 even be statistically significant (34, 1981 0.230)

And this can be seen from Table (15) previously described in this research as follows:

A Ca 2 statistically significant for each number of digits following phrases: (30, 28,29,31, 26, 25, 27)

This means the following:

1 The performance level of the students sample - in terms of where the practice of female teachers thinking skills that are necessary for teaching the Arabic language to first grade students of secondary reasoning skills - did not live up to the (excellent), or (very good), or (Good)

2 The performance level of the students sample - in terms of where the practice of female teachers thinking skills that are necessary for teaching Arabic to first year secondary students - the research sample was acceptable in the reasoning skills they (25, 26.27)

25 - Male evidence, or evidence of a similar concept of language play a certain meaning.

26 - Get evidence concept in the syntax.

27 - Male plural underlying relationships between linguistic concepts.

3 The performance level of the students sample - in terms of where the practice of female teachers thinking skills necessary for teaching Arabic to first year secondary students - the research sample was weak in reasoning skills they (28.30, 29.31)

28 - Male specific language base to prove expressing word or phrase, and the relationship with other syntax

30 - a statement of the relationship between inference word or phrase, and its function in the syntax.

29 - Male evidence to determine the characteristics of the term linguistic characteristics.

31 - Elicit examples include culturally, or please apply applied in real life to prove the concept of language.

5- Skill of category:

Table No. (16) Follows the original frequencies, values (Ca 2) and percentages, the levels of student performance - sample - in terms of how much exercise students thinking skills that are necessary to teach Arabic to first year secondary students year .

Table (5)

the original frequencies , the values of (Ca 2), and percentages, the levels of student performance - sample - in terms of the extent to which the student is thinking skills necessary to teach Arabic to first year secondary students.

Number	Excellent		Very Good		Good		Fair		Poor		Ka 2
	Repetition	%	Repetition	%	Repetition	%	Repetition	%	Repetition	%	
32	2	5.71	3	8.57	4	**11.43**	11	**31.43**	15	**42.86**	18.57
33	3	8.57	4	**11.43**	6	**17.14**	7	**20.00**	15	**42.86**	12.86
34	1	2.86	2	5.71	5	**14.29**	8	**22.86**	19	**54.29**	30.00
35	1	2.86	1	2.86	5	**14.29**	8	**22.86**	20	**57.14**	35.14
36	1	2.86	1	2.86	4	**11.43**	8	**22.86**	21	**60.00**	39.71
37	1	2.86	1	2.86	3	8.57	25	**71.43**	5	**14.29**	59.43

If we go back to the table Ca 2 when the degree of freedom equal to four degrees, we find that the rate of 0.05 must reach Ka 2 to 9.488 even be statistically significant, and when 0.01 per must reach Ka 2 to 13.277 even be statistically significant .

And this can be seen from Table (5)previously described in this research as follows:

A Ca 2 statistically significant for each number of digits following phrases: (37, 36, 35, 34, 33, 32)

This means the following:

1 The performance level of the students sample - in terms of where the practice of female teachers thinking skills that are necessary for teaching the Arabic language to first grade students of secondary reasoning skills - did not live up to the (excellent), or (very good) or (Good).

2 The performance level of the students sample - in terms of where the practice of female teachers thinking skills that are necessary for teaching Arabic to first year secondary students - the research sample was acceptable in only one skill of reasoning skills which (37)

37 - rated language and concepts in accordance with the existing relations between them.

3 - The performance level of the students sample - in terms of where the practice of female teachers thinking skills that are necessary for teaching Arabic to first year secondary students - the research sample was weak in reasoning skills are (34, 35, 34, 33, 32)

37 - rated language and concepts in accordance with the existing relations between them.

36 - Classification of linguistic concepts depending on language used in the compositions.

35 - Identify sections that make up the concept of a particular language.

34 - Configuration examples of molecules that make up the concept of a particular language.

33 – Identify the uses of linguistic concept words in different linguistic structures.

32 - Classification of examples and in accordance with the concept of the language to which it belongs.

6 - The skill of interpretation:

Table No. (6)follows the original frequencies , and values (Ca 2) and percentages, the levels of student performance - sample - in terms of how much exercise students thinking skills that are necessary to teach Arabic language to first grade students in general secondary

Table (6)
the original frequencies , the values of (Ca 2), and percentages, the levels of student performance - sample - in terms of the extent to which the student is thinking skills that are necessary to teach Arabic to first year secondary students.

Number	Excellent		Very Good		Good		Fair		Poor		Ka 2
	Repetition	%	Repetition	%	Repetition	%	Repetition	%	Repetition	%	
38	4	**11.43**	4	**11.43**	5	**14.29**	7	**20.00**	15	**42.86**	12.29
39	2	5.71	4	**11.43**	5	**14.29**	9	**25.71**	15	**42.86**	15.14
40	1	2.86	3	8.57	7	**20.00**	9	**25.71**	15	**42.86**	17.14
41	4	**11.43**	5	**14.29**	5	**14.29**	6	**17.14**	15	**42.86**	11.71
42	4	**11.43**	5	**14.29**	5	**14.29**	15	**42.86**	6	**17.14**	11.71
43	1	2.86	2	5.71	4	**11.43**	10	28.57	18	**51.43**	28.57
44	4	**11.43**	5	**14.29**	5	**14.29**	16	**45.71**	5	**14.29**	14.57
45	3	8.57	4	**11.43**	6	**17.14**	15	**42.86**	7	**20.00**	12.86
46	4	**11.43**	5	**14.29**	7	**20.00**	15	**42.86**	4	**11.43**	12.29

If we go back to the table Ca 2 when the degree of freedom equal to four degrees, we find that the rate of 0.05 must reach Ka 2 to 9.488 even be statistically significant, and when 0.01 per must reach Ka 2 to 13.277 even be statistically significant (34, 1981 0.230)

And this can be seen from Table (6)previously described in this research as follows:
A Ca 2 statistically significant for each number of digits following phrases:

(43, 40, 39, 45, 38, 44.46, 41, 42)

This means the following:

1 The performance level of the students sample - in terms of where the practice of female teachers necessary thinking skills for teaching Arabic to first year secondary students in the skills of interpretation - did not live up to the (excellent), or (very good).
2 The performance level of the students sample - in terms of where the practice of female teachers necessary thinking skills for teaching Arabic to first year secondary students - the research sample was acceptable in the skills of interpretation and they (44, 42, 45, 46)
44 - interpretation of relations between the words to each other in the syntax.
42 - Explanations of grammatical errors when you use words the concept of a particular language in speech
45 -. Interpretation of the exclusion of words not linguistic concepts in specific language structures
46 - identify wrong interpretations of some words linguistic concepts in the examples

3 - The performance level of the students sample parameters - in terms of where the practice of female teachers necessary thinking skills for teaching Arabic to first year secondary students - the research sample was weak in the skills of interpretation are: (43, 38, 39, 40, 41)
43 - the reasons that led to the widespread use of the term concept for a particular language in linguistic attitudes
38 - to explain why there is the term linguistic concept in the example given.
39 - to explain the exclusion of certain linguistic concept for reasons related to its linguistic honesty.
40 - to explain the exclusion of certain linguistic concept for reasons related to its linguistic honesty.
41 - Linking Environment student linguistic and linguistic concept of Single.

7- Evaluation and judgment skills:

Table No. (7) follows the original frequencies, and values (Ca 2) and percentages, the levels of student performance - sample - in terms of how much exercise students necessary thinking skills to teach Arabic to first year secondary students year 0

Table (7)

the original frequencies , the values of (Ca 2), and percentages, the levels of student performance - sample - in terms of the extent to which the student is necessary thinking skills to teach Arabic to first year secondary students.

Number	Excellent		Very Good		Good		Fair		Poor		Ka 2
	Repetition	%	Repetition	%	Repetition	%	Repetition	%	Repetition	%	
47	2	5.71	2	5.71	4	**11.43**	9	**25.71**	18	**51.43**	26.29
48	3	8.57	3	8.57	5	**14.29**	7	**20.00**	17	**48.57**	19.43
49	2	5.71	2	5.71	6	**17.14**	7	**20.00**	18	**51.43**	24.57
50	1	2.86	1	2.86	4	**11.43**	9	**25.71**	15	**42.86**	36.29
51	3	8.57	5	**14.29**	6	**17.14**	6	**17.14**	20	**57.14**	12.29
52	1	2.86	2	5.71	6	**17.14**	10	**28.57**	16	**45.71**	21.71
53	1	2.86	1	2.86	5	**14.29**	12	**34.29**	16	**45.71**	26.00

If we go back to the table Ca 2 when the degree of freedom equal to four degrees, we find that the rate of 0.05 must reach Ka 2 to 9.488 even be statistically significant, and when 0.01 per must reach Ka 2 to 13.277 even be statistically significant .

And this can be seen from Table No. (18) previously described in this research as follows:

A Ca 2 statistically significant for each number of digits following phrases:

(52, 47, 53, 49, 50, 48, 51)

This means the following:

1 The performance level of the students sample - in terms of where the practice of female teachers thinking skills necessary for teaching Arabic to first year secondary students in the skills of interpretation - did not live up to the (excellent), or (very good). (acceptable)

2 The performance level of the students sample - in terms of where the practice of female teachers thinking skills that are necessary for teaching Arabic to first year secondary students - the research sample was weak in the skills of interpretation are: (52, 47, 53, 49, 52, 48, 51)

52 - tune the word endings to express true sense the correct syntax.
47 - Correct grammatical errors when you use words of a particular concept to speak.
53 -. Choose the correct expression of the proposed expressions to use the words of the concept of a particular language.
49 – Prove the validity or accuracy of the linguistic provisions.
50 - Change the syntax as required by the concept of a particular language..
48 - Criteria for development and decision criteria for sentencing language.
51 - To defer judgment on the concept of word linguistic knowledge in a sentence.

- THE RESULTS OF THE POST CARD NOTE:

The researcher applied observation card application Uday on students research sample, where the account the original and the expected frequencies degree of research sample of students who received them in the vocabulary observation card and these seven fields : (observation and description, and comparison and discrimination, and the conclusion, and inference , and classification, and interpretation, and evaluation and sentencing linguistic rules) and applied researcher Test (Ka) 2, and the results were as outlined for each area as follows:

1 skill of observation and description:

Table No. (8) follows the original frequencies , and values (Ca 2) and percentages, the levels of student performance - sample - in terms of how much exercise students thinking skills necessary to teach Arabic to first year secondary students year 0

Table (8)

The original frequencies, and the values of (Ca 2), and percentages, the levels of student performance - sample - in terms of the extent to which the student is thinking skills necessary to teach Arabic to first year secondary students.

Number	Excellent		Very Good		Good		Fair		Poor		Ka 2
	Repetition	%	Repetition	%	Repetition	%	Repetition	%	Repetition	%	
1	18	**51.43**	10	**28.57**	4	**11.43**	2	5.71	1	2.86	28.57
2	20	**57.14**	9	**25.71**	4	**11.43**	1	2.86	1	2.86	36.29
3	25	71.43	5	**14.29**	3	8.57	1	2.86	1	2.86	59.43
4	19	54.29	10	**28.57**	3	8.57	2	5.71	1	2.86	32.86
5	10	38.57	19	54.29	1	2.86	2	5.71	3	8.57	32.86
6	17	48.57	12	**34.29**	2	5.71	2	5.71	2	5.71	28.57
7	1	2.86	1	2.86	20	**57.14**	9	**25.71**	4	**11.43**	36.29
8	18	**51.43**	10	**28.57**	4	**11.43**	2	5.71	1	2.86	28.57
9	25	71.43	5	**14.29**	3	8.57	1	2.86	1	2.86	59.43

If we go back to the table Ca 2 when the degree of freedom equal to four degrees, we find that the rate of 0.05 must reach Ka 2 to 9.488 even be statistically significant, and when 0.01 per must reach Ka 2 to 13.277 even be statistically significant .

And this can be seen from Table No. (8)previously described in this research as follows:
A Ca 2 statistically significant for each number of digits following phrases:

(3.9, 2, 7, 4, 5.1, 6, 8)

This means the following:

1 The performance level of the students sample - in terms of where the practice of female teachers thinking skills necessary to teach English to students first grade general secondary (excellent) in the skill of observation and description are: (3.9, 2, 4, 1 , 8, 6)
3 - identifying characteristics of the linguistic concept.
9 - Note the accuracy of the sentence, which includes rude to the concept of a particular language.
2 - Determine the functional meanings of words understood language.
4 - Get Changes in terms which belong to the concept of a particular language.
1 - Adjust the words linguistic concept contained in linguistic structures.
8 - Get language uses words concept in different linguistic attitudes.
6 - Examples of configuration linguistic concept modeled on the pre-prepared examples.

2 The performance level of the students sample - in terms of where the practice of female teachers thinking skills necessary to teach English to students first grade general secondary (very good) in the skill of one of the skills of observation and description, namely: (5)
5 - Get linguistic concept particles which make up.

3 The performance level of the students sample - in terms of where the practice of female teachers thinking skills necessary to teach English to students first grade general secondary (well) in the skill of one of the skills of observation and description, namely: (7)
7 - Note whether the sentence or phrase, is the word linguistic concept or word of his belongings.

2 - Comparison and discrimination skills:

Table No. (9) follows the original frequencies , and values (Ca 2) and percentages, the levels of student performance - sample - in terms of how much exercise students thinking skills necessary to teach Arabic to first year secondary students year 0

Table (9)

the original frequencies , and the values of (Ca 2), and percentages, the levels of student performance - sample - in terms of the extent to which the student is thinking skills necessary to teach Arabic to first year secondary students.

Number	Excellent		Very Good		Good		Fair		Poor		Ka 2
	Repetition	%	Repetition	%	Repetition	%	Repetition	%	Repetition	%	
10	9	25.71	18	51.43	1	**2.86**	1	**2.86**	6	**17.14**	28.29
11	10	28.57	18	51.43	1	**2.86**	2	**5.71**	4	**11.43**	28.57
12	25	71.43	5	**11.43**	3	**8.57**	1	**2.86**	1	**2.86**	59.43
13	25	71.43	5	**11.43**	3	**8.57**	1	**2.86**	1	**2.86**	59.43
14	10	28.57	19	**54.29**	2	**5.71**	2	**5.71**	3	**8.75**	32.86
15	9	25.71	14	**40.00**	2	**5.71**	2	**5.71**	8	**22.86**	14.86
16	12	34.29	17	**48.57**	5	**11.43**	2	**5.71**	2	**5.71**	28.57
17	8	**22.86**	20	**57.14**	1	**2.86**	1	**2.86**	5	**11.43**	35.14

If we go back to the table Ca 2 when the degree of freedom equal to four degrees, we find that the rate of 0.05 must reach Ka 2 to 9.488 even be statistically significant, and when 0.01 per must reach Ka 2 to 13.277 even be statistically significant .

And this can be seen from Table No. (20) previously described in this research as follows:
A Ca 2 statistically significant for each number of digits following phrases:

(13, 12, 17, 14, 10, 11, 16, 15)
This means the following:

1 The performance level of the students sample - in terms of where the practice of female teachers thinking skills necessary to teach English to students first grade general secondary (excellent) in two skills comparison and discrimination, namely:) . 12, 13)
12 - identifying inconsistencies between words concept uses linguistic attitudes l
13 - Examples of configuration linguistic concept in modern linguistic new contexts.

2 - The level of performance students sample - in terms of where the practice of female teachers thinking skills necessary to teach Arabic language to students first grade general secondary was (very good) in the skill of comparison and discrimination are 17), 14.10, 11, 16 , 15)
17 - Iron linguistic relationship between the concept and other linguistic concepts
14 - to determine whether the limits of the linguistic concept featured in the example or not.
10 - to clarify the differences between the Governors belong to a specific concept of a linguistic
11 - to distinguish between what the linguistic sense and what does not respect him.
16 - Identify similarities between the concept of linguistic and related.
15 - Determine relationships between words to each other within the framework of one sentence.

3 – conclusion skill:

Table No. (10) follows the original frequencies , and values (Ca 2) and percentages, the levels of student performance - sample - in terms of how much exercise students thinking skills necessary to teach Arabic to first year secondary students year 0

Table (10)

the original frequencies , and the values of (Ca 2), and percentages, the levels of student performance - sample - in terms of the extent to which the student is thinking skills necessary to teach Arabic to first year secondary students.

Number	Excellent		Very Good		Good		Fair		Poor		Ka 2
	Repetition	%	Repetition	%	Repetition	%	Repetition	%	Repetition	%	
18	1	2.86	20	**57.14**	1	2.86	8	**22.86**	5	14.29	35.14
19	2	5.71	14	**40.00**	2	5.71	9	**25.71**	8	**22.86**	14.86
20	2	5.71	17	**48.57**	2	5.71	12	**34.29**	2	5.71	28.57
21	1	2.86	19	**54.29**	2	5.71	10	**28.57**	3	**8.57**	32.86
22	20	**57.14**	1	2.86	1	2.86	9	**25.71**	4	**11.43**	36.29
23	25	**71.43**	1	2.86	1	2.86	5	**14.29**	3	**8.57**	59.43
24	1	2.86	18	**51.43**	2	5.71	10	**28.57**	4	**11.43**	28.57

If we go back to the table Ca 2 when the degree of freedom equal to four degrees, we find that the rate of 0.05 must reach Ka 2 to 9.488 even be statistically significant, and when 0.01 per must reach Ka 2 to 13.277 even be statistically significant (34, 1981 0.230)

And this can be seen from Table No. (21) previously described in this research as follows:
A Ca 2 statistically significant for each number of digits following phrases:

(23, 22, 18, 21, 24, 20, 19)

This means the following:

1 The performance level of students sample - in terms of where the practice of female teachers thinking skills necessary to teach Arabic language to students first grade of secondary skills conclusion - elevated to the level (Excellent) in skills namely: (22, 23).
22 - Employ linguistic concept in linguistic structures utilize true.
23 - Functional meanings conclusion of words understood language in linguistic structures.
2 The performance level of the students sample - in terms of where the practice of female teachers thinking skills necessary for teaching Arabic to first year secondary students - the research sample was very good in the skills of the conclusion they (18, 21, 24, 20, 19)
23 - functional meanings conclusion of words understood language in linguistic structures.
22 - Employ linguistic concept in linguistic structures utilize true.
18 - To formulate an appropriate definition of the concept of linguistic unnoticed through.
21 - Conclusion concept of linguistic information actress and employee of the molecules that make up.
24 - finding common characteristics between the linguistic concept and related 0
20 - Conclusion Criteria and Standards Special linguistic concept from other language concepts
19 - to reach molecules lacking in the words of the linguistic concept lose his job.

4 – Reasoning skill:

Table No. (11) follows the original frequencies , and values (Ca 2) and percentages, the levels of student performance - sample - in terms of how much exercise students thinking skills necessary to teach Arabic to first year secondary students year 0

Table (11)

the original frequencies , and the values of (Ca 2), and percentages, the levels of student performance - sample - in terms of the extent to which the student is thinking skills necessary to teach Arabic to first year secondary students.

Number	Excellent		Very Good		Good		Fair		Poor		Ka 2
	Repetition	%	Repetition	%	Repetition	%	Repetition	%	Repetition	%	
25	10	28.57	18	**51.43**	1	2.86	2	5.71	4	**11.43**	28.57
26	20	**57.14**	9	**25.71**	1	2.86	1	2.86	4	**11.43**	36.29
27	25	71.43	5	14.29	1	2.86	1	2.86	3	**8.57**	59.43
28	10	28.57	19	**54.29**	2	5.71	2	5.71	3	**8.57**	32.86
29	9	**25.71**	14	**40.00**	2	5.71	2	5.71	8	**22.86**	14.86
30	12	34.29	17	48.57	1	2.86	2	5.71	2	5.71	28.57
31	20	**57.14**	8	**22.86**	1	2.86	1	2.86	5	14.29	35.14

If we go back to the table Ca 2 when the degree of freedom equal to four degrees, we find that the rate of 0.05 must reach Ka 2 to 9.488 even be statistically significant, and when 0.01 per must reach Ka 2 to 13.277 even be statistically significant (34, 1981 0.230)

And this can be seen from Table No. (22) previously described in this research as follows:

A Ca 2 statistically significant for each number of digits following phrases:

(27, 26, 31, 28, 30, 25, 29)

This means the following:

1 The performance level of the students sample - in terms of where the practice of female teachers thinking skills necessary for teaching the Arabic language to first grade students of secondary reasoning skills - (excellent) in reasoning skills are (27, 26, 31, 28)

27 - Male plural underlying relationships between linguistic concepts.
26 - Get evidence concept in the syntax 0
31 - elicit examples include culture , or please applied in real life to prove the concept of language.

2 - The level of performance students sample - in terms of where the practice of female teachers thinking skills necessary to teach Arabic language to students first grade of secondary reasoning skills - was (very good) in the reasoning skills they (28, 30, 25, 29)
28 - Male specific language base to prove expressing word or phrase, and the relationship with other syntax
30 - a statement of the relationship between inference word or phrase, and its function in the syntax
25 - Male evidence, or evidence of a similar concept of language play a certain meaning.
29 - Male evidence to determine the characteristics of the term linguistic characteristics.

5 – category skill:

Table No. (12) follows the original frequencies , and values (Ca 2) and percentages, the levels of student performance parameters - sample - in terms of how much exercise students thinking skills necessary to teach Arabic to first year secondary students year 0

Table (12)

Duplicates the original, and the values of (Ca 2), and percentages, the levels of student performance - sample - in terms of the extent to which the student is thinking skills necessary to teach Arabic to first year secondary students.

Number	Excellent		Very Good		Good		Fair		Poor		Ka 2
	Repetition	%	Repetition	%	Repetition	%	Repetition	%	Repetition	%	
32	3	8.57	4	**11.43**	15	**42.86**	7	**20.00**	6	17.14	12.86
33	25	71.43	1	2.86	1	2.86	5	**14.29**	3	**8.57**	59.43
34	20	**57.14**	1	2.86	1	2.86	8	**22.86**	5	**14.29**	35.14
35	2	5.71	15	**42.86**	3	**8.57**	11	**31.43**	4	**11.43**	18.57
36	1	2.86	15	**42.86**	2	5.71	8	**22.86**	5	**14.29**	30.00
37	21	**60.00**	1	2.86	1	2.86	8	**22.86**	4	**11.43**	39.71

If we go back to the table Ca 2 when the degree of freedom equal to four degrees, we find that the rate of 0.05 must reach Ka 2 to 9.488 even be statistically significant, and when 0.01 per must reach Ka 2 to 13.277 even be statistically significant (34, 1981 0.230)

And this can be seen from Table No. (23) previously described in this research as follows:
A Ca 2 statistically significant for each number of digits following phrases:

(33, 37, 34, 36, 35, 32)
This means the following:

1 The performance level of the students sample - in terms of where the practice of female teachers thinking skills necessary for teaching the Arabic language to first grade students of secondary reasoning skills - (excellent) in reasoning skills are: (33, 37, 34)
33 - identify uses words linguistic concept in different linguistic structures.
37 - Rated language and concepts in accordance with the existing relations between them.
34 - Configuration examples of molecules that make up the concept of a particular language.

2 - The level of student performance sample - in terms of where the practice of female teachers thinking skills necessary for teaching the Arabic language to first grade students of secondary reasoning skills - was very good at reasoning skills are: (36, 35)
36 - Classification of linguistic concepts depending on language used in the compositions.
35 - identify sections that make up the concept of a particular language

3 - The performance level of the students sample - in terms of where the practice of female teachers thinking skills necessary for teaching the Arabic language to first grade students of secondary reasoning skills - he was good at one skill skills reasoning skills, namely:
32 - Classification of examples and in accordance with the concept of the language to which it belongs.

6- interpretation skill:

Table No. (13) follows the original frequencies , and values (Ca 2) and percentages, the levels of student performance parameters - sample - in terms of how much exercise students thinking skills necessary to teach Arabic to first year secondary students year 0

Table (13)

the original frequencies , and the values of (Ca 2), and percentages, the levels of student performance - sample - in terms of the extent to which the student is thinking skills necessary to teach Arabic to first year secondary students.

Number	Excellent		Very Good		Good		Fair		Poor		Ka 2
	Repetition	%	Repetition	%	Repetition	%	Repetition	%	Repetition	%	
38	**10**	**28.57**	18	**51.43**	4	**11.43**	1	**2.86**	2	5.71	28.57
39	15	**42.86**	6	**17.14**	5	**14.29**	4	**11.43**	5	**14.29**	11.71
40	16	**45.71**	5	**14.29**	5	**14.29**	4	**11.43**	5	**14.29**	14.57
41	**10**	**28.57**	18	**51.43**	4	**11.43**	1	**2.86**	2	5.71	28.57
42	9	**25.71**	15	**42.86**	7	**20.00**	1	**2.86**	3	8.57	17.14
43	**10**	**28.57**	18	**51.43**	4	**11.43**	1	**2.86**	2	5.71	28.57
44	16	**45.71**	5	**14.29**	5	**14.29**	4	**11.43**	5	**14.29**	14.57
45	8	**22.86**	20	**57.14**	1	**2.86**	1	**2.86**	5	**14.29**	35.14
46	2	5.71	3	**8.57**	15	**42.86**	11	**31.43**	4	**11.43**	18.57

If we go back to the table Ca 2 when the degree of freedom equal to four degrees, we find that the rate of 0.05 must reach Ka 2 to 9.488 even be statistically significant, and when 0.01 per must reach Ka 2 to 13.277 even be statistically significant (34, 1981 0.230)

And this can be seen from Table No. (24) previously described in this research as follows:
A Ca 2 statistically significant for each number of digits following phrases:

(45, 38, 41, 43, 46, 42, 41.40, 39)

This means the following:

1 The performance level of the students sample - in terms of where the practice of female teachers thinking skills necessary for teaching Arabic to first year secondary students in the skills of interpretation - was excellent in the skills of interpretation and they (40, 44, 39)
40 - to explain the exclusion of certain linguistic concept for reasons related to its linguistic honesty.
44 - Interpretation of relations between the words to each other in the syntax.
39 - to explain the exclusion of certain linguistic concept for reasons related to his health linguistic.

2 The performance level of the students sample - in terms of where the practice of female teachers thinking skills necessary for teaching Arabic to first year secondary students - the research sample was very good in the skills of interpretation and they (45, 38, 41, 43, 42)
45 - the interpretation of the exclusion of words not linguistic concepts in specific language structures
38 - to explain why there is the term linguistic concept in the example given.
41 - Linking Environment student linguistic and linguistic concept of Single.
43 - the reasons that led to the widespread use of the term concept for a particular language in linguistic attitudes
42 - explanations of grammatical errors when you use words the concept of a particular language in speech 0

3 - The performance level of the students sample - in terms of where the practice of female teachers thinking skills necessary for teaching Arabic to first year secondary students - the research sample was good at one skill of interpretation skills, namely: (46)
46 - identify wrong interpretations of some words linguistic concepts in the examples.

7 – Evaluation and judgment skills:

Table No. (14) follows the original frequencies , and values (Ca 2) and percentages, the levels of student performance - sample - in terms of how much exercise students thinking skills necessary to teach Arabic to first year secondary students year .

Table (14)

the original frequencies, and the values of (Ca 2), and percentages, the levels of student performance - sample - in terms of the extent to which the student is thinking skills necessary parameter to teach Arabic to first year secondary students.

Number	Excellent		Very Good		Good		Fair		Poor		Ka 2
	Repetition	%	Repetition	%	Repetition	%	Repetition	%	Repetition	%	
47	20	**57.14**	**8**	**22.86**	5	**14.29**	1	**2.86**	1	**2.86**	35.14
48	10	**28.57**	18	**51.43**	1	2.86	2	5.71	4	**5.71**	28.57
49	1	2.86	1	2.86	20	**57.14**	**8**	**22.86**	5	**11.43**	35.14
50	2	5.71	3	8.57	15	**42.86**	11	**42.86**	4	**5.71**	18.57
51	2	5.71	2	5.71	19	**54.29**	**8**	**22.86**	5	**11.43**	30.00
52	18	**51.43**	10	**28.57**	4	**11.43**	2	5.71	1	**2.86**	28.57
53	9	**25.71**	20	**57.14**	1	**2.86**	1	**2.86**	4	**5.71**	36.29

If we go back to the table Ca 2 when the degree of freedom equal to four degrees, we find that the rate of 0.05 must reach Ka 2 to 9.488 even be statistically significant, and when 0.01 per must reach Ka 2 to 13.277 even be statistically significant (34, 1981 0.230) And this can be seen from Table No. (29) previously described in this research as follows:

A Ca 2 statistically significant for each number of digits following phrases: (53, 47, 49, 51, 52, 48, 49)

This means the following:

1 The performance level of the students sample - in terms of where the practice of female teachers thinking skills necessary for teaching Arabic to first year secondary students in the skills of interpretation - was excellent in the skills of interpretation and they (47, 52)

47 - correct grammatical errors when you use words of a particular concept to speak.

52 - tune the word endings to express true sense the correct syntax.

2 The performance level of the students sample - in terms of where the practice of female teachers thinking skills necessary for teaching Arabic to first year secondary students - the research sample was very good in the skills of interpretation and they (53, 48)

53 - Choosing the correct expression of the proposed expressions to use the words of the concept of a particular language.

48 - Criteria for development and decision criteria for sentencing language.

53 - The performance level of the students sample parameters - in terms of where the practice of female teachers thinking skills necessary for teaching Arabic to first year secondary students - the research sample was good in the skills of interpretation and they (49, 51, 50)

49 - proving the validity or accuracy of the linguistic provisions.

51 - to defer judgment on the concept of word linguistic knowledge in a sentence.

50 - Change the syntax as required by the concept of a particular language

2 - THERE ARE SIGNIFICANT DIFFERENCES BETWEEN THE MEAN SCORES OF FIRST YEAR SECONDARY STUDENTS IN THINKING SKILLS TO COLLECT LINGUISTIC INFORMATION IN THE TWO APPLICATIONS PRE AND POST TEST THINKING SKILLS

Table (15)

This table clarifies the following

Skill	Sub skills	Application	Excellent	Very good	good	Acceptable	Weak	Failed to match the weak
1-Skill of observation and description	9	Tribal Tribal	–	–	–	1	5	3
		Dimensional	7	2	–	–	–	–
2-Skill comparison and discrimination	8	Tribal Tribal	–	–	2	2	4	–
		Dimensional	2	6	–	–	–	–
3-Skill conclusion Skill conclusion	7	Tribal Tribal	–	–	–	–	7	–
		Dimensional	2	5	–	–	–	–
4-Reasoning skills	7	Tribal Tribal	–	–	–	3	4	–
		Dimensional	2	5	–	–	–	–
5- Skill rating	6	Tribal Tribal	–	–	–	1	5	–
		Dimensional	3	2	1	–	–	–
6-Skill of interpretation	9	Tribal Tribal	–	–	–	4	5	–
		Dimensional	3	5	1	–	–	–
7-Calendar skill and judgment	7	Tribal Tribal	–	–	–	–	7	–
		Dimensional	2	2	3	–	–	–

SECONDLY - THE RECOMMENDATIONS OF THE STUDY:

Based on the results of the study, can make the following recommendations:

1 - Employment thinking skills in the teaching of the Arabic language lessons.
2 - To be attached to this teacher teaching.
3 - Focus on thinking skills, and development in the Arabic language branch.
4 - Taking into account the thinking skills of learners.
5 - To encourage students to employ the skills of thinking in the branches of the Arabic language.
6 - Competitions among students in the recruitment of thinking skills in the collection of the Arabic language.
7 - Linking thinking skills, and the branches of the Arabic language.
8 - Recruitment thinking skills in the collection of Arabic in various branches of its branches.

THIRDLY - PROPOSALS OF THE STUDY:

In the light of the results and recommendations of the study, the researcher suggests the following:

1 - Evaluation of teaching performance of the students of teachers in the teaching of the Arabic language for students of the second episode of basic education.
2 - To conduct a study to evaluate the performance of teaching students to teachers in the teaching of the Arabic language for students of different stages.
3 - a comparative study between use thinking skills in the teaching of the Arabic language.
4 - The effectiveness of the use of thinking skills in the development of academic achievement and the trend towards it among university students.

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International Journal of Innovation and Scientific Research
ISSN 2351-8014 Vol. 2 No. 1 Jun. 2014, pp. 59-67
© 2014 Innovative Space of Scientific Research Journals
http://www.ijisr.issr-journals.org/

An Interactive Team Leadership: a Conceptual Model for Team based Organizational Effectiveness in large Hierarchical Organizations

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ABSTRACT: Despite Interactive leadership enjoying success and attention as an exceptional leadership theory, few scholars have investigated a specific link between Interactive leadership theories and team performance. As such, the researchers discuss how interactive leadership theories can provide a framework in which to investigate a leader's impact on team performance. As the scope and complexity of modern task demands exceeding capability of individuals to perform, teams are emerging to shoulder the burgeoning requirements. Accordingly, researchers have striven to understand and enhance human performance in team settings. The purpose of this study is to present a **conceptual model** of interactive team leadership for hierarchical organizations such as law enforcing agencies and other public sector organizations in Pakistan, that is workable, practical and efficient compared to traditional leadership model. Further specified are important avenues to creating successful teams like structure of teams, team selection/composition, task design, role of top leader and subordinate leaders. In other words, one can select the right people, provide them with a task engineered for superior performance and train them in the appropriate skills to accomplish that task for overall success of the organization as per set objectives. Researchers have also drawn comparative analysis of proposed interactive team leadership model and traditional hierarchical leadership models in order to prove practicability of the conceptual model. The paper concludes with the identification of ways to select better teams, to design better team tasks and by mentioning effective techniques from which to draw principles, guidelines and specifications to maximize success. Limitations and future directions are also discussed.

KEYWORDS: Interactive Leadership, Team Leadership, Organizational Effectiveness.

INTRODUCTION

1. As a concept, interactive leadership has its roots in participative management approaches, in transformational leadership theories, and in situation - contingent models of leadership. Its links to participative management approaches are quite clear in Judy Rosener's (1990) description of interactive leadership. Rosener's description notes the following characteristics of interactive leadership: 1) encouragement of participation in all aspects of work; 2) wide-spread sharing of information and power; 3) efforts to enhance self-worth of employees; and 4) energizing employees for the task. Leaders must master all competencies. They need to develop—in more rigorous and deliberate ways—team leadership skills that go beyond the basic leadership competencies. Given the need for 21st-century the team leadership model the researcher offers addresses some concepts not currently discussed in professional management education.

2. A team consists of two or more people who interrelate within defined roles to accomplish a common goal. An individual leader unless he or she knows how to leverage the power and synergy of the collective intellect of a team will face greater uncertainty. Today's leaders must cultivate skills that differ in some ways from those of their predecessors. These differences answer the needs of flatter organizations and less submissive team members. 21st-century team leaders must display self-awareness, humility, and selflessness. Team leaders must let their subordinates lead and may need to allow mistakes, even at some personal cost. They must develop communication skills that go beyond clear and directive to rhetorically savvy. They must give reasons, not just orders. Because their teams will include other highly critical thinkers, leaders must consider other perceptions and perspectives, and formulate convincing arguments. The team leader must focus

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on developing a sense of trust among all members to enable constructive candor, honest feedback, and team resiliency. They must "lead from within" by collaborating as a peer while maintaining some autonomous leader authority. The above description of team leadership differs significantly from the current norm, but the researcher believes that structuring organization on team based model where top leader directly interacts with every team leader will provide competitive advantage to such an organization.

PROBLEM STATEMENT

3. Keeping above discussion in view, the researchers intend to present/formulate a conceptual team based model for a hierarchical organization such as law enforcement agencies for organizational effectiveness through interactive leadership in the environments of Pakistan.

ORIGINALITY OF THE STUDY

4. The research area which is outcome of interactive team leadership based model on organizational effectiveness for law enforcement agencies/hierarchical organizations in Pakistan has not been explored by any researcher so far. This is a visible gap in the body of knowledge. The present research does offer an one possible solution to fill this gap and is a significant contribution to the body of knowledge.

APPLIED ASPECTS

5. The above description of team leadership differs significantly from the current norm, but the researcher believes the law enforcement agencies/hierarchical organizations will lose competitive advantage if they do not begin now to adopt a new model. High motivation, a "can-do" culture, strong discipline, and incredibly advanced technologies will only take the law enforcement agencies/hierarchical organizations so far in the coming century. Clearly, many leaders of law enforcement agencies/hierarchical organizations already understand the importance of team leadership and practice it on a daily basis. This research targets leaders who seek a basic foundation in these concepts, and offers enough new information to warrant the attention of experienced team leaders. Findings of the research will be helpful for law enforcement agencies and other such hierarchical organizations which are still following traditional ways/ bureaucratic channels of managing/ leading organizations.

OBJECTIVE OF THE STUDY

6. The objective of this study is to present an effective and result oriented teams based **conceptual model** for organizational effectiveness through interactive team based leadership in the environments of Pakistan for hierarchical organizations such as Law enforcements agencies.

LITERATURE REVIEW

7. The first serious attempts to study team processes began in the 1950s and 1960s, with a focus largely on military teams and team processes that enabled them to function more effectively under conditions of extreme time pressure, high stress, ambiguous and incomplete information, and severe consequences for actions taken. Much of the impetus for team research over the years has been tied to team failures, particularly those associated with high visibility (e.g. aircraft accidents, military accidents) (Ilgen, 1999).Globalization of marketplaces, information availability in terms of speed and volume, and increased competitiveness have changed the way organizations function and respond (Katzenbach, 1998). The need for increased flexibility and responsiveness, and the urgent and frenzied pace of product/service development has yielded tasks that prove too complex and time-consuming for individual attention and completion (Katzenbach, 1998; Swezey and Salas, 1992). Because teams can better provide a directed and collaborative effort to address complex task concerns, organizations around the world have significantly increased their dependency on teams (MontoyaWeiss et al., 2001; Salas et al, 1992). Although reliance on teams has increased drastically since the early 1980s, research surrounding team development has not been able to keep pace with the growing need for understanding how teams can achieve more effective performance (Stout et al., 1997; Tannenbaum et al.,1991). Although achieving higher level individual performance is widely reached in interactive leadership literature (Avolio and Yammarino, 2002; Bass, 1985, 1990), achieving higher levels of team performance has not been as widely researched (Bass et al., 2003). Yet, DeGroot 17,2 et al (2000, p. 363) noted in their meta-analysis that when

leadership and performance were examined "results show an effect size at the group level of analysis that is double in magnitude relative to the effect size at the individual level". Therefore, evidence suggests that interactive leadership and team performance may be a fruitful area for further exploration.

8. Previous conceptualizations have linked interactive leadership with various aspects of team performance. For example, Waldman (1994) discussed improving multi-functional team innovation processes through reliance on interactive leadership, while Bass (1994) discussed improving team decision-making skills through the use of interactive leadership. Additionally, Atwater and Bass (1994) presented a general conceptualization of how interactive leadership may interact with and influence team factors such as cohesion and conflict management, but they did not put forth any specific, testable propositions.

9. More recently, Kahai et al. (2000) demonstrated that interactive leaders are likely to increase group performance in that they are instrumental in overcoming social loafing among group members. Additionally, Balthazard et al. (2002) reported that face-to face teams were more likely to demonstrate higher levels of shared (interactive) leadership than virtual teams. Thus, there has been some effort to link team performance with interactive leadership (Bass, 1990; Yammarino, 1996), however, explicit relationships to teamwork processes and skill sets have not been clearly delineated. Moreover, the existing empirically based leadership/team performance studies primarily have focused on a direct leadership-performance link, without examining what role teamwork processes could have on performance. Because teamwork processes are a required component of team effectiveness (Stevens and Campion, 1994; Sundstrom et al., 1990), their inclusion into a leadership/team performance model is pertinent. As such, researcher attempts to examine inside of a leadership and team performance relationship by exploring what role teamwork processes may play in a interactive leadership/team performance link. Given the widespread use of teams in all types of organizations (Salas etal., 1992), the time is ripe for an integration of team performance theory with interactive leadership theory.

10. The researchers' leadership/teamwork process/team performance integration builds on a previous, limited effort to conceptualize an interactive leadership and team interpersonal skills link (Atwater and Bass, 1994). Further, the Atwater and Bass (1994) conceptualization appears to be the only linkage between these two factors within the interactive leadership domain. Therefore, researcher focuses this integration of leadership and team performance on developing limited understanding of the link between interactive leadership and various teamwork processes, especially interpersonally based processes, and their Leadership. Teams are an outgrowth of the quality management process, and go beyond the quality circles and empowerment trends that achieved popularity in the 1980s (Dess and Miller, 1993). When used effectively and provided with proper training (Stout et al, 1997; Tannenbaum et aL, 1991), teams could lead to increased production, morale, creativity and innovation (Dess and Miller, 1993; Modrick, 1986).

METHODOLOGY

11. For the purpose of proposed research model, non-sampling procedure has been used. An intensive and extensive survey of literature on internet and through books on leadership has been carried out to analyze effectiveness of various models of team leadership. Basing on this literature review and researcher's personal experience of working in various hierarchical outfits, an effort has been made to propose a workable and effective model for smooth /efficient functioning of hierarchical organizations.

INTERACTIVE TEAM LEADERSHIP MODEL

12. Organizational theorists offer various models for team leadership; many reflect the underlying notion that teams are complex, dynamic systems that exist in larger systemic contexts of people, cultures, technologies, and structures. Most models invoke the input-processes-output (IPO) model. Figure 1 shown on next page portrays a model of team leadership which researchers think would apply well to teams in hierarchical organizations such as law enforcement agencies.

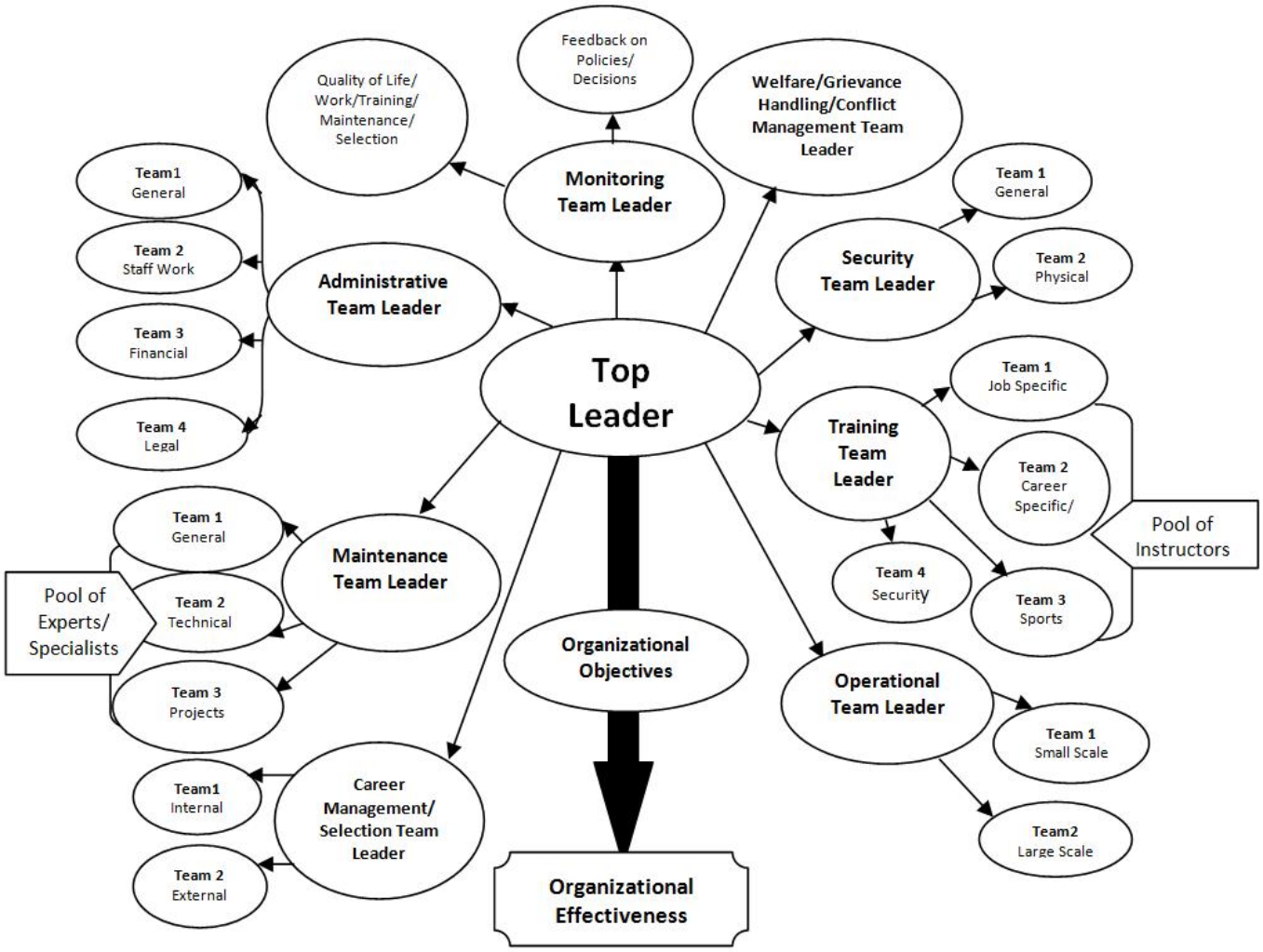

Figure 1: Interactive Team Leadership Model: A Conceptual Model

Source: Researcher's Own Processing

13. The model has been described in succeeding paras. Though theorists emphasize the need for leaders to cultivate collaboration and create synergy, researchers' depiction focuses attention on "the task" as a driving force that carries through the model. The task aligns activities in a hierarchical organization such as the law enforcement agencies, whose main competitive advantage is consistent high performance/mission accomplishment. It grounds the model to a practical activity more likely to satisfy a "task-oriented" and mission-focused culture. The model captures the actions of the top leader as central, but additional whole-team factors have a significant impact on process outcomes and team success. They include the level of boundary spanning, the decision-making style of the team, the level and type of communication and coordination, and the team's norms. Finally, in addition to team performance, team member satisfaction and the level of innovation and adaptability of the team are also important and relevant outcomes. To apply the model, leaders must gain a more detailed understanding of each of the factors in this team leadership model.

14. **Structure**. In proposed model top leader directly interacts with subordinate leaders for performance management keeping in view the organizational objectives for success of organization. This is almost opposite to traditional leadership practices of managing organizations. Leaders must bear the responsibility to ensure their team's structure enables success. Most leaders lack the authority to reorganize the broader organization. Adaptable team leaders in the 21st-century will not hesitate to change both the lines of authority in their teams' structures. In the Information Age, logic demands a reconsideration of team structures designed to address Industrial-Age problems. Virtual and ad hoc teams further amplify

this new reality. Ultimately, the team leader should foster productive team interaction leading to task completion. Quickly reorganizing team structures to fit specific tasks requires imaginative leaders and flexible team members. The most successful leaders will develop the ability to envision alternative structures and mold the right members into a cohesive team. Keeping this factor in mind an organizational structure has been proposed where independent teams have been constituted in such a way that they directly interact with top leader and work under his supervision and guidance unlike traditional hierarchical model of leadership where a particular subject is seen by number of managers and effort is always duplicated. Other important aspects in this regard are:

a. **Direct Interaction**. Top leader and subordinate leaders interact directly and there are no intermediate channels or hindrance in-between which ensures smooth functioning through direct guidance/supervision.

b. **Decentralization/Independent Tasking**. In this model leaders are given lot of initiative and are tasked independently to motivate their teams and get best out of them without interference from anywhere.

c. **Multiple Tasks Performance**. In proposed model any type of task can be performed by designing team according to requirement or creating new team according to situation.

d. **Quality Management**. Quality in life and working environment is ensured through a dedicated teams.

e. **Monitoring/Welfare Team**. Such teams / mechanism hardly exist in traditional organizational leadership system. The purpose of proposing this in new model is to ensure that lower level employees are motivated and there is no such policy or decision which negatively affects them. Moreover, all teams/complete organization are/is directly monitored by top leader.

f. **Conflict Management/Grievances Handling Team**. A conflict exists when two or more members of a group, or two or more groups, disagree. A conflict becomes harmful if tension within or between groups is such that it impedes members from thinking clearly or making sound decisions. Formation of a dedicated team along with a leader who directly reports to top leader will minimize problems of grass root level employees. This will ultimately affect the performance of all employees as well as of the organization.

15. **Team Composition.** By understanding the considerations of team composition, leaders can influence whom they bring onto their team and whom they may attempt to remove. This becomes even more important with ad hoc teams. As leaders think about the composition of their teams they should explicitly address three concerns. First: team size. In contrast to a prevalent cultural assumption that big teams get easier "buy-in" and produce a better product, most researchers argue teams be as small as possible. Leaders need to determine what skills are required and then limit the size of the team to those who have the requisite talents to meet the requirement, regardless of their organizational position. Although violating existing protocols, research shows that small, talent-based teams perform better and have a greater chance of producing results. In proposed model, the composition of team depends upon nature of task. If the task pertains to training of soldiers, then according to type of training required, the training team/sub team can be organized under a leader.

16. **Tasks**. The task is the foundation for all team activities. Teams may receive tasks or generate their own. Proactive team leaders scan the environment for relevant tasks their organization might overlook. They must also understand their obligation as gatekeeper for the team's tasks. This role takes on special importance in law enforcement agencies whose culture encourages the acceptance of almost any mission with a "can-do" attitude. Finally, leaders must prioritize tasks and allocate resources in a deliberate manner.

17. **Culture**. The organization's culture circumscribes all the team's processes and, most importantly, its underlying decision-making logic. One prominent theorist defines "culture" as the shared pattern of underlying assumptions that drives how organization members think, feel, and act. Team leaders should carefully assess the culture and weigh any proposed initiatives or decisions against the likely cultural response. Although successful team leaders need to empower their subordinates, they cannot disregard cultural norms. Performance orientation closely relates to the law enforcement agencies' "can-do" attitude. Team leaders need to collate all the knowledge within the team to inform decision making. However, leaders should also balance the cultural expectation for rapid decision making (i.e., performance orientation expectations) against the time it may take to gather additional information or perspectives. Finally, leaders must remember culture typically takes many years to change. Team leaders should usually adapt to existing culture, rather than try to change it.

18. **Task-Focused Behaviors**. In proposed team leadership model this aspect has been given special attention. Task-focused behaviors include goal setting, work apportionment, process structuring, adapting to changes, standard setting,

information seeking, and feedback. Teams that routinely achieve excellence begin with clear objectives and expectations, receive timely and candid feedback, and garner recognition for goal accomplishment. Task-focused leader behavior requires a concomitant ability to know when to monitor a situation and when to take action.

19. **People-Focused Behaviors.** In addition to sorting through how best to accomplish tasks, proposed model is based on people-focused behaviors. These include developing a positive climate, facilitating team member participation in the group, harmonizing interpersonal problems, setting standards of behavior, and being friendly and supportive. This all is not possible without using interactive leadership style and managing organizations through teams. Military readers may be surprised to learn that some studies show people-focused behaviors have twice the effect on team performance as task-focused behaviors. This does not mean that team leaders should focus all their energy on climate and cohesion at the expense of task-focused behaviors, but it probably implies that a task-oriented team will be more productive if the leader properly manages climate concerns and sets conditions that enable healthy relationships among team members.

20. **Decision Making**. Interactive team leadership model involves subordinates in the decision-making process to the maximum. In the Information Age, timely decision making demands that leaders decide when to quit gathering and analyzing data and when to stop taking inputs from the team. This function requires more art than science. At a minimum, top leaders need to recognize that decision making at the strategic level differs from the tactical level. Decision quality also suffers when a leader defaults to position power. Though position power usually evokes compliance from subordinates, it may also stifle their willingness to offer candid opinions during the decision-making process. Leaders should establish a team climate that encourages maximum candor, regardless of the potential for disagreement. Actually, team leaders need to foster a climate in which members openly acknowledge and discuss their disagreements about team strategies and goals. Cognitive conflict results from judgmental differences about how best to achieve common objectives; it places ideas—but not people—in opposition. This type of conflict improves team decision quality because it allows multiple perspectives while not degrading team processes.

21. **Feed back/Communication.** Without directly getting feedback of lower level employees getting best out of them is not possible. The proposed model of interactive team leadership emphasizes on this aspect and suggests a monitoring team for the purpose. Not surprisingly, high-performing teams communicate effectively. Team leaders must create a climate of psychological safety for all team members. Psychological safety exists when all team members believe interpersonal risk taking has low stakes. Psychological safety is a prerequisite of trust, a critical component for a high performing team in a complex environment. Without trust, healthy risk taking becomes much less likely. Team leaders must closely monitor the extent of information sharing among team members and also explicitly gauge how well team members understand organizational and team objectives and strategies. Often, team leaders assume once they have communicated the organizations and team's purposes, team members understand the underlying logic. Leaders forget their team members did not attend the meetings during which accompanying rationale came to light or became common knowledge. Therefore, leaders must also recount the dialogue and logic from which these strategies sprang. Given this additional background information, the team has a much better chance of achieving vertical and horizontal alignment with the rest of the organization.

22. **Coordination**. For the purpose of coordinating efforts/tasks of all teams a separate team has been suggested in the model at organizational level i.e. Administrative Team. However, how well team members coordinate their activities largely determines their effectiveness. Team leaders should help develop the interaction patterns among team members that will lead to success. A key ingredient in team coordination is shared mental models. Team members consciously or unconsciously develop mental models from the beliefs, thoughts, and verbal descriptions they experience. These models then guide subsequent thoughts and actions.Well-coordinated teams share mental models about team purposes, their connections to each other, roles, and behavior patterns. These team-based mental models form a fundamental requisite for effective coordination. They develop over time, but team leaders may shape certain elements—roles and interaction patterns—of such models toward more efficient team coordination. As team composition and tasks get increasingly vague and complex, the leader must deliberately act to ensure the development of these shared mental models. Failure to develop shared mental models can lead to uncoordinated—and thus inefficient or unproductive—efforts. Uncoordinated team members expend their energies in different directions, or fail to synchronize their work on time-critical tasks. At worst, duplication of tasks or even counterproductive efforts result, and some sub-processes may go completely undone.

23. **Competitiveness**. By default a spirit of competition is created amongst various teams thereby benefiting overall performance management of the organization. Every team leader would try its best to motivate and inspire his team to surpass other teams thereby enhancing productivity/efficiency of the organization as whole. Team leaders accept and

shape their teams; to produce desired outputs. The dynamic conditions of the contemporary operating environment mandate an adaptive and innovative force. Innovative solutions increase competitive advantage. Correspondingly, team leaders must develop metrics to determine how well their teams perform tasks or achieve other outputs. Typically, how quickly, efficiently, and effectively a team achieves a desired outcome indicates team performance. The organization may provide weak team members, the strength of its culture might overwhelm the team leader's attempts to re-orient the team's objectives, or the entrenched norms of an established team may impede the efforts of a newly assigned leader to propel change.

24. **Comparative Analysis**

S/No	Interactive Team Leadership Model	Traditional Hierarchical Leadership Model
a.	Interactive/Participative.	Based on number of intermediate channels. Not interactive.
b.	Job/Task specific.	A leader deals with number of issues.
c.	Multipurpose/Flexible.	Fixed setup/departments.
d.	No duplication of effort.	Numbers of managers supervise a particular task.
e.	Direct supervision/guidance.	Leaders hardly interact directly with grass root level employees.
f.	Balanced model.	Numbers of subjects are un-addressed.
g.	Competitive culture.	No such culture.
h.	Conflict management /grievances' Handling.	Not addressed.
j.	Employees focused.	Top management focused.
k.	Smooth functioning.	No of channels do not allow smooth functioning.
l.	Organizational performance based on team performance.	No necessarily.
m.	Efficient /Productive.	Possible but not due to structure of organization or style of leadership.
n.	Conducive working environment/independent tasking.	Over supervision.
o.	Involvement of employees in decision making through feedback/interaction.	Decision making at top management level. No monitoring to see of impact of such decisions.

CONCLUSION

25. The progression of this concept has been traced from its inception 50 years ago to current thinking. It has been learnt that teamwork is the seamless integration of specific cognitive, behavioural and affective competencies that allow team members to adapt and optimize their performance. Researchers have made great strides in defining team leadership model, and in differentiating effectiveness of organizations in such a set up. This interactive team leadership model illustrates many important concepts and relationships officers/leader must understand to lead effective teams in the 21st century operating environment. These principles apply to hierarchical organizations; questions remain in determining how best to adjust this model to accommodate teams in such hierarchical set ups. Evidence to date suggests teams in traditional set ups are both slower and less accurate than successful teams in team based setup. In the meantime, researcher offers this interactive team leadership model for leading from within to achieve organizational effectiveness/ competitive advantage.

RECOMMENDATIONS

26. In the light of above study, it is recommended that traditional hierarchical organizations should analyze this model for implementation, keeping in view dictates of 21st century and practicability of team based interactive leadership concept.

LIMITATIONS

27. Study could have been conducted through sampling procedure but due to rare existence of such models in hierarchical organizations in Pakistan it could not be done.

28. Various models of team leadership concept should have been discussed to analyze their effectiveness in the context of organizational performance but due to limited time available for research and due to less research information available in the Pakistani context, many details could not be analyzed and included in the research article.

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International Journal of Innovation and Scientific Research
ISSN 2351-8014 Vol. 2 No. 1 Jun. 2014, pp. 68-83
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http://www.ijisr.issr-journals.org/

Evaluation of Computer Usage in Teaching Arabic Language

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ABSTRACT: In Egypt, the teacher of Arabic does not study computer in the syllabus of his preparation in Faculties of Education. Moreover, he does not use it in studying any of the syllabi till he graduate as a teacher.
Computer illiteracy in our Arab societies does not only require the availability of Arabic programmed language but also the existence of practical means to use Arabic language itself to converse with the computer.
The present research is an attempt at showing the duality of culture which prevails over our Arab societies; such duality is one of the main reasons of the deformity of our cultural and scientific view, and the deformity of our intellectual and educational product.
The problem of this research may wholly be determined in the following questions:

1 . What are the linguistic requirements for teaching Arabic using computer in the programmes of preparing the teacher of Arabic in the Faculty of Education at Fayoum?
2 . What are the linguistic difficulties concerned with the unavailability of Arabic programing languages?
3. What are the suggestions of treatment so that Arabic may become a computer language?

The researcher designed the two following tools:

1. A questionnaire about the linguistic demands for teaching Arabic using computer in the programmes of preparing the teacher of Arabic in the Faculty of Education.
2. A questionnaire about the linguistic demands concerned with the unavailability of Arabic programming languages.

First, Results of the application of the questionnaire of linguistics demands for teachingArabic using computer in the programmes of preparing teachers of Arabic in the Faculty of Education.Therefore , it is evident form table no.4 that:
The linguistic demands for teaching Arabic using computer in the programmes of preparing teachers of Arabic in the Faculty of Education seen by the respondents (in the sample of research) CHI^2 has statistical significance of agreement in the numbers of the following phrases: (6), (7), (11), (4) , (13), (10), (16), (1), (5), (9),(17).
Secondly, results of applying the questionnaire of linguistic difficulties concerned with the unavailability of Arabic programming languages. CHI^2 has statistical significance of agreement in the numbers of the following phrases: (12), (1), (6), (4) , (9), (3), (10), (13), (14), (7), (8) .
On the basis of this research, the researcher suggested practical medicines.

KEYWORDS: Evaluation, Computer, Usage, Teaching, Arabic, Language.

1 INTRODUCTION

In Egypt, the teacher of Arabic does not study computer in the syllabus of his preparation in Faculties of Education. Moreover, he does not use it in studying any of the syllabi till he graduate as a teacher (14:33-36)

This research attempts to pointing out the importance of using computer in qualifying the teacher of Arabic and showing some primary aspects of the relationship of Arabic language to computer.

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This issue seems to have been lost between the extreme simplification of technicians from one side, and the sharp overlook of linguistics from the other side; the issue is inevitably difficult and interrelated so that simple solutions or tricks will not do. It is also so important and vital to the extent that its importance is in the first priorities of preparing our Arabic societies for the information society where the labour of information, its industries and services will prevail.

Behind this research is on invitation to modernize the outlook of the Arabic language as a whole. It is a demand that corresponds to the duality of computer and English language, and many other languages such as Russian, French and German. Such a demand needed a full revision of all the sides of the linguistic system, where the mechanic system impose on the topic it handles a degree of accuracy and completion without which it can not be subjected to the logic or the machine. Maybe in our approach to this problem on this level an indication of how the computer may compensate for our linguistic backward: theoretically, regulationally and implementationally .

The English basis imposed technical restrictions on the mechanic handling of most languages. Such limits reach the utmost with the broadening of the field of linguistic variety between these languages and that of the basics i.e. English. English and Arabic represent from the point of view of computers two extremes; this, in turn, led to the emergence of many technical obstacles in arabizing computers which made of language another barriers added to another group of barriers separating the Arab user from that new comer which emerged and grew in a various linguistic milieu. (1)

Language is the container of thought. The structure and system of language impose a certain pattern of method of thought on its users; this is known as linguistic determinism. Change in any language requires an important change in the nature of language which the society uses for the existence of a mental revolution necessitates the existence of a linguistic on first.(17:205), (15), (18), (13)

Computer illiteracy in our Arab societies does not only require the availability of Arabic programmed language but also the existence of practical means to use Arabic language itself to converse with the computer.

Using computer in preparing the teacher of Arabic is based on showing the relationship of Arabic to computer; this requires the subjection of accurate science handling.

The attempt at adjusting the linguistic theorizing of Arabic and handling in mechanically is the aspect that helps to reveal the position of super theoretical knowledge on the side of scientific maturity of applied sciences.(16), (19)

The present research is an attempt at showing the duality of culture which prevails over our Arab societies; such duality is one of the main reasons of the deformity of our cultural and scientific view, and the deformity of our intellectual and educational product.(20)

2 PREVIOUS STUDIES:

There are various previous studies which pointed out the importance of using computer in teaching generally. (8), (9), (11), (6), (7)

The impact of teaching expertise on educational software selection: An examination of the strategies used by teachers and novices in their approach to software selection

Expertise in teaching has been associated with a comprehensive knowledge base, well organized schemas resulting from a deep understanding of the problem, to concrete situations, and the ability to recognize features of the problem central to the solution (Borko & Livingston, 1989; Leinhardt and Greeno, 1986; Sabers, Cushing, & Berliner, 1991.) The introduction of computer technology to the classroom has added, for some teachers, an unfamiliar dimension to the classroom environment, a dimension in which their problem solving expertise may not be as effective. This study examines the impact of computer technology on teachers' approaches to the problem of evaluating educational software packages for instructional merit. Sixteen teachers and 14 novices evaluated two educational software packages for educational merit. Two of the teachers had expertise in educational technology. The remaining teachers and the novices had no formal training in using educational technology. Participants' “think-aloud” responses were recorded, by audio and video tape, as they evaluated the software, and their responses to a brief interview and survey were collected. Teachers generated a greater percentage of technical and pedagogical statements, but did not differ significantly from Novices in their attention to specific Pedagogical variables. A qualitative analysis revealed that teachers and novices had different approaches to the problem solving task directed in part by schemas they held for effective instruction. Further, the technology-trained teachers appeared to have greater access to their schemas for effective instruction than those teachers for whom the computer was an unfamiliar environment. These findings suggest that technology training may need to be an integral part of teacher education programs.

Computer skills for pre-service teachers: Perceptions and implications for curriculum development

The purpose of this study was to examine the national profile of necessary technology skills for teachers and the perceptions of school administrators, cooperating teachers, and student teachers regarding specific technology skills needed by pre-service teachers. A survey of literature provided a national profile through standards adopted by the National Council for Accreditation of Teacher Education. The perceptual data, compiled from a survey instrument developed for this study, were self-reported and limited to administrators, cooperating teachers, and student teachers currently participating in a teacher education program in rural northwestern Pennsylvania. Descriptive data analysis, including survey mean scores data and standard deviation were utilized to determine existing technology use and the profiles of perceptions from target populations. Mean rank analysis was applied utilizing the Kruskal-Wallis procedure to identify significant differences among sample populations. The results showed that perceptions of necessary specific technology skills vary significantly among populations. Also, notable variance was found within target populations, however, a number of technology skills were clearly identified as priorities for pre-service teachers. The data revealed that word processing skills have the highest priority among groups. Other high priority skills included use of e-mail, accessing the internet, utilizing CD ROMs, and knowledge of computer terminology. Low priority skills included knowledge of programming languages, MS DOS, web page design, Ethernet function, and reformatting hard drives. The blend of priorities identified in this study and the perceptions of experts in the field of technology in education, grounded in the general standards advocated by NCATE, should be the basis of technology curriculum for pre-service teachers in northwestern Pennsylvania. The results of this study were consistent with literature and research that suggests technology curriculum in teacher education should be developed with a wide variety of populations in order to best reflect the needs of pre-service teachers and society.

The effects of a self-paced modular computer-training program on in-service teachers' attitudes and sense of computer self-efficacy

The issue of technology integration for schools can no longer wait as business, government, and education call for students to be prepared to use the tools of the 21st century. Pre-service teachers are presently receiving some training with the publication of the National Council for Accreditation of Teacher Education standards for technological literacy. In-service teachers are also being called to meet the needs of the 21st century student, but, lacking the teacher preparation training in technology and having honed successful classroom strategies without the use of technology, they are finding the acquisition of these skills more difficult. As professional development programs begin to address the needs of the in-service teacher, the issues of attitudes toward computers and computer self-efficacy must be considered. Successful training programs must address the special needs of in-service teachers, a population of adult learners with little experience or exposure to the digital world. Investigated in this study were the effects of a self-paced modular computer-training program on teacher attitudes and computer self-efficacy. Forty-two in-service teachers at St. Paul's Episcopal School participated in a four-module self-paced computer-training program that included modules covering an introduction to computers, Windows 95, word processing, and telecommunications. Two computer attitudes instruments were used: Delcourt and Kinzie's 1993 Attitudes Toward Computer Technologies scale which measured comfort/anxiety and perceived usefulness constructs and Shaft and Sharfman's 1995 Attitudes Toward Computers Instrument which measured a global computer attitude construct. These attitude measures were administered at the beginning of the self-paced computer-training program and again at the completion of the last module. The Compeau and Higgins' 1995 Computer Self-Efficacy measure was administered upon completion of each module for the purpose of assessing the impact of each module on the participants' sense of computer self-efficacy. Results indicate that participation in a training program that meets the needs of the inservice teacher and includes self-pacing, independent and collaborative learning opportunities, and the presence of support personnel positively impacts the attitudes of comfort with computers and perceived usefulness of computers as well as a global attitude toward computers. The participants' sense of computer self-efficacy is also impacted positively. In-service teachers who feel positive toward and efficacious with computers are more likely to feet comfortable bringing the tools of technology to their classrooms and their students.

A comparison of paper-based, computer-based, and voice-mail study media in relationship to student achievement in information systems courses

The problem investigated in this study was the use of paper-based, computer-based, and voice-mail-based study media and their relationship to student achievement in information systems courses. Providing information on the usefulness of study media to schools, businesses, and textbook publishers to assist them in decision making was central to this study. This study may be useful to professionals interested in the larger framework of comparing study media and test performance. This research also examines the relationship between student achievement and a particular study medium when compared with number of questions studied, amount of study time used, age, income, gender, distance from campus, grade-point average, full-time employment, part-time student classification, previous computer skills, and access to a computer. An experiment was conducted using a quasi-experimental posttest-only control group design. Statistical procedures were used

to pretest the data to determine randomness of the groups. Two information systems courses were used to test each study medium. An introductory business course in information systems and an advanced course in which all students would have computer experience were used to test each study medium. This experiment was conducted at a public university. The majority of the students were part-time students who were employed full-time. The university does not have residential students. Quiz, midterm examination, and final examination grades were used as the measure of student performance to determine if there was a significant relationship between study medium and student achievement. The hypothesis that there is a significant relationship between study medium and student achievement was not rejected.

Utilization of computer technology by teachers at Carl Schurz High School, a Chicago public school (Illinois)

This case study investigated computer use by teachers at Schurz High School and identified the factors affecting their use. Current and desired computer skills were also evaluated to make appropriate recommendations regarding inservice training to help increase the use of computers among faculty at Schurz. Descriptive data was gathered on Schurz by interviews, sign-up sheets, software documentation, and reports and pertained to demographics, academic probation, technology plan, school improvement plan, staff development, funding, computer inventory, computer labs, vocational educational programs, and technology support. A survey was used to gather descriptive information on how computers were used in classrooms and interactive labs. Survey items were designed and revised to gather data relevant to seven research questions. The population for this study involved the 133 classroom teachers on staff at Schurz High school during the first semester of the 1998–99 school year. One hundred usable surveys represented a response rate of 75%. The respondents represented 12 departments in the school, including business/computer education, math, physical education, English, special education, technical, foreign language, science, music, social studies, art, and English as a Secondary Language. The major findings of this study show that the vast majority of teachers used a computer for personal or school use; almost all teachers with 1–10 years of teaching used a computer; teachers with 31–35 years of teaching represented the largest group of noncomputer users; the highest percentage of use for both computers and the Internet was for preparing instructional materials; the lowest percentage of use of computers and the Internet was for instructional use for students; teachers used word processing the most for preparing instructional materials, for instructing students in the classrooms, and in the interactive labs; the second greatest computer use was for web searching; and few teachers used software other than word processing in their classrooms. The factors that affected computer use included the direct relation between use of computers and number of computers in the classroom; lack of computer projection devices in the classrooms; lack of duty-free time to prepare lessons including technology; other educational commitments; and insufficient teacher training, support, and follow-up.

Secondly, there are various previous studies which pointed out the importance of using computer in teaching Arabic in particular such as the following :

1. Analysis of heritage for determining the date of its emergence and its source; the *Illiade* as a myth was analysed by computer; it was found that it is composed of 15694 lines of verse, 112000 words and it was ascertained that Homer is its poet. Also the plays of Shakespeare have been analysed to ensure that he is the writer.(10)
2. Thematic identification of the degree of influence of men –of- letters on others. The most well known uses of computer in that field is that study which was performed to know how far the poet Shelly was influenced by his predecessor Milton. The statistic comparsion of Shelly's famous poem "*Prometheus unbound*" and Milton's "*Paradise Lost* " the sphere of common lexicon and the relative distribution of the ranges of the two poets using of them. A comparison of the sentences of both poems -which included the most common lexicon- was performed to give a quantitative criterion of Shelley's being influenced by his predecessor.(10)
3. A comparative discourse analysis of output produced by learners of German in a chatroom and a face-to-face discussion group, and its potential implications for foreign language instruction

The purpose of this research project is to contrast written German discourse as it was produced by 63 learners of German as a foreign language in 4th semester German in a synchronous computer-mediated communication environment, i.e. in a chatroom, with the oral discourse produced by 63 learners of German in a small group face-to-face discussion groups. This study uses a variety of measurements to better describe and define the language produced in chatrooms and face-to-face discussion groups. First, the level of participation is measured by coding the data with communication-units, or c-units. The final statistical analysis indicated that the different levels of participation in the chatroom and the face-to-face discussions were significantly different. Second, this study hypothesizes that the output produced in real-time synchronous computer-mediated communication constitutes a new type of orality in a virtual world, a hybrid between spoken and written discourse. Communication in a chatroorn environment allows students to write as they would speak. The written output produced in a chatroom during this experiment shows features of oral language. The term virtual orality describes this type of orality in a virtual space. Virtual orality is derived from Walter Ong's secondary orality, which delineates an orality that is produced by

speakers in our society who have the awareness and consciousness of literacy, i.e. they live in a society that is knowledgeable of and influenced by writing. In the third part of this study, the Type-Token Ratio is used to measure the variety of different words in relation to the total number of words produced. In an effort to determine the language level of the students, this study uses a scale of language stages as they are described by Erwin Tschirner, followed by an analysis of verb morphology, and attributive and predicative adjectives. The last chapter asks if and how computer-mediated communication can be productively employed in a foreign language teaching environment. Tentative recommendations about the use of real-time computer-mediated communication and face-to-face discussion groups for instructors conclude this study.

4. Reading instruction of first-grade students within a whole learning reading program using CD-ROM versus traditional print storybooks

This researcher investigated the use of technology within a whole learning reading program to determine whether statistically significant differences in reading achievement develop between instruction using traditional text in a classroom setting and electronic print in the form of books on CD-ROM used in a computer lab setting. Participants were 92 first-grade students from a large, semi-rural elementary school in Orange County, New York. All of the subjects received instruction under both control and treatment conditions. Subjects scores on a district-wide fall reading matrix were used as pre-treatment observations to determine equality of groups. Three days following a sequence of instruction led by the teacher were conducted using traditional and electronic print books. Three books were completed under each method/medium. The books on CD were selected from Level B in the Scholastic Beginning Literacy System WiggleWorks. The same books used on CD were used in traditional print. Post testing was conducted individually after instruction on each book. Assessment included a 20 item word list, a 70–80 word passage (both taken from the text of the book used), 5 factual comprehension questions, and a retelling. Information on or about the computer's effectiveness as a source of language development through pre-literacy experiences to increase sight word vocabulary and in improving comprehension were addressed. The study served to evaluate the effectiveness of books on CD as a delivery mode for whole learning instruction in reading. Results indicate that the use of books on CD are particularly effective in increasing beginning readers' sight word vocabularies (word list) and their ability to retell a story. This outcome was particularly found to be true for low achievers, who performed better on these tasks using electronic books than traditional print. Students generally gained more on reading from context (word passage) and answering questions using traditional print.

4. Synchronous computer-mediated communication in the intermediate foreign language class: A sociocultural case study

Synchronous computer-mediated communication (also known as chatting) has become an extremely popular Internet application in contemporary society, as a way to communicate electronically with persons from all corners of the globe. While members of academic and business communities are increasingly using synchronous CMC to hold serious discussions, conferences and classes, chat communication is still for the most part recreational in character (Werry, 1996). Only recently have educators come to realize that chatting may provide valuable learning experiences to its participants. The purpose of this study was to investigate interactional and linguistic features of communication among intermediate-level Spanish learners and their teacher in a synchronous CMC context. The study evoked some fundamental constructs of Vygotskian sociocultural theory in order to describe and explain how learners and their teacher collaborated with each other to co-construct meaning in chat rooms. General patterns of learner-learner and learner-teacher interaction were analyzed, as well as learner and teacher perceptions of the use of chat as a language learning tool, and finally, changes in learner output over time. First, it was found that learners appropriated the chat room environment to create their own community of language practice in which they transformed tasks that were assigned to them, went off-task when they wanted to, and had the opportunity to make use of language functions that are not typical of the L2 classroom environment. Second, the learners and the teacher put forth a great deal of perceptions regarding the use of chat rooms in the L2 class, which brought an emic perspective to the study. Third, the Spanish verbal morphology system served as a springboard for illustration and discussion of changes in learner output over time. Specifically, learners made unique uses of the Spanish verbal morphology system, which the emergent grammar perspective was called upon to explain. Also, learners branched out from overuse of the Spanish present tense, gradually using the other available verb tenses and moods more of the time. The study suggests pedagogical uses for synchronous CMC, as well as future research directions.

6. The relationship of universal grammar to second language acquisition: A meta-analysis

he purpose of this investigation was to synthesize (by means of a meta-analysis) the results of primary research studies, which examined the relationship between Universal Grammar and Second Language Acquisition, in order to discern whether second language learners do have full access to Universal Grammar. In order to proceed with this investigation, primary

research studies were retrieved through a multiple channel approach: a combination of manual and computer searches. A set of criteria was established to determine which of the retrieved studies would be included in this meta-analysis. Using these criteria, fifteen primary research studies could be included in this meta-analysis. The unit of analysis for this study is the sample unit of analysis. These fifteen studies yielded 22 independent samples, on which the subsequent analyses were performed. Using effect sizes (Cohen's d-index) as the measure of the outcome of the primary study's sample(s), 70 effect sizes were generated. Each of these effect sizes was weighted and averaged to produce an overall effect size for this meta-analysis. The overall mean effect size produced was 1.25 with a standard deviation 0.68, a very large effect size. In addition, a confidence interval was calculated on this mean effect size. The lower limit was 1.17, and the upper was 1.31. Based on the premise that the mean effect size would approach zero if second language learners do have full access to Universal Grammar, the above results indicate that they do not. Moreover, the confidence interval test does not contain zero, which confirms that second language learners do not have full access to Universal Grammar. Sixteen variables associated with the Publication, Participant and Design characteristics were analyzed to determine if any of these variables had an influence on the effect size generated for each sample. This examination shows that the Target Language being tested does have an influence on the effect size associated with each particular sample. Overall, the results of this investigation contribute to a better understanding of the relationship of Universal Grammar to Second Language Acquisition. Implications for future research are discussed. In addition, implications for teaching of a Second Language are discussed.

From such previous studies, we see clearly the importance of using computer in Education in general and in teaching language in particular; while the teacher of Arabic does not study computer as a syllabus in the programms of his preparation in the Faculties of Education in Egypt and he does not use it in studying any of the other syllabi till he graduated as a teacher.

It has appeared clearly the impotence of the printed book as a means of presenting the educational matter and also the inefficiency of the other conventional educational aids in face of the inflation of the educational matter and its complexity. All this makes us suggest the computer as a logical substitute to increase the efficiency of education, the productivity of education and facing the deeply rooted problems from which educational system suffer especially those of surficial and demanding nature. Many view the computer as a source of hope to make the inevitable change that has long been waited for in the programmes of preparing the teacher in general and the teacher of Arabic in particular. Our success in this depends, primarily, on how successful we are in preparing flexibly the technical means of the requirements of teaching Arabic language.

3 PROBLEM OF THE RESEARCH:

The problem of this research may wholly be determined in the following questions:

1. What are the linguistic requirements for teaching Arabic using computer in the programmes of preparing the teacher of Arabic in the Faculty of Education at Fayoum?
2. What are the linguistic difficulties concerned with the unavailability of Arabic programing languages?
3. What are the suggestions of treatment so that Arabic may become a computer language?

4 AIMS OF RESEARCH:

The present research aims at the following:

1. Determining the linguistic demands for teaching Arabic using computer in the programmes of preparing teachers of Arabic in the Faculty of Education.
2. Determining the linguistic difficulties concerned with the unavailability of Arabic programming languages.
3. Determining the treatment procedures so as for Arabic to become a computer language in the programmes of preparing teacher of Arabic in the faculties of Education.

5 HYPOTHESES OF RESEARCH:

The present research attempted to test the two following hypotheses:

1. There are no significant statistical differences between original and expected repetitions of the marks of the student teachers specialized in Arabic on the vocabulary of the questionnaire. The linguistic demands for teaching Arabic using computer in the programmes of preparing the teacher of Arabic in the faculties of Education; this is shown in test (CHI2).
2. There is not any significant statistical difference between original and expected repetitions of the marks of those

specialized in computer science engineering and programming on the vocabulary of the questionnaire; the linguistic difficulties concerned with the unavailability of Arabic programming languages; this is shown as such in test (CHI2)

6 LIMITS OF RESEARCH:

The research consists in

1. A sample of student – teachers of Arabic in the Faculty of Education at Fayoum (number:120) to identify their linguistic demands for teaching Arabic using computer in the programmes of preparing teacher of Arabic in the Faculty of Education.
2. . A sample of students specialized in compuer science engineering and programming in the Faculty of Education (number: 63) to identify the linguistic difficulties concerned with the unavailability of Arabic programming languages.

7 SAMPLE OF RESEARCH:

Table no. 1 shows the sample of research.

Specialists in computer science programming	Teachers of Arabic	Aim/type of sample	no.
	120	Determining the linguistic demands for teaching Arabic using computer.	1
63		Determining linguistic difficulties in Arabic programming.	2

From the previous table (no.1) it is clear that the sample of this research consisted of two groups as follows:

1. Fourth year students, department of Arabic, Faculty of Education at Fayoum in the academic year 2004/2005.
2. . . Staff members, specialists in computer science engineering and programming in the Faculty of Engineering at Fayoum, in the academic year 2004/2005.

8 TOOLS OF RESEARCH:

The researcher designed the two following tools:

1. A questionnaire about the linguistic demands for teaching Arabic using computer in the programmes of preparing the teacher of Arabic in the Faculty of Education.
2. . A questionnaire about the linguistic demands concerned with the unavailability of Arabic programming languages.

Following is a display of the design of each of them:

First, the questionnaire of the linguistic demands for teaching Arabic using computer in the programmes of preparing teachers of Arabic in the Faculty of Education:

This questionnaire consisted of two parts:

The first was concerned with marshalling primary data about the student – teacher of Arabic. The second consisted of 17 phrases focusing on the main linguistic, speaking, reading and writing. In front of each phrase was written three levels showing the degree of agreement. An open-ended phrase was formed where the teacher writes other linguistic demands that he may add because of being not written in the questionnaire.

Validity and reliability of the linguistic demands questionnaire:

The questionnaire was given to some staff members specialists in Arabic language in the Faculty of Education at Fayoum, in the light of their notes it was modified and some phrases were reformed to guarantee the validity and that the items are comprehensive and have an organic relation to the required linguistic skills for teaching Arabic in the programmes of preparing the teacher of Arabic. After ensuring the validity of the questionnaire it was applied in a pilot study on 18 students

– teachers of Arabic in the department of Arabic, Faculty of Education at Fayoum, so as to calculate the reliability of the questionnaire. Table no.2 shows the calculation of the reliability of the questionnaire:

Table no.2
Calculating reliability of the questionnaire of the linguistic demands for teaching Arabic using computer:

Repetition *square of deviation	Repetition *deviating from the mean	Deviating from the mean	Focuses of sets	l. Repetition	Sets of marks
Zero	Zero	Zero	10	11	8-
3	3	1	14	3	12-
8	4	2	18	2	16-
9	3	3	22	1	20-
16	4	4	26	1	24-28
36	14			18	

Arithmetical mean = 13.11

Normal deviation =4 .73

Calculating reliability was done using the formula: kuder & Richardson. It is as follows(21:535)

CRQ=

Where CRQ = coefficient of reliability of questionnaire

N= Number of times of questionnaire

NDS^2 = Normal devotional square

M= Mean proportional of the marks of agreement

Applying the above – mentioned formula, the coefficient of reliability of questionnaire was equal: 0.92 which made the researcher psychologically at ease using it.

The questionnaire was as mentioned in appendix no.1 in this research:

Secondly, questionnaire of linguistic difficulties concerned with the unavailability of Arabic programming languages: it consists of two parts: the first is devoted to collecting primary data about the specialist in computer science programming. The second consists of 15 phrases focusing on the linguistic difficulties in programming Arabic mechanically: listening, speaking, reading and writing. In front of each phrase was written three levels showing how far one agrees at it. As open-ended phrase was formed where the specialist in computer science programming writes other difficulties that are not mentioned in the questionnaire.

Validity and reliability of the linguistic demands questionnaire:

The questionnaire was given to some staff members specialists in computer science programming and engineering in the Faculty of Engineering at Fayoum, in the light of their suggestions some phrases were modified and rephrased to guarantee validity, comprehensiveness of items and that they have organic relation with the linguistic difficulties in programming Arabic mechanically. After insuring the validity of the questionnaire it was applied to a pilot study of 15 staff members of specialists in computer science programming and engineering in the Faculty of Engineering at Fayoum; this was done to calculate the reliability of the questionnaire.

Table no.3 shows the reliability of the questionnaire

Table no.3
Calculating reliability of the questionnaire3 of linguistic difficulties in Arabic programming

Repetition square of deviation	Repetition deviation	Deviation marks	Focuses of sets	2. Repetition	Sets of marks
Zero	Zero	Zero	11	9	10-
2	2	1	13	2	12-
8	4	2	15	2	14-
18	6	3	17	2	16-
28	12			15	

Mean Proportional = 12 .6

Normal deviation =2. 215

Calculating reliability was done using the above-mentioned equation of Kuder and Richardson. The coefficient of reliability was equal to 0.631.This has made the researcher at ease in applying it. The questionnaire in its final form was as mentioned in appendix no.2 in this research.

9 APPLICATION:

After the approval of the Faculty of Education at Fayoum(see appendix no.3) in this research), the two questionnaires were applied to the sample of research**.**

10 STATISTICAL TREATMENT:

To handle the results of this research the researcher use the two following tests:

1. CHI^2 test: this is to identify :
   a. the linguistic demands for teaching Arabic using computer in the programming of preparing teachers of Arabic in the Faculty of Education.
   b . The linguistic difficulties in the Arabic programming.

   The following equation was used(12:228)

   $CHI^{2} =$

   Where R = empirical observed repetition

   $R^{/}$ = theoretical repetition according to the hypothesis

2 test of calculating the relative weight of each phrase in both questionnaires. This is to arrange phrases according to the degree of approvals concerned with each phrease. Likert Equation was used .(21:483)

Relative Weight = (R1 .3 +R2 .2 +R3 .1) / (N * 3)
Where R^1 = repetition of approval
Where R^2=repetition of "I am not sure"
Where R^3 = repetition of refusal
Where N = number of respondents to the questionnaire

11 RESULTS AND INTERPRETATION OF RESEARCH:

First; Results of the application of the questionnaire of linguistics demands for teaching Arabic using computer in the programmes of preparing teachers of Arabic in the Faculty of Education.

Table no.4 shows the results:

Table no.4

Linguistic demands for teaching Arabic using computer in the prormmes of preparing teachers of Arabic in the Faculty of Education.

arrange	Relative Weight	CHI^2	disagree	Not sure	Agree	NO.
8	0.714	9.95	38	27	55	1
15	0.661	0.20	42	38	40	2
17	0.578	14.15	59	34	27	3
4	0.725	13.95	37	25	58	4
9	0.714	5.45	35	33	52	5
1	0.742	22.65	36	21	63	6
2	0.739	18.05	35	24	61	7
13	0.681	13.85	28	59	33	8
10	0.706	9.80	40	26	54	9
6	0.717	16.20	40	22	58	10
3	0.731	17.45	37	23	60	11
16	0.603	9.65	56	31	33	12
5	0.722	5.60	32	36	52	13
12	0.697	18.05	24	61	35	14
14	0.675	0.45	40	37	43	15
7	0.717	6.45	35	32	53	16
11	0.706	6.20	38	30	52	17

If we refer to table CHI^2 when the degree of freedom equals two marks at the rate of 0.05, CHI^2 then must reach 5.991 so as to be statistically significant. At the rate of 0.01 it must reach 9.210 so as to be statistically significant.

(reference no. (21) P. (370) in the end of research).

Therefore , it is evident form table no.4 that:

1. CHI^2 has a statistical significance for each number of the following phrases: (6), (7), (11), (4), (13), (10), (16), (1), (5), (9), (17)

This means the following

a. The linguistic demands for teaching Arabic using computer in the programmes of preparing teachers of Arabic in the Faculty of Education seen by the respondents (in the sample of research) are: (6), (7), (11), (4), (13), (10), (16), (1), (5), (9), (17)

b. It is also shown from table no.4 that CHI^2 has a statistical significance disagree in what concerns the following phrases:(12), (3)

This means that the respondents do not agree that phrases (12), (3) from the linguistic demands for teaching Arabic using computer in the programmes of preparing teachers of Arabic in the Faculty of Education.

c. The respondents have an attitude of being not sure of the linguistic demands of teaching Arabic using computer in the programmes of preparing teachers of Arabic in the Faculty of Education in what concerns the following phrases.(14), (8)

d. There is no statistical significance differences between the individuals of the sample in the following phrases : (15), (2)

Secondly, results of applying the questionnaire of linguistic difficulties concerned with the unavailability of Arabic programming languages.Table no.5 shows those results:

Table no.5
Linguistic difficulties related to the unavailability of Arabic programming languages

arrange	Relative Weight	CHI^2	disagree	Not sure	Agree	NO.
2	0.741	11.81	19	11	33	1
15	0.577	10.38	33	14	16	2
6	0.725	8.67	20	12	31	3
4	0.730	6.00	18	15	30	4
14	0.587	7.14	31	16	16	5
3	0.735	9.81	19	12	32	6
10	0.704	6.95	22	12	29	7
11	0.688	7.52	24	11	28	8
5	0.730	10.57	20	11	32	9
7	0.725	6.38	19	14	30	10
12	0.683	8.86	14	32	17	11
1	0.746	11.14	18	12	33	12
8	0.720	9.52	21	11	31	13
9	0.709	6.10	21	13	29	14
13	0.661	0.10	22	20	21	15

From table no.5, it is clear that:

1. CHI^2 has statistical significance of agreement in the numbers of the following phrases: (12), (1), (6), (4) , (9), (3), (10), (13), (14), (7), (8)

this means the following:

a. The linguistic difficulties concerned with unavailability of Arabic programming languages as seen by the respondent (staff members specialists in computer science programming and engineering in the Faculty of Education at Fayoum) are: (12), (1), (6), (4) , (9), (3), (10), (13), (14), (7), (8)

As it is shown in the questionnaire

b. It is also evident from no.5 that CHI^2 has a statistical significance of non-agreed concerning the following phrases: (5), (2)

This means that the respondents do not agree that the phrases (5), (2),from the linguistic difficulties related to the unavailability of Arabic programming languages.

c. The respondents have an attitude of being (not sure) that the phrases no. (11) are from the linguistic difficulties related to the unavailability of Arabic programming language.

There is no statistical significance differences between the individuals of the sample in the following phrases : (15)

12 RECOMMENDATIONS AND SUGGESTIONS OF RESEARCH:

1. rethinking of the problem of *tashkeel* (marks over letters to indicate correct pronunciation)
2. considering accidence one of the main entries for handling Arabic language mechanically.
3. Availing of the available means in other languages, especially English, French, Japanese and German.
4. Rediscussing the rules of Arabic in the frame of modern linguistic theory.
5. Using computer in modernizing the Arabic dictionary.
6. Inserting computational linguistics in the departments of languages and computer science engineering.

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APPENDIX NO. 1

A questionnaire

Of

The linguistic needs for teaching the Arabic Language through the use of computers in Arabic language teacher's preparation at the Faculty of Education

Dear Student- Teacher of the Arabic Language.

As the Arabic Language teacher in Egypt does not study computer during the preparation period devised for him at the Faculties of Education. As it is not used as well in studying any of the courses presented during his studying days till the day of graduation.

The researcher has prepared the present questionnaire through the use of computers in Arabic language teachers preparation programs at the Faculty of Education.

This questionnaire is made up of 17 items derived from the results of previous studies and research works carried out in the field.

You are kindly requires to put a tick (v) in one of the columns according to the degree of accordance of each item. Pleas read the items carefully and try to be as specific as possible.

Dr. Abdelrahman Kamel
Assistant prof. At the curricula and Methodology Dept. Faculty of Education.
Fayoum Cairo University

First: Preliminary data:

1. Name: (Optional)
2. Date of birth:
3. Sex (male- female)
4. University:
5. Faculty:
6. Year:
7. Section /specialization:

Second: Questionnaire items:

Tick (v) in one of the columns according to the degree of your accordance with the content of the item, for eacof the items provided.:

Degree of accordance			The item	No
Disagree	Not sure	Agree		
			The quantitative assessment of some quantitative features of linguistic expressions such as the frequent reputation of letters, words, morphological forms and types of grammatical types.	1-
			Differentiating sounds and identifying the speakers' voice whose parterres have been previously saved.	2-
			Transforming texts typed or scanned to a naturally spoken text.	3-
			Writing analysis: differentiating patterns of latter's automatically by maximizing and erasing them through the use of scanners.	4-
			Showing typed texts automatically including automatic printing seeing letters on screens.	5-
			Analyzing sentences grammatically and deriving the different grammatical transformations and applying them clearly.	6-
			Automatic grammatical generation to form sentences, negating its original formation and carrying out different processes of grammatical transformation such as precedence and postponement.	7-
			Analyzing literature to specify date of its start and resource.	8-
			The objective identification of the extent of the previous novelists, playwrights and poets influence on the new ones.	9-
			Comprehending the relations connecting concepts together through what we call conceptual schemes or meaning webs.	10-
			Loading dictionaries on electronic shops or CDs to be used for educational purposes' discovering misspelling.	11-
			Electronic translation to be used for tests and linguistic experimentation.	12-
			The ability to get the required information from the great amount of saved enteries.	13-
			Carrying out electronic indexing.	14-
			Knowing the background of the topic discussed in aspects of its conceptual scheme, meaning of its terms and abbreviation.	15-
			Building and processing information bases.	16-
			Building and processing knowledge bases.	17-

- Other linguistic needs not mentioned in the questionnaire and should be added.

……..
……..
……..
……..
……..
……..

APPENDIX NO.2

A questionnaire

The linguistic difficulties hindering the availability of Arabic programming languages

Dear Specialist in computer Science,

The researcher is trying to carry out a study about using computer in Arabic language teacher preparation at the Faculties of Education in Egypt.

The English base forced certain technical conditions on the automatic processing of most languages. These conditions increase with the increase of diversion between the intended language and the English language. Considering that Arabic and English are two extremes, a lot of obstacles faced the process of computer arabization. In this way, the hinder of language stands in the way of the Arabic language teacher when using computers.

Thus, the researcher has prepared this questionnaire to specify the linguistic difficulties that may face the arabization process.

The questionnaire is made up of 15 items all derived from the results of previous studies in the field.

You are kindly requested to read the items carfully and tick (v) in the column that matches the degree of your accordance with the content of the item. Thank you very much.

Dr. Abdelrahman Kamel

Assistant prof. At the curricula and Methodology Dept. Faculty of Education.

Fayoum Cairo University

First: Preliminary information:

1. Name: (Optional)
2. Date of birth:
3. Sex (male- female)
4. University:
5. Faculty:
6. Year:
7. Specialization:

Second: The questionnaire items:

Tick (v) in the columns that matches your degree of with accordance the content of item :

Degree of accordance	The item	No

Disagree	Not sure	Agree		
			The clarity of computer and the ambiguity of the Arabic language that prefers to be ambigious i.e. making use of shades of meaning uncertainty, ect.	1-
			The computer science is known for its practical nature while the Arabic language is basically theoretical.	2-
			The Arabic language is not purely phonemic as Spanish or Finnish- On the contrary it is made up of syllables (a consonant followed by a vowel such as: يا ما كا .. In spite of the Arabic language being basically phonemic, its written from contain many syllabic letters such as: ئ ، ؤ ، إ ، أ ، لأ ، لا (a consonant followed or preceded sometimes by a long or a short vowel.	3-
			The Arabic language allows the connection of pronouns, definite and indefinite articles and negation articles sometimes.	4-
			The hardness of the Arabic language morphology that allows consecutive succession and numerous formations.	5-
			The parsing nature of Arabic that shows many functional relations connecting words such as precetion, deletion, hiding, addition, cannecting, ect.	6-
			The figure of the Arabic letter depends on the proceeding and following letters.	7-
			Some letters call certain pronunciation when following or preceeding other letters, such as pronouncing two letters as one, hiding or changing the sound of a letter to another.	8-
			a. The diversity of Arabic writing techniques. There are three ways of writing: Writing with full symbols. Writing with partial symbols. Writing without symbols.	9-
			The order of Arabic language depends on the root of the word. It dose not put words in alphabetical order as in English dictionaries.	10-
			The great interference of morphology and phonology of Arabic. A fact best shown through the speculation of the decisive role of various conditions of changing the sound of a letter to another and turning a latter to another	11-
			A sentence could be grammatically sound nut meaningless. Ex. The rocks slept on the bosom of their mother.	12-
			The linguistic and technical imbalance.	13-
			The lack of a scientifically- based communication language between specialists in linguistics and those specialized in computer science.	14-
			The rarity of research work in the field of computer arabization.	15-

- Other linguistic needs not mentioned in the questionnaire and should be added.

International Journal of Innovation and Scientific Research
ISSN 2351-8014 Vol. 2 No. 1 Jun. 2014, pp. 84-88
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http://www.ijisr.issr-journals.org/

The Effectiveness of a Computer based program of Concept Map Strategy for Developing Second Stage Basic Education Students Grammatical Concepts and Critical Thinking Skills

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PROBLEM OF THE STUDY:

The problem of the study is the presence of some of the weaknesses in the second Stage of pupil's basic education in the collection of grammatical concepts, which affects the critical thinking skills they have. This was confirmed by the results of some previous studies such as: (Magda Saad: 2004) (Lady Rajab: 2004) (Hussein Ibrahim: 2005) (Moataz Zuhaer: 2006) (Samia Mohamed: 2007). The researcher - through his milestone Arabic for pupils in second Stage of basic education - noticed a weakness among students in the use of grammatical rules. He noticed the presence of multiple errors in a large number of syntactic and morphological concepts such as: types of predicate, sound verbs, weak verbs, intransitive verbs, transitive verbs and other grammatical concepts. This makes the researcher use concept maps strategy to reduce errors and develop some of their critical thinking skills.

To solve this problem, the study tried to answer the following main question:

"**What is the effectiveness of a computer based program of concept map strategy for developing second stage basic Education Students grammatical concepts and critical thinking skills?"**

A number of sub- questions could be derived from the previous main question as follows:

1. What are the critical thinking skills suitable for developing in the second stage of basic education**?**

2. What is the out line of the suggested program in teaching Arabic grammar on developing some critical thinking skills in the second stage of basic education**?**

3. What is the effectiveness of the suggested program on developing some critical thinking skills related to the grammatical concepts assessed in the second stage of basic education**?**

AIM OF THE STUDY:

The present study aims at identifying the effect of using a computer program based on concept map in teaching Arabic grammar on developing some critical thinking skills among student in the second stage of basic education.

THE IMPORTANCE OF THE STUDY:

The study helps to develop some critical skills among students in the second stage of basic education.

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THE LIMITATIONS OF THE STUDY:

The present study is limited to be following:

1- A sample of first year prep school students at Minia al hait prep school.

2- Some grammatical concepts in Arabic language in the first term of the school year 2012-2013

3- Some critical thinking skills.

THE HYPOTHESES OF THE STUDY:

The current study tested the following hypotheses:

- There is no statistically significant difference between means of scores of the experimental and control groups in the pre administration of the critical thinking test in Arabic grammar.
- There is no statistically significant difference between means of scores of the experimental group in the pre administration of the critical thinking test in Arabic grammar in any skill of its skills
- There is no statistically significant difference between means of scores of the two groups in the post administration of critical thinking test in Arabic grammar in favor of the experimental group.
- There is no statistically significant difference between means of scores of the experimental group in the post administration of critical thinking test in each skill in favor of the experimental group.

PROCEDURES OF THE STUDY:

The study followed the following procedure:

To answer the first question of the study questions the researcher did the following

1 - Reviewing the literature and the related previous studies dealing with critical thinking skills: (Fathy Jarwan: 2002) (Mohammed Jihad: 2005) (Salah Allam: 2006) (Khalid Al-Otuby: 2007) (heand-Al astal: 2008) (Hassan Al batta Abdul ati: 2008).

2 - Preparing a list of critical thinking skills that have been reached through the results of other studies on thinking skills.

3 - Reviewing the list by a group of jury members to ascertain the extent of objectivity.

4 - Modifying the list in the light of the views of the jury members

5 - Explaining and analyzing.

6 - Preparing the final list.

To answer the second question the researcher did the following:

The researcher prepared the proposed program in light of the program design steps mentioned in some specialized books and references in this field, namely:

• Philosophy of the program.

• Objectives of the program.

• Program requirements.

• Preparing the teacher's guide.

• Identifying the foundations of the components of the program.

• Preparing the student booklet.

To answer the third question of the study questions the researcher did the following:

1. Preparing a critical thinking skills test in grammar and reviewing it by a group of jury members to verify its appropriateness.

2. Adjusting the critical thinking skills test scientifically.

3. Applying thinking skills test as a pre-test to control groups, monitoring results, and statistically treating the results.

4. Teaching the suggested program for the study sample.

5. Applying the critical thinking skills test as a post-test to the study sample to collect post- data.

6. Deriving the results to analyze them statistically and draw conclusions.

7. Depending on the study results, the conclusions, suggestions and recommendations were provided

RESULTS OF THE STUDY:

In the light of the study procedures, the following results could be presented:

1- Identifying of critical thinking skills appropriate for first graders secondary: comparison, categorization, explanation, deduction, evaluation discussion, and conclusion. (Table number 1)

Table 1.

s.n	skills	The degree of acceptance					Ch2	Significance	Relative weight
		Strongly agree	agree	Dis Agree strongly	Dis agree	Do Not know			
1	comparison	21	10	3	1	1	40.66	**	0.935
2	categorization	18	11	3	2	2	28.16	**	0.917
3	explanation	15	12	4	3	2	19.27	**	0.898
4	deduction	15	14	3	2	2	24.83	**	0.917
5	evaluation	14	13	4	5	0	20.38	**	0.916
6	conclusion	20	9	3	2	2	33.16	**	0.917
7	Analysis	10	5	13	5	3	8.28	-	0.658
8	Identify the assumptions	4	11	12	4	5	8.72	-	0.659

The previous table shows that the critical thinking skills appropriate for first graders secondary: comparison, categorization, explanation, deduction, evaluation discussion, and conclusion**.**

2- There is no statistically significant difference between means of scores of the experimental and control groups in the pre administration of the critical thinking test in Arabic grammar. (Table number 2).

Table 2.

group	number	SMA	Standard deviation	Calculated "T'	T. tabular		Statistical significance
					0.05	0.01	
experimental	35	7.8	2.79	0.145	2.00	2.66	Non significant
Control	30	7.7	2.65				

The previous table shows that the calculated value of T is less than the value of T tabular and therefore not statistically significant, indicating the equality of the two groups in the pre-testing of critical thinking skills in grammar.

3- There is a statistically significant difference between means of scores of the experimental group in the post administration of the critical thinking test in Arabic grammar In favor of the experimental group at the level of (0.05 and 0.01) table number (3).

Table 3.

group	number	SMA	Standard deviation	Calculated "T'	T. tabular		Statistical significance
					0.05	0.01	
experimental	35	25.37	8.65	3.390	2.00	2.66	significant
Control	30	18.40	7.49				

The previous table shows that calculated value of "T" is higher than the value of T. spreadsheet which shows the superiority of the experimental group to the control group in the post to test the skills of critical thinking as a whole.

4- There is a statistically significant difference between means of scores of the two groups in the post administration of critical thinking test on each skill at the level of (0.05 and 0.01) in favor of the experimental group.

THE RECOMMENDATIONS OF THE STUDY:

Depending on the study results, the following recommendations could be introduced:

- Training teachers to use modern teaching methods in general and concept map in particular in teaching Arabic grammar. This makes students acquire information by themselves. They can acquire some critical thinking skills instead of focusing on traditional method that concentrates on memorization.
- Reviewing Arabic grammar curricula with their content and organization and presenting them in attractive and interesting ways that foster the critical abilities of the students, encourage research and experimentation and avoid concentrating on memorization.
- Reviewing current assessment methods by including questions that measure the creative aspects to help students think critically.
- Using Modern technological devices in teaching the Arabic grammar.

SUGGESTIONS FOR FURTHER STUDY:

In the light of the study results, the researcher suggests studying:

- the effect of using concept map in teaching Arabic grammar on the development of other learning aspects (e.g. different thinking ways, learning retention).
- the effectiveness of an electronic blog in dealing with the faulty visions of the grammatical structures of second stage of basic education stage.
- the use of integrative teaching methods and their effect on developing achievement and creative thinking of first year preparatory students (e.g. concept maps , learning cycle , mind maps , reciprocal teaching strategy).
- the construction of some critical thinking skills appropriate for mental growth of student of various stage
- the effectiveness of concept map strategy in the development of some abstract thinking in Arabic grammar
- the effectiveness of concept map strategy in the development of some critical thinking in literature.

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International Journal of Innovation and Scientific Research
ISSN 2351-8014 Vol. 2 No. 1 Jun. 2014, pp. 89-112
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http://www.ijisr.issr-journals.org/

The Effect of using the sequencing and priority identification Approach in teaching syntactical structures to secondary stage student and their writing performance and some thinking skills

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INTRODUCTION

The objective of this research is to view a summary of the study, but the most important steps and procedures carried out by the researcher to achieve the objectives of the study, and display the highlighted findings, recommendations and proposals, with the following breakdown

According to linguists, thought and expression are two aspects to one mental process as the growth of each one and its ascent almost connected with the other, as students are trained to think and to express and also a lot of psychologists and education experts have found that thinking was a model of education and the development of many of students skills knowledge.(25).

Learning information and understanding of subject well will not be achieved through the rapid teaching of subject, or by using ineffective learning method, but by a deliberate strategy that emphasizes thinking as a way for the development of accurate scientific understanding .In other words, learning of thinking depends on a strategy based on decisions targeting specific arrangements and lead to the fulfillment of pre-planned aims.

Arabic language is full of many various techniques because of its good form, wording, and the beautiful meaning that makes the language user – a speaker or a writer – prefer to use it rather than other forms or structures. These techniques make their user a rich material, from which he can choose as he wants, to build his linguistic product either poetry or prose . Grammatical techniques represent different meanings and it is better for learners to use to express these meanings as these techniques based on the complete sentence that has a full meaning in its context.

In addition, these techniques are used a lot by Arabic speakers, and increasingly frequent handled by the educated of them - especially in adolescence – which is represented by the secondary stage. This is related to taking language as a show for themselves, and their interest in speaking, expressing what they prefer, and what they look forward to.(9).

Hence, the importance of these grammatical techniques in teaching them to these students; aiming at developing their productive skills, and this is the aim of this study, in order to develop the language skills in general and especially the oral linguistic productive skills. Therefore, this study provided a program prepared in the light of the grammatical techniques; to provide a procedural way of what the language skills development programs should be like (10).

Based on the foregoing and in response to the recommendations of the previous studies' results, which are related to the use of the sequencing and priority identification approach of linguistic structures teaching for high school students' writing performance and some thinking skills as a modern method of editorial expressing. This

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method could contribute to the development of students' thinking skills and prompt the researcher to choose the Current search.(5 : 6-92).

THE STUDY PROBLEM:

The study problem can be defined in the following main question:

What is the effectiveness of using the sequencing and priority identification approach in teaching the grammatical rules for first year secondary students on the achievement and development of some thinking skills? (1) , (3) , (7) , (8) ,(10) ,(11) , (12)

The previous question is analyzed into the following questions:

1 – What are the necessary thinking skills to use the sequencing approach in teaching grammar and written expression for first year secondary students?

2 - How can be a unit organized by using the sequencing and priority identification approach for achievement and development of some thinking skills?

3 - What is the impact of using the sequencing and priority approach on the students' understanding (the sample) of grammatical rules and structures that are in their curriculum? **(14 : 427) , (15)**

AIMS OF THE STUDY:

The current study aimed to identify:

- The effectiveness of the sequencing approach in teaching grammatical rules for first grade secondary students on developing

some thinking skills and improving their writing performance.

- The extent of the understanding and thinking growth to study some grammatical subjects and writing expression of the first year secondary students.(23 : 239)

THE IMPORTANCE OF THE STUDY:

This study can benefit:

1 – Those who are responsible for the preparation of curricula in the light of the sequencing and priority identification approach in the Arabic language curricula. (19), (24) , (30) , (31) , (32) , (34) , (35) .

2 - Providing teaching strategy by using sequencing and priority identification approach in teaching Arabic. (17) , (22) ,(23) (26 : 604-618) , (29) , (31) .

3 - Providing procedural models for students and Arabic language teachers in the form of lessons according to the sequencing and priority identification approach, which could lead to the development of some thinking skills in achievement (for students) and teaching (for teachers) in terms of syntactic structures .(6) , (14 :427) , (29) ,(30) , (36), (20 : 515) , (33 : 63 – 72) .

THE LIMITS OF THE STUDY:

The current study was limited to:

1 - A sample of Arabic language teachers for first grade secondary students in Sports Secondary School for Girls and Fayoum Secondary School for Gils ,Fayoum in the academic year 2012/2013.

2-A sample of first year secondary students in Sports Secondary School for Girls and Fayoum Secondary School for Gils ,Fayoum in the academic year 2012/2013.

3-Some necessary thinking skills, which are defined from the study.

4- A sample of first year secondary students in Ain Shams School and Fayoum Secondary School for Girls 2012/2013.

5-This study was carried out in the first term of the academic year 2012/2013.

6-The remedial unit of the syllabus that based on the sequencing and priority identification approach of the linguistic structures.

The unit was limited to the following topics as:

• Linguistic structures

• Dual and what follows it.

• Masculine plural and what follows it.

• Feminine plural and what follows it.

• Changing plural

• Exclusive elongated undiminished - Ttnatha and collected unscathed

• The difference between bound ta and tied ta distraction Muftouhho masculine and feminine

• Blocked exchange

• Localized and built of nouns and verbs

• Underemployment and full acts

• Exclaiming appeal and appeal style

Since it is one of the matters that the sequencing and priority identification approach was not used in studying grammar before .

STUDY APPROACH:

The analytical descriptive approach was used to achieve the statistic aims of the study and to analyze the results of the students' responses (the study sample) to the study tool: the test of using and applying sequencing approach and priority identification and thinking skills to understand syntax. The quasi-experimental approach was used to define the effectiveness of sequencing approach and priority identification on developing the thinking skills to understand syntax of the first year secondary students.

THE STUDY SAMPLE:

The research was limited to a sample of Arabic language teachers for first year general secondary students, and a sample of first grade public secondary students as researcher choose students from the Sports Secondary School for Girls; enrolled in the academic year 2012-2013 AD and Fayoum Secondary School for Girls. The sample was divided into two groups, one experimental group using the sequencing and priority identification approach in syntactic structures and a control group studying syntactic structures in the traditional way.

STUDY TOOLS:

The researcher divided them in to:

A-*The preparation requirements of experimental tools:*

-A questionnaire was prepared to define the necessary thinking skills for teaching syntax for the general first year secondary students and being certain of its reliability, validity and subjectivity.

B-*The preparation requirements of educational tools:*

-A remedial unit was prepared consisting of the syllabus of syntactic topics for the general first year secondary students based on the sequencing and priority identification and thinking skills.

-A guide was prepared for the training of the teachers on the necessary thinking skills for teaching syntax for the general first year secondary students in the light of the necessary thinking skills for teaching syntax for the general first year secondary students.

- A guide was prepared for the training of the students on using and applying the sequencing and priority identification approach and the necessary thinking skills in understanding syntax.

C- *The preparation requirements of measurement tools:*

-An observation sheet for identifying the Arabic language teachers' levels of using thinking skills in teaching Arabic for the general first year secondary students.

-A thinking skills test for defining the general first year secondary students' levels of syntactic understanding and being certain of its reliability, validity, subjectivity and being scientific controlled.

STUDY HYPOTHESES:

The present study will test the reality of the following two hypotheses:

1 - There are significant syntactic differences between the original and expected frequencies between experimental and control groups in the pre and post applications of Arabic language teachers (sample) in favor of the experimental group as shown in test Ka 2.

2 - There are significant syntactic differences between the mean scores of experimental and control groups in the posttest of thinking skills in favor of the experimental group.

STEPS OF THE STUDY:

This study tries to answer its questions according to the following steps:

To answer the first question:

What are the necessary thinking skills to use the sequencing approach in teaching syntax and writing expressing to first year secondary students?

The researcher applied the following:

1-A questionnaire of the necessary thinking skills for teaching grammatical rules for the general first year secondary students and this to define these skills in the light of the "Ka 2" test's results of the opinions of teachers ,students and Arabic language supervisors.

2-An observation sheet of the necessary thinking skills for teaching grammatical rules based on sequencing and priority identification approach for the general first year secondary students to define these skills in the light of "ka 2 " test's results of the opinions of teachers, students and Arabic language supervisors.

To answer the second question:

How can be a unit organized by using the sequencing and priority identification approach for achievement and development of some thinking skills?

The unit is organized according to the following:

1- Sixty students from Fayoum Secondary School for Girls and Sports Secondary School for Girls, Fayoum were asked to write down some topics, 2012/2013.

2- Analysis of the students' marks, the writing sample, to identify the desired topics for remedy that students think about.

3– Ordering the units in a list of the syntactic topics in its primary form; according to the proportional value of each topic .Then, showing them for the referees of experts, Arabic language supervisors and head teachers to modify them in the light of their suggestions to prepare a final list.

4- Building a unit of the syllabus of the grammatical lessons for the general first year secondary students by using sequencing and priority identification approach in achievement and developing some thinking skills.

A – Defining the unit title.

B- Defining the objectives of the unit.

C - Defining the content of the unit (as grammatical topics are organized and some writing topics).

D- Defining the necessary teaching aids in the teaching the unit subjects.

E- Defining how to use the sequencing approach in teaching these subjects.

F-Preparing a booklet for students and a guide for teachers ;to identify how to understand, use and apply the sequencing and priority identification approach in syntactic structures and developing general first year secondary students' thinking skills and showing them for a group of referees .

G- A test is designed to evaluate understanding, thinking, and some thinking skills of general first year secondary students in understanding these grammatical topics and some writing topics

To answer the third question:

What is the impact of using the sequencing and priority approach on the students' understanding (the sample) of grammatical rules and structures that are in their curriculum?

A - A test is designed to measure understanding, using and applying the linguistic structures and thinking skills and then scientifically controlled and applying it as a pre-test on the general first year secondary students.

B – Teaching a unit; using sequencing and priority identification approach.

C - Applying the post-test.

D- Processing, analyzing and explaining the results to make recommendations and proposals.

In light of the procedures followed by the researcher: the following conclusions were found:

1 - There are syntactically significant differences between the original and expected frequencies between experimental and control groups in the pre and post applications of the Arabic language student- teachers (the study sample) in favor of the experimental group in the teaching performance part of the observation sheet.

2 - There are syntactically significant differences between the mean scores of the general first year secondary students in the thinking skills of linguistic information achievement in the pre and post applications of the thinking skills test.

Comment on the results of the study:

- Pre application note card:

The researcher applyied observation card application tribal teacher’s research sample, where the account duplicates the original, and duplicates the expected degree of research sample of students received in the vocabulary observation card. These seven fields: (observation and description, and comparison and discrimination, and the conclusion, and inference, and classification, and interpretation, and Calendar and sentencing linguistic rules) and applied researcher Test (Ka) 2, and the results were as outlined for each area of note with the following:

1- observation and description skill:

Table No. (1) follows the original frequencies, and values (CHI2) and percentages, teacher performance levels - research sample - in terms of the extent to which teachers necessary thinking skills for teaching grammar for first grade students general secondary .

Table (1)

the original frequencies , the values of (CHI2), and percentages, the levels of student performance - sample - in terms of the extent to which teachers thinking skills necessary for teaching grammar to first year secondary students.

Number	Excellent		Very Good		Good		Fair		Poor		CHI2
	Repetition	%	Repetition	%	Repetition	%	Repetition	%	Repetition	%	
1		2.86	1	2.86	6	17.14	6	17.14	21	60.00	38.57
2		2.86	1	2.86	4	11.43	9	25.71	19	54.29	31.14
3		2.86	2	5.71	5	14.29	12	34.29	13	37.14	19.14
4		2.86	1	2.86	10	28.57	11	31.43	17	48.57	27.43
5		2.86	1	2.86	9	25.71	11	31.43	12	34.29	17.43
6		2.86	3	8.57	8	22.86	15	42.86	6	17.14	15.71
7		5.71	3	8.57	4	11.43	17	48.57	5	14.29	20.86
8		5.71	1	2.86	4	11.43	9	25.71	20	57.14	36.29
9		2.86	1	2.86	9	25.71	11	31.43	13	37.14	18.29

If we go back to the table CHI2 when the degree of freedom equal to four degrees, we find that the rate of 0.05 must reach CHI2 to 9.488 even be statistically significant, and when 0.01 per must reach CHI2 to 13.277 even be statistically significant (28) .

And this can be seen from Table No. (1) previously described in this research as follows:

CHI2 statistically significant for each number of digits following phrases:

(1, 8, 2, 4, 7, 3, 9, 5, 6)

This means the following:

1 The level of teachers' performance - sample - in terms of how the practice of teachers necessary thinking skills for teaching grammar for students first grade of secondary, skills of observation and description - did not live up to the level (Excellent), or (very good), or well.

2 The level of teachers' performance - sample - in terms of where the practice of teachers thinking skills necessary for teaching grammar to first year secondary students - the research sample was acceptable in two skills of observation and description only and are: (6, 7)

6 - Examples of configuration grammar concept modeled on the pre-prepared examples.

7 - Adjust words grammar concept contained in linguistic structures.

3 - The level of teachers' performance sample - in terms of where the practice of teachers thinking skills necessary for teaching grammar to first year secondary students - the research sample was weak in the skills of observation and description of the following: only they -: (1,2,4, 8)

1 - Note the gradual linguistic structures from the simple to the complex 0

2 - identifying characteristics of grammar concept gradually from the part to the whole and vice versa .

4 - identify functional meanings of words understood grammar within the syntax .

8 - Note whether the sentence or phrase, is the word grammar concept or word of his belongings

4 - The level of teachers' performance - sample - in terms of in terms of how the practice of teachers thinking skills necessary for teaching grammar for students first grade of secondary skills of observation and description - did not live up to the low level of skills of observation and description of the following: only they -: (3, 5, 9)

3 - Note the order of linguistic structures as sequence and identify priorities .

5 - taking into account the sequence in writing linguistic structures.

9 - Get Changes in terms which belong to a particular grammatical concept.

2 - Skill comparison and discrimination:

Table No. (2) follows the original frequencies, and values (Ca 2) and percentages, the levels of students performance - sample - in terms of the extent to which teachers thinking skills necessary for teaching grammar for first grade students general secondary.

Table (2)

the original frequencies, and the values of (CHI2), and percentages, for teachers' performance levels - research sample - in terms of the extent to which teachers thinking skills necessary to teach first grade year.

Secondary

Number	Excellent		Very Good		Good		Fair		Poor		CHI2
	Repetition	%	Repetition	%	Repetition	%	Repetition	%	Repetition	%	
10		5.71	4	11.43	6	17.14	7	20.00	16	45.71	16.57
11		8.57	3	8.57	6	17.14	8	22.86	15	42.86	14.00
12		5.71	5	11.43	5	11.43	9	25.71	14	40.00	12.29
13		2.86	1	2.86	4	11.43	9	25.71	20	57.14	36.29
14		8.57	4	11.43	17	48.57	6	17.14	5	11.43	18.75
15	2	5.71	3	8.57	8	22.86	17	48.57	5	11.43	20.86
16	2	5.71	3	8.57	9	25.71	15	42.86	6	17.14	15.71
17	3	8.57	3	8.57	8	22.86	14	40.00	7	20.00	11.71

If we go back to the table CHI2 when the degree of freedom equal to four degrees, we find that the rate of 0.05 must reach CHI2 to 9.488 even be statistically significant, and when 0.01 per must reach CHI2 to 13.277 even be statistically significant (28) .

And this can be seen from Table No. (2) previously described in this research as follows:

CHI2 statistically significant for each number of digits following phrases: (13, 15, 14, 10, 16, 11, 17)

This means the following:

1 The level of teachers' performance - sample - in terms of where the practice of teachers thinking skills necessary for teaching grammar to first year secondary students in the comparison and discrimination - did not live up to the level (Excellent), or (very good).

2 The level of teachers' performance - sample - in terms of where the practice of teachers thinking skills necessary for teaching grammar to first year secondary students - the research sample was good in the skill only comparison and discrimination: 14

14 - determine relationships between linguistic structures together 0

3 - The level of teachers' performance - sample - in terms of in terms of how the practice of teachers thinking skills necessary for teaching grammar for students first grade general secondary - research sample was acceptable in the skills of comparison and discrimination following: They are -: (15, 16, 17)

15 - identifying inconsistencies between words concept uses grammar in linguistic structures .

16 - To clarify the differences between two concepts belong to a specific grammatical concept.

17 - To distinguish between evidence that related to the subject and not related by .

4 - The level of teachers' performance - sample - in terms of in terms of how much exercise teacher –necessary thinking skills to teach Arabic to first year secondary students - was weak in comparison and discrimination following: They are: (13.10, 11, 12)

13 - determine the order of the ideas of expression in accordance with the principles of the sequence and set priorities 0

10 - identify similarities between the concept of grammar and related in the syntax.

11 - To distinguish between what the grammatical sense and what does not regard it according to the principles of sequencing and prioritization.

12 - Examples of configuration concept of grammar in new linguistic structures.

3 - Skill conclusion:

Table No. (3) follows the original frequencies, and values (CHI2) and percentages, teacher performance levels - research sample - in terms of how much exercise students thinking skills necessary for teaching grammar for first grade students general secondary .

Table (3)

the original frequencies, and the values of (CHI2), and percentages, the levels of student performance parameters - sample - in terms of the extent to which teachers thinking skills necessary for teaching grammar to first year secondary students.

Number	Excellent		Very Good		Good		Fair		Poor		CHI2
	Repetition	%	Repetition	%	Repetition	%	Repetition	%	Repetition	%	
18		2.86	2	5.71	3	8.57	10	28.57	19	54.29	32.86
19		5.71	2	5.71	8	22.86	9	25.71	14	40.00	14.86
20		5.71	2	5.71	2	5.71	12	34.29	17	48.57	28.57
21		2.86	1	2.86	5	11.43	8	22.86	20	57.14	35.14
22		8.57	4	11.43	17	48.57	6	17.14	5	11.43	18.75
23		2.86	1	2.86	4	11.43	20	57.14	9	25.71	36.29
24		2.86	1	2.86	3	8.57	5	11.43	25	71.43	59.43

If we go back to the table CHI2 when the degree of freedom equal to four degrees, we find that the rate of 0.05 must reach CHI2 to 9.488 even be statistically significant, and when 0.01 per must reach CHI2 to 13.277 even be statistically significant (28) .

And this can be seen from Table No. (3) previously described in this research as follows:

CHI2 statistically significant for each number of digits following phrases: (24, 23, 21,20,18, 22, 19)

This means the following:

1 The level of teachers' performance - sample - in terms of where the practice of teachers thinking skills necessary for teaching grammar for first grade students of secondary conclusion skills - did not live up to the 2 The level of teachers' performance - sample - in terms of where the practice of female teachers thinking skills necessary for teaching grammar to first year secondary students - the research sample was (well) in the skill of one of the skills a conclusion: (22)

22 - finding common characteristics between the grammatical concept and related .

3 - The level of teachers' performance - sample - in terms of where the practice of female teachers thinking skills necessary for teaching grammar to first year secondary students - research sample (acceptable) in the skill of one of the skills a conclusion: (23)

23 - hire the best linguistic structures utilize true in writing linguistic structures sequentially and prioritization .

3 - The level of teachers' performance - sample - in terms of where the practice of teachers thinking skills necessary for teaching grammar to first year secondary students - the research sample was weak in the skills of the conclusion they (24, 21,20,18, 19)

24 - Conclusion principles sequence and prioritization used.

21 - To formulate an appropriate definition of the concept of grammar unnoticed through.

18 - Conclusion understood grammar information actress and employee of the molecules that make up.

20 - Conclusion principles sequencing and setting priorities.

19 - To reach molecules lacking in the words of grammar concept lose its job.

4 – Reasoning skill:

Table No. (4) follows the original frequencies, and values (CHI2) and percentages, teacher performance levels - research sample - in terms of how teachers thinking skills necessary for teaching grammar for first grade students in general secondary

Table (4)

the original frequencies, and the values of (CHI2), and percentages, for teachers' performance levels - research sample - in terms of the extent to which teachers thinking skills necessary for teaching grammar to first year secondary students.

Number	Excellent		Very Good		Good		Fair		Poor		CHI2
	Repetition	%	Repetition	%	Repetition	%	Repetition	%	Repetition	%	
25		2.86	5	11.43	2	5.71	10	28.57	19	54.29	32.86
26		2.86	5	11.43	2	5.71	9	25.71	19	54.29	31.14
27		2.86	6	17.14	1	2.86	9	25.71	20	57.14	36.29
28	1	2.86	2	5.71	1	2.86	9	25.71	18	51.43	28.29
29		17.14	5	11.43	4	11.43	15	14.29	4	11.43	11.71
30		8.57	5	11.43	4	11.43	15	14.29	7	20.00	12.57
31		17.14	6	17.14	6	17.14	14	40.00	3	8.57	9.71

If we go back to the table CHI2 when the degree of freedom equal to four degrees, we find that the rate of 0.05 must reach CHI2 to 9.488 even be statistically significant, and when 0.01 per must reach CHI2 to 13.277 even be statistically significant (28) .

And this can be seen from Table No. (4) previously described in this research as follows:

CHI2 statistically significant for each number of digits following phrases:

(27, 25, 26, 28, 30, 29, 31)

This means the following:

1 The level of teachers' performance - sample - in terms of in terms of how the practice of teachers thinking skills necessary to teach Arabic language to students first grade of secondary reasoning skills - did not live up to the level (Excellent), or (very good), or (good)

2 The level of teachers' performance - sample - in terms of where the practice of female teachers thinking skills that are necessary for teaching grammar to first year secondary students - the research sample was acceptable in the reasoning skills they (29, 30, 31)

29 - Male evidence to determine the characteristics of the term grammar and its properties.

30 - Male plural underlying grammatical relationships between concepts.

31 - Male linguistic structures similar concept in grammar plays a certain meaning.

3 The performance level of the students sample parameters - in terms of where the practice of female teachers thinking skills necessary for teaching Arabic to first year secondary students - the research sample was weak in reasoning skills are: (27, 25, 26, 28)

27 - drawn linguistic structures include culturally, apply or please apply in real life to prove the concept of certain grammatical .

25 - Male grammatical base certain to prove expressing word or phrase, and the relationship with other syntax

26 - Flag inference representative of the Linguistic through the use of the entrance of the relay and prioritization 0

28 - inference made the relationship between a word or phrase, and its function in the syntax.

5 - Skill category:

Table No. (5) follows the original frequencies, values (CHI2) and percentages, teacher performance levels - research sample - in terms of the extent to which teachers thinking skills necessary for teaching grammar for first grade students general secondary .

Table (5)

the original frequencies , the values of (CHI2), and percentages, for teachers' performance levels - research sample - in terms of the extent to which teachers necessary thinking skills for teaching grammar to first year secondary students.

Number	Excellent		Very Good		Good		Fair		Poor		CHI2
	Repetition	%	Repetition	%	Repetition	%	Repetition	%	Repetition	%	
32		2.86	1	2.86	5	**14.29**	8	**22.86**	20	**57.14**	35.14
33		2.86	1	2.86	4	**11.43**	8	**22.86**	21	**60.00**	39.71
34		2.86	1	2.86	3	8.57	25	**71.43**	5	**14.29**	59.43
35		2.86	3	8.57	4	**11.43**	11	**31.43**	15	**42.86**	18.57
36		5.71	4	**11.43**	6	**17.14**	7	**20.00**	15	**42.86**	12.86
37		8.57	2	5.71	5	**14.29**	8	**22.86**	19	**54.29**	30.00

If we go back to the table CHI2 when the degree of freedom equal to two degrees at the ratio of 0.05 CHI2 must reach 5.991 to be statistically significant, and at the rate of 0.01 must be up to 9.210 to be statistically significant (28) . And this can be seen from Table No. (5) previously described in this research as follows:

CHI2 statistically significant for each number of digits following phrases: (34, 33, 32, 37, 35, 36)

This means the following:

1 The level of teachers' performance - sample - in terms of where the practice of teachers thinking skills necessary for teaching grammar for first grade students of secondary reasoning skills - did not live up to the (excellent), or (very good) or (good).

2 The level of teachers' performance - sample - in terms of how teachers necessary thinking skills for teaching grammar to first year secondary students - the research sample was acceptable in only one skill of reasoning skills which (34)

34 - determine the uses of words understood grammar in different linguistic structures.

3 - The level of teachers' performance - sample - in terms of where the practice of teachers thinking skills necessary to teach secondary first grade year - the research sample was weak in reasoning skills are: (33, 32, 37, 35, 36)

33 - Configuration linguistic structures of molecules that make up a

32 - Order compositions arrangement takes into account the relay and set priorities 0

37 - identify sections that make up a particular grammatical concept.

35 - Classification of grammatical concepts depending on language used in the compositions.

36 - Classification of ideas and opinions in support of the concept and ideas or opinions opposition to him.

6 – Interpretation skill:

Table No. (6) follows the original frequencies, and values (CHI2) and percentages, teacher performance levels - research sample - in terms of the extent to which teachers thinking skills necessary for teaching grammar for first grade students general secondary.

Table (6)

the original frequencies and the values of (CHI2), and percentages, for teachers' performance levels - research sample - in terms of the extent to which teachers thinking skills necessary for teaching grammar to first year secondary students.

Number	Excellent		Very Good		Good		Fair		Poor		CHI2
	Repetition	%	Repetition	%	Repetition	%	Repetition	%	Repetition	%	
38		2.86	1	2.86	4	**11.43**	9	**25.71**	20	**57.14**	36.29
39		2.86	2	5.71	4	**11.43**	**10**	**28.57**	18	**51.43**	28.57
40		**11.43**	5	**14.29**	5	**14.29**	**16**	**45.71**	5	**14.29**	14.57
41		8.57	4	**11.43**	6	**17.14**	**15**	**42.86**	7	**20.00**	12.86
42		2.86	2	5.71	4	**11.43**	9	**25.71**	19	**54.29**	31.14
43		**11.43**	4	**11.43**	5	**14.29**	7	**20.00**	**15**	**42.86**	12.29
44		5.71	4	**11.43**	5	**14.29**	9	**25.71**	**15**	**42.86**	15.14
45		2.86	3	8.57	7	**20.00**	9	**25.71**	**15**	**42.86**	17.14
46		**11.43**	5	**14.29**	5	**14.29**	7	**20.00**	**15**	**42.86**	11.71

If we go back to the tableCHI2 when the degree of freedom equal to four degrees, we find that the rate of 0.05 must reach CHI2 to 9.488 even be statistically significant, and when 0.01 per must reach CHI2 to 13.277 even be statistically significant (28) .

And this can be seen from Table No. (6) previously described in this research as follows:

CHI2 statistically significant for each number of digits following phrases: (38, 42, 39, 45, 44.40, 45.41, 46)

1 The level of teachers' performance - sample - in terms of where the practice of teachers thinking skills necessary for teaching grammar to first year secondary students in the skills of interpretation - did not live up to the (excellent), or (very good).

2 The level of teachers' performance - sample - in terms of where the practice of teachers thinking skills necessary for teaching grammar to first year secondary students - the research sample was acceptable in the skillsof interpretation and they (40, 41)

40 - Linking Environment student linguistic and grammatical concept of Single 0

41 - the interpretation of the exclusion of the words do not express the grammatical concepts in specific language structures.

3 - The level of teachers' performance - sample - in terms of in terms of how the practice of teachers thinking skills necessary for teaching grammar for students first grade general secondary - research sample - was weak in the skills of interpretation are: (38, 42, 39, 45, 44, 45, 46)

38 - identify wrong interpretations of some words grammatical concepts in linguistic structures .

42 - to explain the exclusion of certain grammatical concept for reasons related to his health linguistic.

39 - to explain why there is the term is understood in containing grammar syntax.

45 - Explanations of grammatical errors when you use words the concept of a particular language in speech.

44 - The reasons that led to the widespread use of the term concept for a particular language in attitudes linguistic.

45 - Explanations of grammatical errors when you use words the concept of a particular language in speech.

46 - Determine cause and effect in the relationship between the grammatical concepts and related.

7 – **Evaluating and judgment skills:**

Table No. (7) follows the original frequencies, and values (CHI2) and percentages, teacher performance levels - research sample - in terms of the extent to which teachers thinking skills necessary for teaching grammar for first grade students general secondary.

Table (7)

the original frequencies , the values of (CHI2), and percentages, for teachers' performance levels - research sample - in terms of the extent to which teachers thinking skills necessary for teaching grammar to firstyear secondary students.

Number	Excellent		Very Good		Good		Fair		Poor		CHI2
	Repetition	%	Repetition	%	Repetition	%	Repetition	%	Repetition	%	
47		2.86	1	2.86	4	**11.43**	9	**25.71**	20	**57.14**	36.29
48		8.57	5	**14.29**	6	**17.14**	6	**17.14**	15	**42.86**	12.29
49		2.86	2	5.71	6	**17.14**	10	**28.57**	16	**45.71**	21.71
50		2.86	1	2.86	5	**14.29**	12	**34.29**	16	**45.71**	26.00
51		5.71	2	5.71	4	**11.43**	9	**25.71**	18	**51.43**	26.29
52		8.57	3	8.57	5	**14.29**	7	**20.00**	17	**48.57**	19.43
53		5.71	2	5.71	6	**17.14**	7	**20.00**	18	**51.43**	24.57

If we go back to the table CHI2 when the degree of freedom equal to four degrees, we find that the rate of 0.05 must reach CHI2 to 9.488 even be statistically significant, and when 0.01 per must reach CHI2 to 13.277 even be statistically significant (28) .

And this can be seen from Table No. (7) previously described in this research as follows:

CHI2 statistically significant for each number of digits following phrases:

(47, 51, 50, 53, 49, 52, 48) and the meaning of the following:

1 The level of teachers' performance - sample - in terms of where the practice of teachers thinking skills necessary for teaching grammar to first year secondary students in the skills of interpretation - did not live up to the (excellent), or (very good). (Or acceptable)

2 The level of teachers' performance - sample - in terms of where the practice of teachers thinking skills necessary for teaching grammar to first year secondary students - the research sample was weak in the skills of interpretation are: (47, 51, 50, 53, 49, 52, 48)

47 - Modify the syntax as required particular concept Grammar.

51 - Criteria for development and decision criteria for sentencing linguistic 0

50 - correct grammatical errors contained in the linguistic structures.

53 - Choosing the correct expression of the proposed expressions to use words particular concept Grammar.

49 - Government to observe the relay and setting priorities in the installation or not.

52 - to defer judgment on the concept of word grammar knowledge in the syntax 0

48 - Provide proof of the validity or accuracy of grammatical sentences in linguistic structures

B - the results of the post card note:

The researcher applied observation card application teachers research sample, where the account duplicates the original and the expected frequencies degree of research sample of teachers who obtained the vocabulary observation card seven fields:

(observation ,description, and comparison, discrimination, the conclusion, inference, classification, interpretation, evaluation and sentencing linguistic rules) and applied researcher Test CHI2, and the results were as outlined for each area of note with the following:

1- observation and description skills:

Table No. (8) follows the original frequencies and the values of (CHI2) and percentages, the performance levels of teachers - sample - in terms of the extent to which teachers thinking skills necessary for teaching grammar for students first grade general secondary 0 Table (8) the original frequencies and the values of (CHI2), and percentages, for teachers' performance levels - research sample - in terms of the extent to which teachers thinking skills necessary for teaching grammar to first year secondary students.

Number	Excellent		Very Good		Good		Fair		Poor		CHI2
	Repetition	%	Repetition	%	Repetition	%	Repetition	%	Repetition	%	
1		51.43	10	28.57	4	11.43	2	5.71	1	2.86	28.57
2		57.14	9	25.71	4	11.43	1	2.86	1	2.86	36.29
3		71.43	5	14.29	3	8.57	1	2.86	1	2.86	59.43
4		54.29	10	28.57	3	8.57	2	5.71	1	2.86	32.86
5		38.57	19	54.29	1	2.86	2	5.71	3	8.57	32.86
6		48.57	12	34.29	2	5.71	2	5.71	2	5.71	28.57
7		2.86	1	2.86	20	57.14	9	25.71	4	11.43	36.29
8		51.43	10	28.57	4	11.43	2	5.71	1	2.86	28.57
9		71.43	5	14.29	3	8.57	1	2.86	1	2.86	59.43

If we go back to the table CHI2 when the degree of freedom equal to four degrees, we find that the rate of 0.05 must reach CHI2 to 9.488 even be statistically significant, and when 0.01 per must reach CHI2 to 13.277 even be statistically significant (28) .

And this can be seen from Table No. (8) previously described in this research as follows:

CHI2 statistically significant for each number of digits following phrases:

3.9, 2, 7, 4, 5.1, 6, 8

This means the following:

1 The level of teachers' performance - sample - in terms of where the practice of teachers thinking skills necessary for teaching grammar to first year secondary students (excellent) in the skill of observation and description are: (3.9, 2, 4, 1, 8, 6)

3 - identifying characteristics of the linguistic concept.

9 - Note the accuracy of the sentence, which includes rude to the concept of a particular language.

2 - Determine the functional meanings of words understood language.

4 - Get Changes in terms which belong to the concept of a particular language.

1 - Adjust the words linguistic concept contained in linguistic structures.

8 - Get language uses words concept in different linguistic attitudes.

6 - Examples of configuration linguistic concept modeled on the pre-prepared examples.

2 The level of teachers' performance - sample - in terms of where the practice of teachers thinking skills necessary for teaching grammar to first year secondary students was (very good) in the skill of one of the skills of observation and description, namely: (5)

5 - Get linguistic concept particles which make up.

3 The level of teachers' performance - sample - in terms of where the practice of teachers thinking skills necessary for

teaching grammar to first year secondary students was (well) in the skill of one of the skills of observation and description, namely: (7)

7 - Note whether the sentence or phrase, is the word linguistic concept or word of his belongings.

2 - Comparison and discrimination skills

Table No. (9) follows the original and values frequencies (CHI2) and percentages, teacher performance levels - research sample - in terms of the extent to which teachers thinking skills necessary for teaching grammar for first grade students general secondary .

Table (9)

the original frequencies, and the values of (CHI2), and percentages, the levels of student performance - sample - in terms of the extent to which teachers thinking skills necessary to teach Arabic to first year secondary students.

Number	Excellent		Very Good		Good		Fair		Poor		CHI2
	Repetition	%	Repetition	%	Repetition	%	Repetition	%	Repetition	%	
10		25.71	18	51.43	1	2.86	1	2.86	6	17.14	28.29
11		28.57	18	51.43	1	2.86	2	5.71	4	11.43	28.57
12		71.43	5	11.43	3	8.57	1	2.86	1	2.86	59.43
13		71.43	5	11.43	3	8.57	1	2.86	1	2.86	59.43
14	10	28.57	19	54.29	2	5.71	2	5.71	3	8.75	32.86
15		25.71	14	40.00	2	5.71	2	5.71	8	22.86	14.86
16		34.29	17	48.57	5	11.43	2	5.71	2	5.71	28.57
17		22.86	20	57.14	1	2.86	1	2.86	5	11.43	35.14

If we go back to the table CHI2 when the degree of freedom equal to four degrees, we find that the rate of 0.05 must reach CHI2 to 9.488 even be statistically significant, and when 0.01 per must reach CHI2 to 13.277 even be statistically significant (28) .

And this can be seen from Table No. (9) previously described in this research as follows:

CHI2 statistically significant for each number of digits following phrases:

13, 12, 17, 14, 10, 11, 16, 15 and the meaning of the following:

1 The level of teachers' performance - sample - in terms of where the practice of teachers thinking skills necessary for teaching grammar to first year secondary students (excellent) in two skills comparison and discrimination, namely:). 12, 13)

12 - identify inconsistencies between words concept uses linguistic attitudes l0

13 - Examples of configuration linguistic concept in modern linguistic contexts new.

2 - The level of teachers' performance - sample - in terms of in terms of how the practice of teachers thinking skills necessary for teaching grammar for students first grade general secondary was (very good) in the skill of comparison and discrimination are) 17, 14, 10.11, 16, 15)

17 - Iron linguistic relationship between the concept and other linguistic concepts

14 - to determine whether the limits of the linguistic concept featured in the example or not.

10 - to clarify the differences between the Governors belong to a specific concept of a linguistic

11 - to distinguish between what the linguistic sense and what does not respect it

16 - Identify similarities between the concept of linguistic and related.

15 - Determine relationships between words to each other within the framework of one sentence.

3 – Conclusion skill:

Table No. (10) follows the original frequencies, values (CHI2) and percentages, teacher performance levels - research sample - in terms of the extent to which teachers thinking skills necessary for teaching grammar for first grade students general secondary .

Table (10)

the original frequencies , and the values of (CHI2), and percentages, for teachers' performance levels - research sample - in terms of the extent to which teachers thinking skills necessary for teaching grammar to first year secondary students.

Number	Excellent		Very Good		Good		Fair		Poor		CHI2
	Repetition	%	Repetition	%	Repetition	%	Repetition	%	Repetition	%	
18		2.86	20	**57.14**	1	2.86	8	**22.86**	5	14.29	35.14
19		5.71	14	**40.00**	2	5.71	9	**25.71**	8	**22.86**	14.86
20		5.71	17	**48.57**	2	5.71	12	**34.29**	2	5.71	28.57
21		2.86	19	**54.29**	2	5.71	10	**28.57**	3	**8.57**	32.86
22		**57.14**	1	2.86	1	2.86	9	**25.71**	4	**11.43**	36.29
23		**71.43**	1	2.86	1	2.86	5	**14.29**	3	**8.57**	59.43
24		2.86	18	**51.43**	2	5.71	10	**28.57**	4	**11.43**	28.57

If we go back to the table CHI2 when the degree of freedom equal to four degrees, we find that the rate of 0.05 must reach CHI2 to 9.488 even be statistically significant, and when 0.01 per must reach CHI2 to 13.277 even be statistically significant (28) .

And this can be seen from Table No. (10) previously described in this research as follows:

CHI2 statistically significant for each number of digits following phrases:

(23, 22, 18, 21, 24, 20, 19)

<u>This means the following:</u>

1 The level of teachers' performance - sample - in terms of where the practice of teachers thinking skills necessary for teaching grammar for first grade students of secondary skills conclusion - elevated to the level of the (excellent) two skills: (22, 23).

22 - Employ linguistic concept in linguistic structures utilize true.

23 - Functional meanings conclusion of words understood language in linguistic structures.

2 The level of teachers' performance - sample - in terms of where the practice of teachers thinking skills necessary to teach Arabic to first year secondary students - the research sample was very good in the skills of the conclusion they (18, 21, 24, 20, 19)

23 - functional meanings conclusion of words understood language in linguistic structures.

22 - Employ linguistic concept in linguistic structures utilize true.

18 - to formulate an appropriate definition of the concept of linguistic unnoticed through.

21 - Conclusion concept of linguistic information actress and employee of the molecules that make up.

24 - finding common characteristics between the linguistic concept and related .

20 - Conclusion Criteria and Standards Special linguistic concept from other language concepts

19 - to reach molecules lacking in the words of the linguistic concept lose his job.

4 -Reasoning skill:

Table No. (11) follows the original frequencies, and values (CHI2) and percentages, teacher performance levels - research sample - in terms of the extent to which teachers thinking skills necessary for teaching grammar for first grade students general secondary.

Table (11)

the original frequencies, and the values of (CHI2), and percentages, for teachers' performance levels - research sample - in terms of the extent to which teachers thinking skills necessary for teaching grammar to first year secondary students.

Number	Excellent		Very Good		Good		Fair		Poor		CHI2
	Repetition	%	Repetition	%	Repetition	%	Repetition	%	Repetition	%	
25		28.57	18	**51.43**	1	2.86	2	5.71	4	**11.43**	28.57
26		**57.14**	9	**25.71**	1	2.86	1	2.86	4	**11.43**	36.29
27		71.43	5	14.29	1	2.86	1	2.86	3	**8.57**	59.43
28		28.57	19	**54.29**	2	5.71	2	5.71	3	**8.57**	32.86
29		**25.71**	14	**40.00**	2	5.71	2	5.71	8	**22.86**	14.86
30		34.29	17	48.57	1	2.86	2	5.71	2	5.71	28.57
31		**57.14**	8	**22.86**	1	2.86	1	2.86	5	14.29	35.14

If we go back to the table CHI2 when the degree of freedom equal to four degrees, we find that the rate of 0.05 must reach CHI2 to 9.488 even be statistically significant, and when 0.01 per must reach CHI2 to 13.277 even be statistically significant (28) .

And this can be seen from Table No. (11) previously described in this research as follows:

CHI2 statistically significant for each number of digits following phrases:

27, 26, 31, 28, 30, 25, 29 and the meaning of the following:

1 The level of teachers' performance - sample - in terms of where the practice of teachers thinking skills necessary for teaching grammar for first grade students of secondary reasoning skills - (excellent) in reasoning skills are (27, 26, 31)

27 - Male plural underlying relationships between linguistic concepts.

26 - Get evidence concept in the syntax 0

31 - elicit examples include culturally, or please apply applied in real life to prove the concept of a linguistic

2 - The level of teachers' performance - sample - in terms of in terms of how the practice of teachers thinking skills necessary for teaching grammar for students first grade of secondary reasoning skills - was (very good) in the reasoning skills they (28, 30.25, 29)

28 - Male specific language base to prove expressing word or phrase, and the relationship with other syntax

30 - a statement of the relationship between inference word or phrase, and its function in the syntax

25 - Male evidence, or evidence of a similar concept of language play a certain meaning.

29 - Male evidence to determine the characteristics of the term linguistic characteristics.

5 – Category skill:

Table No. (12) follows the original frequencies, values (CHI2) and percentages, teacher performance levels - research sample - in terms of the extent to which teachers thinking skills necessary for teaching grammar for first grade students general secondary .

Table (12)

the original frequencies ,the values of (CHI2), and percentages, for teachers' performance levels - research sample - in terms of the extent to which teachers thinking skills necessary to teach Arabic to first year secondary students.

Number	Excellent		Very Good		Good		Fair		Poor		CHI2
	Repetition	%	Repetition	%	Repetition	%	Repetition	%	Repetition	%	
32		8.57	4	**11.43**	15	**42.86**	7	**20.00**	6	17.14	12.86
33		71.43	1	2.86	1	2.86	5	**14.29**	3	**8.57**	59.43
34		**57.14**	1	2.86	1	2.86	8	**22.86**	5	**14.29**	35.14
35		5.71	15	**42.86**	3	**8.57**	11	**31.43**	4	**11.43**	18.57
36		2.86	15	**42.86**	2	5.71	8	**22.86**	5	**14.29**	30.00
37		**60.00**	1	2.86	1	2.86	8	**22.86**	4	**11.43**	39.71

If we go back to the table CHI2 when the degree of freedom equal to four degrees, we find that the rate of 0.05 must reach CHI2 to 9.488 even be statistically significant, and when 0.01 per must reach CHI2 to 13.277 even be statistically significant (28) .

And this can be seen from Table No. (12) previously described in this research as follows:

CHI2 statistically significant for each number of digits following phrases:

33, 37, 34, 36, 35, 32 and the meaning of the following:

1 The level of teachers' performance - sample - in terms of where the practice of teachers thinking skills necessary for teaching grammar for first grade students of secondary reasoning skills - (excellent) in reasoning skills are: (33, 37, 34)

33 - identify uses words linguistic concept in different linguistic structures.

37 - Rated language and concepts in accordance with the existing relations between them.

34 - Configuration examples of molecules that make up the concept of a particular language.

2 - The level of teachers' performance - sample - in terms of where the practice of teachers thinking skills necessary for teaching grammar for first grade students of secondary reasoning skills - was very good at reasoning skills they (50.1986, 230)

36 - Classification of linguistic concepts depend on language used in the compositions.

35 - identify sections that make up the concept of a particular language

3 - The level of teachers' performance - sample - in terms of where the practice of female teachers thinking skills necessary for teaching grammar for first grade students of secondary reasoning skills - he was good at one skill skills reasoning skills, namely: (32)

32 - Classification of examples and in accordance with the concept of the language to which it belongs

6 – Interpretation skill:

Table No. (13) follows the original frequencies, values (CHI2) and percentages, teacher performance levels - research sample - in terms of the extent to which teachers thinking skills necessary for teaching grammar for first grade students general secondary .

Table (13)

the original frequencies , the values of (CHI2), and percentages, for teachers' performance levels - research sample - in terms of the extent to which teachers thinking skills that are necessary for teaching grammar to first year secondary students.

Number	Excellent		Very Good		Good		Fair		Poor		CHI2
	Repetition	%	Repetition	%	Repetition	%	Repetition	%	Repetition	%	
38		28.57	18	51.43	4	11.43	1	2.86	2	5.71	28.57
39		42.86	6	17.14	5	14.29	4	11.43	5	14.29	11.71
40	16	45.71	5	14.29	5	14.29	4	11.43	5	14.29	14.57
41		28.57	18	51.43	4	11.43	1	2.86	2	5.71	28.57
42		25.71	15	42.86	7	20.00	1	2.86	3	8.57	17.14
43		28.57	18	51.43	4	11.43	1	2.86	2	5.71	28.57
44		45.71	5	14.29	5	14.29	4	11.43	5	14.29	14.57
45		22.86	20	57.14	1	2.86	1	2.86	5	14.29	35.14
46		5.71	3	8.57	15	42.86	11	31.43	4	11.43	18.57

If we go back to the table CHI2 when the degree of freedom equal to four degrees, we find that the rate of 0.05 must reach CHI2 to 9.488 even be statistically significant, and when 0.01 per must reach CHI2 to 13.277 even be statistically significant (28) .

And this can be seen from Table No. (13) previously described in this research as follows:

CHI2 statistically significant for each number of digits following phrases:

45, 38, 41, 43, 46, 42, 41.40, 39

This means the following:

1 The level of teachers' performance - sample - in terms of where the practice of teachers thinking skills necessary for teaching grammar to first year secondary students in the skills of interpretation - was excellent in the skills of interpretation and they (40, 44, 39)

40 - to explain the exclusion of certain linguistic concept for reasons related to its linguistic honesty.

44 - Interpretation of relations between the words to each other in the syntax.

39 - To explain the exclusion of certain linguistic concept for reasons related to its linguistic honesty.

2 The level of teachers' performance sample - in terms of where the practice of teachers thinking skills necessary for teaching grammar to first year secondary students - the research sample was very good in the skills of interpretation and they (45, 38, 41, 43, 42)

45 - the interpretation of the exclusion of words not linguistic concepts in specific language structures

38 - to explain why there is the term linguistic concept in the example given.

41 - Linking Environment student linguistic and linguistic concept of Single.

43 - the reasons that led to the widespread use of the term concept for a particular language in linguistic attitudes

42 - explanations of grammatical errors when you use words the conceptof a particular language in speech 0

3 - The level of teachers' performance - sample - in terms of where the practice of teachers thinking skills necessary for teaching grammar to first year secondary students - the research sample was good at one skill of interpretation skills, namely: (46)

46 - identify wrong interpretations of some words linguistic concepts in the examples

7 – Evaluating and judgment skills:

Table No. (14) follows the original frequencies, values (CHI2) and percentages, teacher performance levels - research sample - in terms of the extent to which teachers thinking skills necessary for teaching grammar for first grade students general secondary .

Table (14)

the original frequencies, the values of (CHI2), and percentages, for teachers' performance levels - research sample - in terms of the extent to which teachers thinking skills that are necessary for teaching grammar to first year secondary students.

Number	Excellent		Very Good		Good		Fair		Poor		CHI2
	Repetition	%	Repetition	%	Repetition	%	Repetition	%	Repetition	%	
47		2.86	2	5.71	19	54.29	8	22.86	5	11.43	30.00
48		51.43	10	28.57	4	11.43	2	5.71	1	2.86	28.57
49		52.71	20	57.14	1	2.86	1	2.86	4	5.71	36.29
50		57.14	8	22.86	5	11.43	1	2.86	1	2.86	35.14
51		42.86	6	17.14	5	11.43	4	5.71	5	11.43	11.71
52		45.71	5	11.43	5	11.43	4	5.71	1	2.86	14.57
53		5.71	3	8.57	15	42.86	11	31.43	4	5.71	18.57

If we go back to the table CHI2 when the degree of freedom equal to four degrees, we find that the rate of 0.05 must reach CHI2 to 9.488 even be statistically significant, and when 0.01 per must reach CHI2 to 13.277 even be statistically significant (28) .

And this can be seen from Table No. (14) previously described in this research as follows:

CHI2 statistically significant for each number of digits following phrases: (49, 50, 47, 48, 53, 52, 51)

This means the following:

1 The level of teachers' performance - sample - in terms of where the practice of teachers thinking skills necessary for teaching grammar to first year secondary students in the skills of interpretation - was excellent in the skills of interpretation and they (50, 48, 52, 51)

50 - correct grammatical errors contained in the linguistic structures.

48 - Provide proof of the validity or accuracy of grammatical sentences in linguistic structures

52 - to defer judgment on the concept of grammar pronunciation know the syntax.

51 - Criteria for development and decision criteria for sentencing linguistic.

2 The level of teachers' performance - sample - in terms of where the practice of teachers thinking skills necessary for teaching grammar to first year secondary students - the research sample was very good in one skill of interpretation skills, namely: (49)

49 - observe the sequence and setting priorities in the installation or not

3 - The level of teachers' performance - sample - in terms of where the practice of teachers thinking skills necessary for teaching grammar to first year secondary students - the research sample was good in the skills of interpretation and they (49, 47)

53 - Choosing the correct expression of the proposed expressions to use words particular concept Grammar.

47 - Modify the syntax as required particular concept Grammar.

Table (15)

the mean scores of students experimental and control groups in the post stratification test.

Skill	Statistical data	Number (N)	Average Arithmetic (M)	Deviation Standard (P) Deviation Standard (P)	The degree of freedom	Value (V) Tabulated 0.05	Value (V) Tabulated 0.01	Value (V) Calculated	Value (V) Calculated Value (V) Calculated	Effect size
1-Skill of observation and description		35	1.30	0.71	34	2.03	2.72	14.477	0.05	0.921
			3.60	0.60						
2- Skill comparison and discrimination		35	0.72.	0.99	34	2.03	2.72	15.045	0.05	0.940
			0.77	3.71						
3-Skill conclusion Skill conclusion		35	1.9	0.83	34	2.03	2.72	19.869	0.05	1.081
			6.9	1.21						
4-Reasoning skills		35	1.82	0.81	34	2.03	2.72	20.496	0.05	1098
			6.88	1.19						
5- Skill rating		35	1.9	0.70	34	2.03	2.72	15.445	0.05	0.953
			4.9	0.89						
6-Skill of interpretation		35	3.25	1.54	34	2.03	2.72	19.445	0.05	1.069
			9.25	0.95						
7-Calendar skill and judgment		35	4.05	1.6	34	2.03	2.72	16.692	0.05	0.990
			9.25	0.86						

There are significant differences between the mean scores of students experimental and control groups in the post stratification test thinking skills in favor of the experimental group.

Steps of the study:

This study goes try to answer her questions and in accordance with the following steps:

To answer the first question, which is: What thinking skills necessary to use the entrance to the relay in teaching grammar and writing to first year secondary

The researcher:

(V) the previous survey of the literature in the field of search

(W) the preparation of a preliminary list of thinking skills through reference to previous studies, references and specialists in this field.

(C) Offer based on a set of arbitrators to determine the suitability of these skills in the teaching of linguistic structures for first grade students general secondary

(D) the application of the list after reassuring to the sincerity and persistence on a sample search of supervisors, teachers and

Students sample:

To answer the second question, which is: How can the organization and using the entrance to the relay unit and setting priorities in the collection and the development of some thinking skills?

The unit is organized according to the following:

1 - Clear the previous literature, studies and research related to organizing units

2 - building units in grammatical lessons planned first year secondary students using relay input and setting priorities in the achievement and the development of some thinking skills

A - unit Thdidanoan.

- Determine the objectives of the unit.

C - determine the content of the unit (where topics are organized and some grammatical topics written expression)

D - determine the necessary teaching aids in the teaching of subjects unity.

E - define how to use the entrance to the relay in the teaching of these subjects.

- Test is designed to evaluate the understanding, thinking, and some thinking skills among students in first grade secondary public in understanding these issues and some grammatical topics written expression.

To answer the third question, which is: What is the effect of the use of the entrance to the relay and set priorities on the students' understanding (sample) of grammatical rules and structures established language for them?

A - The test is designed to measure achievement and understanding of linguistic structures and thinking skills and set scientifically then applied on tribal first year secondary students.

B - teaching unit using relay input and setting priorities.

C - test application Uday.

D - Maaljhalentaْj, Othalilha and interpretation and make recommendations and proposals.

In light of the procedures followed by the researcher: come to the following conclusions:

1 - There are significant differences between the original and duplicates duplicates expected between experimental and control groups in the pre and post two applications in Arabic language teachers (sample) in favor of the experimental group as shown in test Ka 2

2 - There are significant differences between the mean scores of students experimental and control groups in the post stratification test thinking skills for the experimental group.

Comment on the results of the study:

By reviewing the results of the previous study shows the following:

1 - succeeded teacher's guide using the relay and in the teaching of thinking skills as first grade students of secondary development Mehrat thinking among teachers; which reflected on the experimental group of students in the first grade of secondary

2 - booklet helped the student to understand and employ the relay and thinking skills in the collection of classes as students ABG pilot secondary grade students year

3 - Easy to deal with the relay and after thinking skills teachers them;, which had a positive impact on the understanding and use of the relay and thinking skills to students the experimental group of students in the first grade of secondary

4 - The study note card thinking skills necessary for teaching grammar entrance relay and setting priorities; to prepare a generation realizes walks of life

• Recommendations

In the light of what has been reached from the results of this research, it may be useful to provide the researcher the following recommendations and suggestions:

For curriculum makers and observers of the technicians (direct)

1 Based on the results that have been reached in the table (37) in this research researcher recommends reconsideration of the note card to follow the teachers in the skills of observation and description in the following sub-skills:

3 - identifying characteristics of the linguistic concept.

9 - Note the accuracy of the sentence, which includes rude to the concept of a particular language.

2 - Determine the functional meanings of words understood language.

7 - Note whether the sentence or phrase, is the word linguistic concept or word of his belongings.

4 - Get Changes in terms which belong to the concept of a particular linguistic.

5 - Get linguistic concept particles which make up ..

1 - Adjust the words linguistic concept contained in linguistic structures

2 Based on the results that have been reached in the table (38) in this research researcher recommends reconsideration of the note card to follow teachers in skills

Comparison and discrimination in the following sub-skills:

13 - Examples of configuration linguistic concept in modern linguistic contexts new.

12 - identifying inconsistencies between words concept uses linguistic language in attitudes

17 - Iron linguistic relationship between the concept and other linguistic concepts

14 - to determine whether the limits of the linguistic concept featured in the example or not.

10 - to clarify the differences between the Governors belong to a specific concept of a linguistic

11 - to distinguish between what the linguistic sense and what does not respect him.

16 - identify similarities between the concept of linguistic and related.

15 - determine relationships between words to each other within the framework of one sentence.

1 –$_A$ successful teacher's guide by using the sequencing in teaching of thinking skills for the first grade secondary students and development of the teachers' thinking skills. This was reflected on the experimental group of the first year secondary students.

2 -The booklet helped the student to understand and use thinking skills in the pilot group of classes first year secondary students.

3 –$_I$t is easy to deal with the sequencing and the thinking skills which had a positive impact on the understanding of the experimental group of the first year secondary students.

4 - The study of the observation sheet of the necessary thinking skills for teaching grammar and sequencing and priority identification approach is to prepare a generation realizes walks of life .

Recommendations and suggestions:

In the light of what has been found from the research results, it may be useful to provide the following recommendations and suggestions:

- For curriculum makers and observers of the technicians (supervision)

1 – Taking the sequencing and priority identification approach in consideration while writing books.

2- Paying their attention to focus on sequencing sides and to define priorities during their field visit to schools.

3-School books and curricula should include questions and educational activities focusing on sequencing sides.

- For the teacher

1 – Help the teacher to use thinking skills in teaching grammar.

2 - Provide the teacher with evaluating questions that develop students' thinking skills.

3 - Provide an opportunity for students to practice the educational activities that develop some thinking skills.

4 – Help them to understand the different learning styles and consider this in the teaching-learning process

5 - Prepare basic themes of the sequencing that the teacher focuses on in teaching the grammatical rules.

6 - Make the teaching process an interesting one and to be accomplished through participation and cooperation between them and the students.

7 – Reduce the emphasis on recitation process of the subject; because students enjoy various educational activities through which they can acquire the knowledge, skills and wanted attitudes.

8 –Increase the teacher's spirit and self-confidence, which are reflected positively on the performance of students and their various activities.

- For the students of the school

1 – Preparation of activities booklets for students focused on sequencing sides.

2 - Focusing on the main thinking sides in learning grammar courses.

3 - Training students on sequencing and priorities identification in understanding the language courses of the Arabic language branches.

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International Journal of Innovation and Scientific Research
ISSN 2351-8014 Vol. 2 No. 1 Jun. 2014, pp. 113-126
© 2014 Innovative Space of Scientific Research Journals
http://www.ijisr.issr-journals.org/

Improving the quality of student learning

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INTRODUCTION

Student learning is a complex multivariate phenomenon. There are many sources of variation, some of them unobserved and uncontrollable, that contribute to manifestations of learning behaviour and of learning outcome. Practitioners are often confused by the layered complexity found in competing conceptual models of student learning; they generally fail to appreciate the penalties that are incurred as the genuine complexity of student learning is approximated for modelling purposes.

The present study deals with a training program in using computers in teaching by Arabic teachers. The program is constructed in order to be suitable for a developing country. It includes training teachers to use general computer applications, personal and pedagogical uses. Two types of generic software (Arabic version) were used in addition to Windows 3.1 (Arabic release). The first type was wordprocessing (Microsoft Word 6.0) and the second was (Microsoft Power Point) . The program was constructed and applied according to the findings of two successful courses in America (Roseman and Brearton, 1989), and the UK (Sutherland et al., 1991).

15 secondary Arabic teachers without any computer experience participated in a 10-days-period course two hours a day. The course was concluded by workshop test in word processing and spreadsheet. The test showed that 12 out of 15 teachers (80%) were able to complete the word processing test successfully, 11 out of 15 teachers (73%) were able to complete the spreadsheet test successfully. The findings demonstrated that all participants were able to run computers effectively, deal with Windows applications, use computers as personal tool, and use computers as pedagogical tool in the classroom.

RESEARCH PROBLEM:

The following study attempts to answer the following question:

How can the efficiency of the student-teacher be improved throng the use of computer in teaching Arabic to the students of the first year of the secondary stage?

RESEARCH OBJECTIVE:

The major objective of the following study in to improve the ability of the student-teacher through the use of computer in three perspectives: first, the ability to use computers (computer applications) for personal purposes, third, using computer in teaching Arabic language.

The program aims also at identifying the satisfaction of the participants with the program as an indicator of the interests and desires of the participants.

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PREVIOUS STUDIES:

1- Qualities of Effective Writing Programs. (Holbrook, Hilary Taylor, 1984)

Teachers and administrators in Neill's survey cited the importance of voluntary and ongoing inservice training programs taught by trainers from both inside and outside the school or the district. Neill observes that trainers who are also teachers have more credibility as inservice instructors than do "nonteaching experts." Enthusiasm, knowledge of current theory on the writing process, and a focus on practical application of techniques are also essential qualities for inservice trainers.

In addition, Neill's respondents suggested modeling writing programs on those that have already proven successful. In the National Writing Project, which appears to be the most far-reaching program model, teachers attend workshops to improve their own writing skills and their teaching of writing. Participants may then act as consultants for school or district inservice sessions, so reinforcement occurs naturally.

Other qualities for successful inservice programs include the following:

--attention to specific skills in which teachers may be weak

--time and opportunity for teachers to gain confidence in their ability to teach composition, allowing for structured feedback about their use of new skills

--opportunities for observation in other classrooms

--attention to issues that concern teachers, such as paperwork, evaluation, diagnosis, remediation, and explaining the writing program to parents

--administrator involvement in both program and session activities .

2 - Technology as a Tool for Urban Classrooms. : (Burnett, Gary , 1994)

By 1992, according to a study by the Council of Chief State School Officers, more than 3.5 million computers were in U.S. elementary and secondary schools--a ratio of one computer for every 13 students. In addition, 99 percent of all schools across the country reported that they provide their students with some access to computers (cited in west, 1993).

The technological transformation of education in the United States has not been as extensive as these numbers might suggest, however. The same study found that, despite the substantial presence of technology in the schools, many students have yet to gain more than minimal access to it, often using computers no more than once a year.

Moreover, the methods and purposes of computer use often differ radically from school to school and from district to district: sometimes computer use enhances learning for all students and sometimes it simply confers a new technological sheen on the low-level programs that have long been a staple of education in the United States. In some cases, they are present in the schools but are not being used for any clear purpose at all. If, as many have claimed, computer literacy has become as indispensable for success as literacy itself, then students have a great deal to gain schools implement educational technology programs.

Educational technology comes in many forms, from pre-packaged games to word processing and graphics packages, complex multimedia systems, and telecommunications networks such as the Internet. Students and teachers may be introduced to technology via stand-alone computers in the classroom, or via vast systems that can connect them to users both across the country and around the world.

Faced with this wide range of possibilities in educational technology, educators wishing to bring computers into their schools must decide not only what kind of program to implement, but also the place that technology will occupy within their schools. They must:

* clarify the role of computers as a pedagogical tool;

* define its relationship to existing curricula; and

* establish the level of human and financial investment they are willing to make.

The people involved in making these decisions for urban schools can be quite diverse--administrators, teachers, and/or parents, among others. This digest provides an overview of computer use, and presents a few general guidelines for these decision-makers to use when implementing a technology program.

3 - Computer Skills for Information Problem-Solving: Learning and Teaching Technology in Context. ERIC (Eisenberg, Michael B. - Johnson, Doug, 1996)

The curriculum outlined below, "Computer Skills for Information Problem-Solving," demonstrates how computer literacy skills can fit within an information literacy skills context (American Association of School Librarians, 1995). The baseline information literacy context is the Big Six Skills process (see below and Eisenberg & Berkowitz cites). The various computer skills are adapted from curricula developed by the state of Minnesota (Minnesota Department of Education, 1989) and the Mankato Area Public Schools (Mankato Schools Information Literacy Curriculum Guideline). These basic computer skills are those which all students might reasonably be expected to authentically demonstrate before graduation. Since Internet-related skills are increasingly important for information problem-solving, they are included in this curriculum, and are noted by an asterisk.

Some computer literacy "skills" competencies which do not seem to fit into this information processing model, and which may or may not be important to have stated include:

- knowing the basic operation, terminology, and maintenance of equipment

- knowing how to use computer-assisted instructional programs

- having knowledge of the impact of technology on careers, society, and culture

- computer programming

- specialized computer applications like music composition software, computer assisted drawing and drafting programs, mathematics modeling software, etc.

Listing computer skills is only a first step in assuring all our children become proficient information and technology users. A teacher supported scope and sequence of skills, well designed projects, and effective assessments are also critical. Many library media specialists will need to hone their own technology skills in order to remain effective information skills teachers. But such a curriculum holds tremendous opportunities for library media specialists to become vital, indispensable staff members, and for all children to master the skills they will need to thrive in an information rich future.

4 - Improving Rural School Facilities for Teaching and Learning :(Dewees, Sarah ,1999)

Education reforms require schools to accommodate new teaching and learning styles, which includes providing laboratory classrooms; flexible instruction areas that can facilitate small-group, large-group, and multiage instruction; and multimedia centers that offer a variety of technological resources. Rural schools, however, face a broad array of facility upgrades: 37 percent have inadequate science laboratory facilities, 40 percent have inadequate space for large-group instruction, and 13 percent report an inadequate library/media center. Some school reform efforts suggest schools should make more of an effort to include parents, provide health and social services for children, and provide day care. Again, many rural schools lack adequate space to accommodate parent support (23 percent), social and health services (28 percent), day care (82 percent), and before- and after-school care (66 percent) Technology is another driving force behind building modification. Many schools lack conduits for computer-related cables; electrical wiring for computers and other communications technology; and adequate electrical features, such as proper outlets. Technology could help many rural schools overcome barriers associated with isolation by linking educators to professional development and curriculum resources. Without the necessary infrastructure, however, schools cannot realize the true potential of technology.

Rural school facilities are also challenged by demands to meet federal mandates. The Americans with Disabilities Act of 1990 requires schools to accommodate those with special needs by installing features such as access ramps, automatic doors, and elevators. In addition, some schools are struggling to remove hazardous building materials, including asbestos, lead paint, and radon gas. Although federal programs provide some financial assistance, many rural schools lack adequate resources to comply with federal mandates.

Many aging rural schools experience problems with energy efficiency and other environmental conditions that threaten student safety and that interfere with classroom activities. Fifty-four percent of rural schools report at least one unsatisfactory environmental condition. Leading problems include energy efficiency (39 percent), indoor air quality (18 percent), and ventilation (24 percent) .

Fixing these problems will be costly. A 1990 survey estimated that rural schools needed $2.6 billion in capital to catch up with deferred maintenance on existing buildings; the cost to replace rural schools approached $18 billion . Most state legislatures traditionally do not support local school districts' capital outlays and debt services; therefore, districts bear the brunt of

financing facilities. Lacking the resources to fund new facilities, many rural districts allow their school buildings to continue deteriorating.

Despite increased school construction nationwide, rural districts have not kept up with urban areas. According to a recent study, from January 1994 to June 1998, about 21 percent of urban districts constructed at least one new school, compared to 9 percent of nonurban districts. This may be because it is easier to raise funds in metropolitan districts. Continuing disparities and inequities suggest the need for new funding formulas or increased state aid in equalizing funding, not just across rural and urban districts but across resource-poor and resource-rich districts in each state.

5-Teaching Educators about Language: Principles, Structures, and Challenges. (Clair**, Nancy, 2000)**

What kinds of professional development experiences can help practicing teachers learn more about language and apply that knowledge to improving classroom practice? Clearly, short-term professional development experiences are inadequate: Teaching and learning are complex, and teachers need time to learn and experiment with new concepts in the classroom, just as their students do. Principles of effective teaching and learning for students extend to effective professional development for teachers. To be successful, professional development must be long term, and it must incorporate opportunities for learning that center on teachers and students. This study suggest eight principles of effective professional development: It should be driven by an analysis of teachers' goals and student performance; it should involve teachers in the identification of what they need to learn; it should be school based; it should be organized around collaborative problem solving; it should be continuous and adequately supported; it should be information rich; it should include opportunities for the development of theoretical understanding; and it should be part of a comprehensive change process. Because in-service teacher education on language in teaching and learning must address teachers' attitudes toward language and toward students who speak languages other than English and dialects other than Standard English, it calls for extensive commitments of time. Teachers need time to reflect on the meaning of education in a pluralistic society, on the relationships between teachers and learners, and on social attitudes about language and culture that affect students .

There are a number of professional development structures that can incorporate these principles, including teacher networks and collaborative. University-school partnerships, action research groups, and teacher study groups. What these structures have in common are opportunities for teachers to learn together in coherent and sustained ways.

6 - Closing the Achievement Gap: Principles for Improving the Educational Success of All Students: (Schwartz, Wendy , 2001)

School efforts to close the gap in academic achievement between ethnic and racial minority students and white students have been largely unsuccessful to date; differences in educational performance persist at all achievement levels, with the gap greatest between students of color and immigrants and their white and Asian American peers at high achievement levels. The need for a solution to this problem has new urgency now--here in the increasingly diverse United States--as the relationship between educational success and social and economic opportunity steadily strengthens and the relationship between educational differences and social conflict becomes more manifest.

Fortunately, there is now also greater potential for closing the achievement gap as a new resolve to do so takes hold. An upsurge in concrete steps to improve minority achievement in schools across the nation is encouraging, since the efforts are knowledge based--informed by the existence of proven and promising strategies and by new research pointing to additional innovative measures. Moreover, it is now widely recognized that schools, communities, and families must be committed to the achievement of all children, must begin educating them when they are very young, and must make a long-term commitment to educational improvement. Creating a overall atmosphere for children that reflects these principles is becoming a priority nationally, and a wide range of supportive resources are being deployed.

This digest briefly reviews the educational policies and practices whose effectiveness in closing the achievement gap has been shown, and provides a list of resources offering detailed information about them. One resource is the Internet pathway, Closing the Achievement Gap, developed by the ERIC Clearinghouse on Urban Education, on which the digest is based. Previously published Clearinghouse digests also cover some of the specific principles in more depth, and future digests will explore additional principles.

BASICS OF THE PROGRAM:

The basics of the program of training the student-teacher upon using computer as follows:

1- The application of computer skills.

2- Linking computer to the school curriculum.
3- Management and evaluation of using computer.

Thus, the program can be divided into three stages: the stage of primary training, the stage of using computer for individual purposes; and the stage of using computer for pedagogic purposes.

Literature review:

Three are two successful are programs applied in England and Britain upon a sample of student teachers which are: "the smaller world" organized by a team of researchers form the university of London (Sutherland, etal. 1991) and the other is "computer for teaching science" organized by the university of John Hopkins in collaboration with the organization of Open school in the state of Baltimore (Rose man, and Breaton, 1989). The following reasons:

- The two programs employed the general computer applications (encyclopedia application) of training, the same subject of the following study.
- The British program continued for 30 days, while the American one for 12 days. This period is suitable for the level of the encyclopedic applications and the large number of classes given to the student-teacher of Egypt (the setting of the study).
- The success of the two programs. 80% of the participants of the British program continued to use computers in their instruction, and 90% in the American program.
- The big resemblance between the subjects of the following study and the two studies. The British program was designed to the teachers of mathematics at secondary stage, while the American program designed for the teachers of science at the secondary stage. The following study is designed for teachers of Arabic.

THE APPLICATION OF THE PROGRAM:

The program has been applied on the first semester in 2002 in the laboratory of the Faculty of Education, Egypt. This location has been selected as a result of the availability of modern computers (486 processor). The lab also has the total number of 17 computer sets: 16 for the trainees and 1 for the trainer All computers are compatible with IBM. The lab also includes 4 laser printers joined with a local network.

SAMPLE :

The following study has been applied on all senior student-teachers of the Arabic language at the secondary stage of the Arabic department. Faculty of Education of Fayoum. Who meet the following criteria:

1- Not having any previous experience in computer. This program is designed for students with no computer experience.
2- Subject who are committed to attend the entire course.
3- Participation is optional and it includes no financial professional incentives.
4- The total number of student-teacher of teachers of Arabic on 9 secondary stage schools.

The following section will include a brief introduction to the goals of the program, system, schedule and the number of classes given.

The program has been divided into four sections:

Section I (training on Arabic windows (two days)

→ **Day one:** Basics of windows, at includes:

Windows: access, codes, file manager, printer, control panel. Other icons: right-click, file manager, main interface. Application manager (inside the windows) minimizing / maximizing, resize, task bars: options list selection, windows setup, exit (of each window) or of the application manager) saving, undo, view, help, organizing files, properties, creating a sub-directory, search and save.

→ **Day two:** windows applications including:

Using the various applications of windows through using windows accessories clock, calculator, notepad, paint brush, word pad. The trainees were given a training session on the use of keyboard including all letters and symbols and saving files to the hard disk.

Section П (Microsoft Word) (three days)

→ **Day three:** Basics of Microsoft word and word processor.

Access to the program, taskbar, shortcuts, data bar, option

→ **Day four:** training on writing text. It includes:

Changing fonts, font type / size, table, inserting pictures, clipart, charging language. The text included 180 Arabic word and 17 English words, a picture, table and 12 fonts and auto saving every 3 minutes.

→ **Day five:** writing teaching memos:

Students were free to choose the plan their lesson. Planning notebook and were directed to do the following: starting with the name of Allah (Islamic font), selecting a suitable picture, writing distinctive had lines, creativity in commenting the plan and inserting some effects, such as tables, changing color …. Etc.

Section Ш: (Microsoft power point) four days

→ **Day sex:** Basics, including

Entering, dealing with slides, animation, adding text, colors function inserting picture or clipart, adding animation, sorting slides, statistical data, slides show.

→ **Day seven:** organization the data of the student; including preparing name lists, entering data, sorting names, marks statistical representation of percentage and marks, creating and organizing tables.

→ **Day Eight / Nine:** Training on using the program in teaching different topics.

Topic selection. Primary steps of construction, simplifying the topic, adding some problems (problem – solving principle) exercises of developing learners: logical, critical thinking and appropriate method.

Section IV: program Evaluation. (one day)

Day ten a test in Microsoft word, power point and answering a questionnaire.

TOOLS OF THE STUDY

The program focused on simplifying the basics of computer and giving the student-teacher the biggest possible chance in front of the computer to deal with problems without the direct guiding of the trainer to gain experience. Ten work sheets were prepared for the study distribution everyday so that the training would follow and the pace of work is to be determined by the individual trances.

To evaluate the program, an achievement test was designed to measure the skill of the trainee to use computers in teaching. A questionnaire was distributed to the participants after the test and were asked to answer the question without writing their names.

1) Achievement test:

It includes two section: the first a test of performance in Microsoft word 6 consisting of a lesson plan of the topic of "tourist attraction of Egypt" of secondary one book with the number of 287 word, 6 fonts and two picture. Participants were asked to type the text without change in the type, size of font and were ordered to follow the text layout of the test. The time allotted for this test was two hours. (see: Appendix I) section two was using the power point in instruction to test the effectiveness of using the program undesigning data after analyzing, sorting data and making a statistical representation. Time allotted was 1 hour (see Hp.2) participants were asked to submit their worksheets the end of the day. The researcher observed without intervention to give instruction. He recorded the time framework of the test.

2) The Questionnaire:

To evaluate the program form the view point of the trainees, a questionnaire was prepared, including: section one. Twenty close items to measure the opinion of the trainee in the item. Excellent, average, weak – section two – 10 semi – opened questions (see:Ap.3) which aims at:

- Evaluation of the program goals time personal benefits.
- Evaluation of the application, and sets used is the study.
- Evaluation of the trainer.

Identifying the skill of using computers of the trainees and their future plans.

RESEARCH RESULTS AND DISCUSSION

In order to evaluate the amount of achievement of the research goals (see objectives of the study) the results were divided into two major sections: the first an achievement test where is the time of every trainee was recorded, and the number of words written per minute for all participants who tests of word and power point was also counted. The second, the result of the questionnaire. The repetition of every expression was counted, statistically analyzed the open ended items were also used to determine points of strength and weakness in the program.

First: Result of the performance tests:

The table No. (1) shows the time for finishing the Microsoft word / power point .

Table No. (1)
The time required for finishing the Microsoft word / power point

Rate	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	No. Teacher-student
81.3	**70**	**90**	[?]؟	**105**	**105**	**90**	**85**	**45**	**100**	**45**	**75**	؟	؟	**90**	**76**	**Word The time**
39.3	**29**	**25**	؟	**30**	؟	**60**	**45**	**30**	**60**	**48**	**60**	؟	؟	**25**	**20**	**Power point The time**
114.8	**99**	**115**	؟	**135**	؟	**150**	**130**	**75**	**160**	**93**	**135**	؟	؟	**115**	**96**	**Total**

Table (1) reveals that 12 participant (80%) were able to finish the Microsoft Word within the assigned time (2 hours), 3 participants (20%) failed to accomplish the task in time despite the fact that they all managed to use the program to write parts of the plan and had no technical problem but were slow is typing and needed further work on this area.

The table also shows that the time needed for finishing the test successfully was 81.3 minutes (3.5 wpm) in addition to font size, color, layout and (clipart / picture) inserting. The shortest time was 45 minutes and the longest was 105 minutes.

The major reason for increasing time was the slowness of participants in dealing with the keyboard the font type or size didn't have a big role in this, since the participants look first at the text and then to the monitor to verify what was written. This indicated that the worksheet given to participants on day two was not enough and participants needed more time for training on the keyboard on the basis that increasing the speed of the participant in dealing with the keyboard provides a bigger chance to think about the questions and instructions skills. A skill that can be improved through practicing.

Table (1) shown that 11 participant (73.3%) managed to finish the power point test in a much shorter time than the word test. With the average time of 39.3 minutes including creating a teacher method of the topic, selecting slide format and adding suitable animation the shortest time score was 25 minutes and the longest was 60 mins. (see table I) this difference is due to the lesser amount of dealing with the keyboard. Dealing with power point entails a bigger amount of using slides and figures with very few words written by the keyboard. Although four participants failed to finish that test this is not due to their slowness, but is slowness of selecting the proper a way of showing data included is the test those, need to increase their experience of data show and organization.

[?] *doesn't end in the limited time*

Second: Result of the Questionnaire:

To analyze the answer of participants, kolmogorov-simrov test or ordinal ranking was used with a small sample. (see: table (2)).

Table No. (2): Result of the questionnaire

Significance	Value of Cronbach	weakness repetition	Medium repetition	Excellent repetition	No. of statement
*	*	**0**	**0**	**15**	**1**
*	*	**0**	**0**	**15**	**2**
0.001	**1.99**	**0**	**2**	**13**	**3**
0.002	**1.88**	**0**	**3**	**12**	**4**
*	*	**0**	**0**	**15**	**5**
0.002	**1.88**	**0**	**3**	**12**	**6**
0.002	**1.88**	**0**	**3**	**12**	**7**
0.050	**1.36**	**0**	**7**	**8**	**8**
0.024	**1.49**	**0**	**6**	**9**	**9**
*	*	**0**	**0**	**15**	**10**
0.083	**1.26**	**2**	**5**	**8**	**11**
0.001	**1.99**		**2**	**13**	**12**
0.001	**1.99**	**0**	**2**	**13**	**13**
0.001	**1.99**	**0**	**2**	**13**	**14**
0.000	**2.07**	**0**	**1**	**14**	**15**
0.002	**1.88**	**0**	**3**	**12**	**16**
*	*	**0**	**0**	**15**	**17**
0.006	**1.70**	**2**	**2**	**11**	**18**
0.083	**1.26**	**2**	**5**	**8**	**19**
*	*	**0**	**0**	**15**	**20**

Table (2) shows that the values of the KS test are statistically meaningful for all the items on the level 0.01, except for items 8 , 9 , 11 , 19. these items are (in order): the contribution of this course is your professional qualification, the contribution of this course is your instructional qualification, number of trainer in the course, course schedules this mean that participants don't fully think that the program help in their instructional and professional development, and that the number of instructor is insufficient and times inappropriate.

* *no value was given to the unanimous agreement of all participants*

A statistically meaning of the respond "Excellent" which was used for 16 items of 20 items. Indicates a wide satisfaction of the trainees of the program. Items of disagreement do not influence the success of the program on the basis that the. Contribution of the course in the instructional and professional qualification of the participates is due to the fact that computers are not used in teaching Arabic due to the general atmosphere. This is revealed by the fact that the participants rated the course as "Excellent" (Item 20). The number of trainers was not sufficient as the trainees usually need a bigger a mount of help and there was a necessity of having an assistant since the trainer of the course was the researcher himself who sometimes had spend a big time with some trainees to solve or show some complex skills. However, not using assistants was delivery to see the sufficiency of using one trainer with 15 trainees with the purpose of generalizing the program to secondary school where the teacher of computer could transfer the experience of dealing with the program to his or her fellow teacher with the aid of one of the trainee teacher-student at the course who could help in solving the simple technical problem and suggesting suitable teaching practice.

The improper time of the course comes from the fact that the participants wish the program to be part of their daily work they were a motivated to participate is the program only due to the desire to learn computer, particularly with the lack of any financial, professional advantages.

Results of the open-ended questions showed many advantages of the course of which: shortness of time the effective of employed application, easiness of dealing with them, breaking the ice between the participants and the computer, deriving instructional sample s from the curricula of the Arabic language opening new unlimited hansoms for using computers both in instruction and for individual purposes. The weak point was reflected in the inappropriateness of time of the classes and limited number of trainers.

Most subjects prefer to have training inside the school where they are having the teaching practice and the need to have financial incentives. This was similarly reported in the American and British programs.

The ninth questions were related to the ability of the teacher to use computer alone. All participants confirmed that they can use the computer alone an they are planning to use it is the future.

RECOMMENDATIONS OF THE STUDY

After conducting the study. The researcher recommends:

- To select the suitable time for training the student teachers some of the participants wished the training to be part of their daily work, where the load could be distributed upon the teacher of the school until the training is over. The intervals among the final exams or shortly after could be a suitable time for training
- The participation of the subjects should be optional. This could be seen in the punctuality of attendance by the participant without having any advantage but the personal benefit certificates of attending the course were distributed but this was not know until the course ended the researcher also recommendation the lack of financial incentives so that attendance would be limited to those who have a real desire to learn.
- Laying more attention to the skill of using the keyboard and the mouse since many people lacked the skill of dealing with the keyboard an important element of the training course.
- The result show the necessity of shortening the amount of training time on the contrary the shortness of course frame was the major motivation for participations.
- The trainer (teacher of computer) should have the zeal to work with computers and instruct others, which would be transferred to the trainees lack the enthusiasm of training their colleagues. This type should be excluded from the program. This was stressed by Robertson (1996) when he said that "the success of any program designed for student teacher depends on the enthusiasm of the trainer" (P.5)

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APPENDIX (1)

The performance test of the program of training student-teacher in using computers in teaching

Evaluating worksheet 1

Write the following teaching plan without changing the text:

Name:

School:

Daily teacher plan

Topic: touristic Attraction of Egypt

* learners' previous experience:

An introduction to the touristic monuments and their places in Egypt.

* Learning Goal:

The realization of the learner of the concept of tourism in Egypt and its role in the Egyptian economy.

* Learning Objectives:

1- Moral objectives

- Giving a general concept of tourism.

Stressing the importance of the gift of sight for humans which is used to value the various attractions.

2- Cognitive Objectives:

- knowledge of the basic touristic attractions in Egypt, and distinguishing the function of one.

- directing the learner's attention to the skill of the ancient Egyptians.

3- Emotional Objectives

- How to protect the touristic attractions.

- Encouraging tourism and showing the beauty of every attraction in Egypt.

Objectives

- The ability to explain natural pictures or painted.
- Available teaching Aids.
    i. A film of the touristic allraclions in Egypt.
    ii. A map of touristic places in Egypt.
- Setting of lesson
    i. The computer laboratory
- Work plan
    i. Warm up: An overview of the attractions found on Egypt.
    ii. Points for discussion: Type for allraclions in Egypt, their important, ways of protecting them
    iii. Examples:
    Examples of the benefits of touristic attractions to Egypt.
    iv. Board synopsis:
    - Defining tourism
    - Types and places of tourism and its value.
    - Methods of protecting / promoting touristic attraction.

Evaluation

Questions a bout the touristic attractions places values way of protection / promotion

Homework

a. Collect five photos for five touristic attractions in Fayoum.

Self-Evaluation:

b. Are all objectives realized?
c. Was the time suitable?
d. How suitable are the aids?
e. Can you employ computer on teaching this lesson?

APPENDIX (2)

The performance test of the program of training student-teacher in using computers in teaching

Evaluating worksheet 2

Do one of the following tasks:

1- Using (Power point) shown practically. How can you teach the topic:
touristic attractions of Egypt

2- Using (Power point) shown practically. How can you teach the topic:
(Gama'a Elmozaker Elsalem) and its derivatives

3- Using (Power point) shown practically. How can you teach the topic:
Pollution is the illness of the age.

APPENDIX (3)

Questionnaire of course evaluation

Dear teacher-student …..

This sheet was designed to evaluate the course for reaching the best results.

Please answer without mentioning your name to contribute the true statue of this course.

Put the sign (√) in front of the suitable statement as you see:

Items of Evaluation	excellent	fair	weak
1- Goals of the course.			
2- Setting of the course.			
3- Type of training			
4- Method of training.			
5- Atmosphere of training.			
6- System of the course.			
7- The teaching method used.			
8- The impact of than course upon your professional development.			
9- The impact of that course upon your instructional development.			
10- The impact of that course upon your attitude to words computers.			
11- Number of trainers.			
12- Number of participants.			
12- Applications used in the course			
14- Services offered in the course.			
15- Computers used in the course.			
16- The extent with which you benefited from the course.			
17- Amount of corporation of fellow participants.			
18- Time of daily practice			
19- Date of the course in general			
20- What is you opinion of that course.			

International Journal of Innovation and Scientific Research
ISSN 2351-8014 Vol. 2 No. 1 Jun. 2014, pp. 127-134
© 2014 Innovative Space of Scientific Research Journals
http://www.ijisr.issr-journals.org/

Towards a transformation of the Assessment Culture in Initial Arabic Teacher Teaching

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INTRODUCTION

In traditional teaching, assessment is an action that has an external characteristic, centered on the specific and final result of an action regarding an object that does not correspond to a mental program pre-established by the person using it, that is, it is beyond all internal learning process. It responds to an external manipulation of an internal process.

An assessment culture is generated in educational institutions that lay emphasis on products. It emphasizes as well the power of those who have the authority as sole responsible persons for the generation, implementation, and decision making; and in the absence of other actors as creative and participants in the assessment process.

The first explicitly stated Arabic curriculum for public schools in Egypt appeared in 1970 (Ministry of Education, 1970). It outlined a rationale for the teaching of Arabic in the Egypt and stated general and specific aims for teaching it. It described the theoretical framework and pedagogical practices by which these aims could be achieved and suggested ways for the evaluation of their achievement.

In 1990, a new revision of the curriculum of Arabic was adopted and new teaching materials were prepared to implement it. This currently-used curriculum has introduced various changes and delineated general and specific objectives of Arabic language teaching in Egypt in more realistic and functional terms.

A CRITICALLY REFLECTIVE DIDACTICS: ASSESSMENT.

The critical theory of education is oriented towards a social transformation enlightened by a emancipation interest in a democratic context. It aims the development of a communicative rationality and tries to move away from the instrumental rationality, keeping in mind the political nature of all social processes.

The critical theory of education is a curriculum theory that contains the reflection instruments necessary to awaken the consciousness of all participants in the educational process, considering the relativity of the curriculum premises. These premises depend on their historical and social context, and they let us understand and plan the pedagogical action as a set of situations that are continually revised and modified. Therefore, pedagogical action is understood as a process in permanent change.

Praxis is the constitutive element of critical didactics. It is developed as action and reflection in the actual world and not in the logical one. This reality where praxis takes place is the world of interaction: the social or cultural world, that presumes a process of social building of meanings.

Thus, the curriculum contents bring out its meaning not from predetermined objectives but from social reality and its permanent change, from the meditations of those who are involved in educational action where educational experience becomes the protagonist of teachers and students.

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In the critical theory setting, assessment establishes itself in the interaction of participants who relate to each other horizontally, generating consensus regarding cooperative action within a symmetrical relations setting of authority and critical consciousness. In this sense, the learning and teaching processes are supported by group organizations committed to the building of their own knowledge

From this perspective, the main function of assessment is to gather information about the social practices of the classroom and the school. It configurates itself as an inquiring strategy that encourages dialogue, discussion, and that leads to a transforming action through consciousness of reality and the will to act.

This enables us to understand the values, beliefs, and meanings of all participants in the learning situations. It requires that everyone express his or her opinions, motives, and questions. The self interpretation of what has been accomplished and its narrative expression constitute qualitative assessment. This requires commitment from the students in the assessment process in which they are involved so that while reflecting on the tasks done, they can be encouraged to improve them.

Hence, assessment is interested in the interpretation and understanding of what goes on in the natural contexts, it focuses on processes more than on products, because it lays stress on the continuous development of capabilities recognizing what was the initial situation. It focuses on the students' progress instead of on predetermined standards and objectives.

As a process, it has a continuous and contextual characteristic. However, as methodology, it can be used both as summative and formative assessment. Therefore, it allows for the use of several data collection techniques, such as discourse strategies (interviews, oral exchange in the classroom, debates, assemblies, etc), narrative techniques (journals, stories, real life stories) and different sociometric instruments, of which the most used is observation in its various forms.

Therefore, in this setting, assessment is understood as a process of understanding and improvement of teacher education and it more oriented to the development of an educational culture that promotes self-commitment and to others, self-criticism, and a constant rebuilding of the same assessment processes.

The continuous drive for quality education has led the Ministry of Education to launch in 2000 a multimillion Egyptian riyal project of comprehensive revision of its educational curricula and teaching materials at all levels: elementary, intermediate and secondary. As part of this major educational overhaul, a new Arabic curriculum has been introduced. Based on recent findings of psycholinguistic research, this new Arabic curriculum adopts a more learner-centered approach in teaching Arabic to Egyptian learners. It aspires to emphasize the explicit (general and specific) goals and the educational and sociolinguistic value of Arabic in the Egypt. It pays special attention to course content, recommends appropriate teaching techniques and suggests proper methods of evaluation.

OBJECTIVES:

This paper will investigate the amount and scope of involvement of Arabic language teachers and supervisors in this important educational reform and their perceptions of such reform vis-à-vis their awareness of the place that the Arabic language occupies in their country's ambitious plans for national development.

The paper will also seek the opinions of such teachers and supervisors on the feasibility of this latest development in light of the Ministry's plans to open a national forum on the ever-recurring question of the value of beginning Arabic language instruction in the country's public schools at an earlier stage, namely, the elementary school, and the effects that this measure would entail on the structure, sequence and content of the Arabic language curriculum, on teacher training and related matters.

RESEARCH QUESTIONS:

Specifically, this paper will answer the following questions:

1. How do Arabic teachers and supervisors evaluate the Arabic language curriculum currently employed in the Egyptian school system?
2. How much involvement do Arabic teachers and supervisors have in the announced reform of the Arabic language teaching curriculum in the Egyptian school system?

3. How do Arabic teachers and supervisors evaluate the adopted reform of the Arabic language curriculum in the Egyptian school system?
4. How do Arabic teachers and supervisors evaluate the introduction of Arabic language teaching at the elementary level in the Egyptian school system?

METHODOLOGY:

A twenty-two item questionnaire was developed to solicit responses of Arabic teachers and supervisors to the research problem. The questionnaire was divided into four major areas covering the four research questions mentioned above.

The questionnaire concludes with an open-ended question calling for additional comments about the current changes in Arabic language teaching in Egypt.

A total of 84 Arabic teachers and supervisors responded to the questionnaire (Table 1). All respondents came from the school districts of Fayoum in Egypt.

Table # 1
Distribution of Respondents to the Questionnaire

Type of Respondents	#	%
Arabic teachers	74	88.1
Arabic supervisors	10	11.9
Total	84	100

Percentile ranking method was used to evaluate responses to the questionnaire.

Each research question was evaluated separately since some respondents failed to respond to all 4 research questions. As a consequence, the total number of respondents for each research question varies.

ANALYSIS AND DISCUSSION:

Research Question No. 1: How do EFL teachers and supervisors evaluate the Arabic language curriculum currently employed in the Egyptian school system?

Table # 2
Respondents' Rating of the Arabic Language Curriculum Employed in the Egyptian School System

Type of Respon-dents	Excellent		Very. Good		Good		Satisfactory		Weak		Don't know		Total	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Teachers	3	4.1	12	16.2	22	29.7	26	35.1	11	14.9	-	-	74	100
Supervisors	-	-	1	10	2	20	3	30	4	40	-	-	10	100
Total	3	3.57	13	15.48	24	28.57	29	34.52	15	17.86	-	-	84	100

As shown in Table # 3, 26 teachers and 3 supervisors, or 34.52% of the population of the study, found the currently-employed Arabic language curriculum to be merely "satisfactory." On the other hand, 22 teachers and 2 supervisors, or 28.57%, found this curriculum to be "good" and 11 teachers and 4 supervisors, or 17.86%, rated it as "weak". Only 3 teachers considered it "excellent".

The above data show that the majority of the respondents (49 teachers and 5 supervisors, or 64.3%) rated the current curriculum for Arabic language between "satisfactory" and "good." When asked whether or not this curriculum was in need of change, the majority of respondents (58, or 60%) thought this was either essential or important. This opinion was supported by the majority of teachers (53 or 71.6%) and 5 (50%) of the supervisors. This conclusion would reflect the strong belief among the population of the study, teachers in particular, in the importance of change to the present Arabic language curriculum, and hence supports the plans of the Ministry of Education for effective change.

Data derived from the study also show that most of the teachers (67, or 90.5%) found curriculum design and textbooks as the most problematic areas needing change. Their opinion regarding areas such as goals, methods of teaching and audiovisual aids was not as strong. This opinion was supported by all of the supervisors (100%). The general and strong agreement among respondents would indicate the urgent need for change of the present curriculum and supports such change.

Research Question No. 2: How much involvement do Arabic teachers and supervisors have in the announced reform of the Arabic language teaching curriculum in the Egyptian school system?

Table # 3
Respondents' Awareness of the Announced Reform of the Arabic Language Teaching Curriculum in Egypt

Type of Respondents	Yes		No		Total	
	#	%	#	%	#	%
Arabic Teachers	31	49.2	32	50.8	63	100
Arabic Supervisors	3	37.5	5	62.5	8	100
Total	34	47.9	37	52.1	71	100

Table # 3 displays respondents' awareness of the Ministry of Education's announced reform of the Arabic curriculum. As the table shows, only 31 of the teachers, or about 42%, expressed their awareness of the intended change in the curriculum, while almost 60% of them (43, or 58.1%) indicated their lack of awareness of the proposed change. On the other hand, only 3 supervisors, or 30%, indicated their awareness of the reform, while the majority, i.e., 70%, expressed that they were unaware of it.

The above figures show beyond any doubt that the majority of respondents (50, or 59.52%) were not involved in bringing about the required changes to the current Arabic curriculum and were not sought out for help of any kind in this endeavor.

This result, however, does not reflect the belief of the respondents regarding who should be involved in carrying out the intended reform. The majority of the teachers, 58, or 78.4%, thought that Arabic teachers and supervisors should be given priority in helping to carry out the required reform, with teachers given more importance in this task: 36, or 48.6%, for teachers and 22, or 29.7% for supervisors. Six supervisors, or 60%, supported this opinion and believed that teachers should play the most important role in this change. When asked whether this role should be assigned to university Arabic language staff, only 17 teachers (23%) and 2 supervisors (20%) supported their involvement in this task. Educational administrators' involvement was supported by 12 teachers (19%) and 2 supervisors (25%), while pupils were not seen to be important players in this respect and received the support of only 7 teachers (9.5%) and 3 supervisors (30%).

Research Question No. 3: How do Arabic teachers and supervisors evaluate the adopted reform of the Arabic language curriculum in the Egyptian school system?

Table # 4
Respondents Who Had Read in Detail about the Reform

Type of Respondents	Yes		No		Total	
	#	%	#	%	#	%
Teachers	30	44.1	38	55.9	68	100
Supervisors	3	33.3	6	66.7	9	100
Total	33	42.9	44	57.1	77	100

Table # 4 shows that only 30 teachers, or 44.1%, had read in detail about this reform, while 38 teachers, or 55.96%, had not done so. On the other hand, even less supervisors, 3, or 33.3%, had read in detail about this prepared reform, while 6, or 66.7% had not.

Table # 5
Evaluation of the Proposed Reform by Respondents Who Had Read about It in Detail

Type of Respondents	Excellent		Very Good		Good		Satisfactory		Weak		Don't Know		Total	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Arabic Teachers	7	21.88	5	15.6	8	25	8	25	1	3.12	3	9.4	32	100
Arabic Supervisors	1	16.7	5	83.3	-	-	-	-	-	-	-	-	6	100
Total	8	21.1	10	26.3	8	21.1	8	21.1	1	2.6	3	7.8	38	100

As the table indicates, only 32 of the teachers were able to evaluate the reform since they had read about it in detail. However a high number of these gave a positive response: 7, or 21.9% rated it as "excellent", 5 or 15.6%, as "very good" and 8, or 25%, as "good". Therefore, 20, or 62.5%, rated it between "good" to "excellent". For supervisors, on the other hand, all of them rated it at the very top of the scale: "very good", 5, or 83.3% or "excellent", 1, or 16.7%.

Eight teachers, or 25%, rated the reform as "satisfactory" whereas only 1, or 3.12%, rated it as "weak" and 3, or 9.4% had no opinion.

These data indicate a very positive response to the reform by those who had read about it in detail.

Respondents identified particular strong or weak points of the reform. Coinciding with the positive response in general, the following points were given a high rating: the reform fulfils goals, it meets modern standards, it is easy to implement, and it improves on the previous curriculum.

Respondents also indicated which groups would best implement the proposed reform. The greatest number indicated that bodies within Egypt were preferable, especially the Ministry of Education and specialist organizations within Egypt. For the Ministry of Education, 22 teachers, or 29.7% and 2 supervisors, or 28.6%, expressed their preference, while for specialist organizations within Egypt, 20 teachers, or 27%, and 2 supervisors or 28.6% expressed this preference. Next in preference were specialist organizations from abroad with 16 teachers, or 21.6%, in favor and only 1 supervisor, or 14.3%, of this opinion. Of a similar level were the responses for individual specialists to be assigned for this task, with 15 teachers , or 20.3% and again 1 supervisor, or 14.3% of this opinion. Much lower was the preference for Egyptian universities and colleges, with 11 teachers, or 14.9%, and again only one supervisor, 14.3%, favoring this choice.

Research Question No. 4: How do Arabic teachers and supervisors evaluate the introduction of Arabic language teaching at the elementary level in the Egyptian school system?

Table # 6
Respondents' Awareness of the Intention of the Ministry of Education to Begin Arabic Language Instruction at the Elementary School Level

Type of Respondents	Yes		No		Total	
	#	%	#	%	#	%
Teacher	50	76.9%	15	23.1%	65	100
Supervisors	6	100%	-	-	6	100
Total	56	78.9%	15	21.1	71	100

A high percentage of respondents showed an awareness of the intent of the Egyptian Ministry of Education to introduce the teaching of Arabic from the elementary level: teachers, 50, or 76.9% and supervisors; 6, or 100%.

Of those who were aware of this reform 28 of the teachers, or 63.3%, and 5 of the supervisors, or 83.3%, indicated that their opinion about this reform had been solicited. On the other hand, 37 of the teachers, or 71.2%, indicated their interest in helping to implement this reform. However, all 7 supervisors, or 100%, were interested in assisting in this task.

Respondents indicated a high preference for participating in the area of drawing up curriculum plans, developing teaching materials and training teaching staff. Much less interest was indicated for ascertaining goals and developing methodology.

When asked to indicate which groups would best carry out this change, the favored group both by teachers and supervisors was that of "teachers". Also, very highly recommended was the group of "supervisors", again supported by both teachers and supervisors. The choice of "university language staff" was indicated by a substantial number of respondents, but "pupils" and "educational administrators" received a very low level of support.

Regarding their agreement to the introduction of Arabic instruction at the elementary level, a high proportion of teachers, 35, or 58.3%, "strongly agreed"; whereas only 2 supervisors, or 28.6% were of this opinion However, 22 teachers, or 36.7% "agreed" and the remaining supervisors, 5, or 71.4% "agreed." So 95% of teachers either "agree" or "strongly agree" to this change and 100% of the supervisors shared this opinion. Consequently, only very few were not in agreement.

When asked about the effect of this introduction of Arabic language instruction at the elementary level, 98% of teachers responded affirmatively and 85.7% of supervisors saw this as having a positive effect.

The area of "curriculum" was identified as the most strongly-affected area, followed closely by "textbooks." "Goals and methods of teaching" were also considered important as areas affected by this change. "Audio-visual aids" were not seen to be so seriously affected.

Additional Open-Ended Question: What Additional Comments Would You Make about Arabic Language Teaching in Egypt?

Thirty teachers, or 40.5% and 8 supervisors, or 80%, have responded to this question by giving some general views on what they thought to be important considerations for the design of an effective curriculum of Arabic language in the concerned school stages: elementary, intermediate and secondary.

Not surprisingly, in this question teachers have shown more interest and willingness to offer varied and relevant comments and suggestions than supervisors. The following are ideas that received the highest attention by the respondents.

1. The Arabic curriculum must follow modern standards of curriculum design.
2. The Arabic curriculum must adopt communicative approaches to language teaching and learning.
3. The Arabic curriculum must pay special attention to the needs and interests of the learners.
4. The Arabic curriculum must provide interesting, enjoyable and more realistic materials to motivate pupil learning.
5. The Arabic curriculum must be graded in difficulty to suit learners' abilities.
6. The Arabic curriculum should give more attention to quality rather than quantity of instructional material.
7. The Arabic curriculum should reflect the culture and social values of the learners.
8. Provision for ample time and amount of language practice must be provided in the curriculum.
9. Speaking and writing skills must receive more attention in the new curriculum.
10. More audio-visual aids, especially video-taped materials and language laboratories, are needed.
11. Teachers must be made acquainted with the new curriculum before its implementation.

12. Teaching Arabic in the elementary stage must be clearly planned.
13. Specialists in child psychology should be involved in planning the Arabic curriculum at the elementary school level.
14. Special training and/or orientation must be provided for the elementary Arabic teachers.

CONCLUSION:

This action research project is progressing towards the joint building of a critical didactics that provides relevance to assessment as a natural process, of personal and professional professional training. The role of the teacher educatory in the different assessment processes is seen as being a mediator and co-participant. The role of the student is seen as that of an actor and protagonist, involved and responsible for the generation and development of the different assessment processes.

When we understand the professional preparation of teachers as a complex process of knowledge building and development of relationships within a specific sociological-cultural context, we need to consider the student in the center of this space. The student will be given the conditions so that he/she may assume a reflective and protagonist role in his/her education. Therefore, we recognize the need to set up agreements in working with strategies that place emphasis on partnerships between teacher educators and students. This way we can try to establish certain evaluative criteria to be used as a basis for responsible participation of the students in the decision making of their own teacher education process.

Finally, we believe this critical didactics approach should be applicable to all the curricular mesh, since the larger the development of social competence of the individual the better will be the conditions to gain access to multiple forms of learning and to cultural sources

The importance of the Arabic curriculum is derived from the position Arabic has in Egypt, for, as is well known, it is the Egypt's most important language. It is also the medium through which Egypt communicates with the non-Arabic speaking countries of the world and it helps the country promote relations, understanding and cooperation with such countries, and it is used by Egypt to explain and present itself to other nations.

Knowledge of Arabic by a sizeable sector of the Egypt community is vital to educational, economic and technological needs of the country. The development of an effective Arabic curriculum is, therefore, in harmony with general and overall educational and developmental plans of Egypt, and every effort needs to be made to guarantee such effectiveness.

The actual content of the Arabic course will be embodied in the textbooks and materials to be written and developed with this curriculum. And since all material writing involves an element of creativity, it may not be possible, or even desirable, to specify in advance the exact content of the textbooks to be produced. However, a well-prepared curriculum will provide materials designers and textbook writers with a set of important parameters to be observed and general guidelines of the course content which would include lists of functions, notions and structures that are recommended.

This paper has considered many aspects of the proposed changes to the Arabic curriculum in Egypt. In this study, two major questions were addressed: who should be involved in bringing about the required change in the Arabic curriculum in the Egyptian school system, and who can give the best answers to satisfy the needs of an effective change?

The paper has proven that the classroom teacher is the most qualified person for such task. Yet, investigation carried out in the study showed that classroom teachers did not play a major role in effecting the reform and were not sought out for help as might have been expected.

However, achievement of the objectives of the Arabic curriculum still depends upon the classroom teacher; as such achievement requires a qualified and competent teacher to realize it. This entails that the teacher training schemes should be integrated with the curricular requirements. The ultimate goal of such training programs is to equip the teacher with the necessary skills to implement the curricular activities effectively and economically through facilitating and enhancing pupil learning.

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International Journal of Innovation and Scientific Research
ISSN 2351-8014 Vol. 2 No. 1 Jun. 2014, pp. 135-142
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http://www.ijisr.issr-journals.org/

HOUSING CONDITION AND ENVIRONMENT INDUCED ILL-HEALTH: A PANACEA FOR SUSTAINABLE HEALTHY LIVING IN AKOKO REGION, ONDO STATE, NIGERIA

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ABSTRACT: The study examined housing condition and environment induced ill-health with a view to identify ways to improve standard living in Akoko region, Ondo state, Nigeria. The specific objectives of the study examined; the household population and occurrence of ill-health and inter-relationship of ill-health and housing condition within the study area. Questionnaire administration harvested information on physical housing variables, available facilities, infrastructural services, housing conditions, and health status of respondents in Ikare, Ajowa and Ose that represent large, medium, and small towns respectively. Simple percentages and correlation analysis were used to summarize data, while tables, charts and figures presented results of the findings. The study revealed that diverse ill-health abound in the study area. However, body pains and malaria have the highest proportion of 18.4% and 23.7% respectively as a result of the observed inter-relationship between body pains and increased malaria parasites. The high occurrence of sleeplessness in the study area is related to the kind of noise being exposed to in this area where socio-economic activities (such as multipurpose, religious, extreme labour activities) are regularly taken place. The study therefore recommends that accessibility to quality housing should be prioritized by the people with standard housing conditions that could facilitate sustainable healthy living.

KEYWORDS: Quality, Health, Facilities, Standard, Correlation.

1 INTRODUCTION

In recent times, there have been growing interests over the relationship between housing condition and environment induced health problems. This has pushed several countries of the western world to carry out studies on various housing conditions as they affect people's health. Similarly in the developing countries, especially in Nigeria, several scholars have also intensified efforts to understand what transpire between the health status of people and their living condition.

According to Reference [1], housing is more than mere shelter. Reference [2] observed housing as an agglomeration of several components - basic facilities and infrastructural services, which enable it to perform protective, convenience and comfortability roles to the inhabitants. It is a place where people mostly spent about 40-60 percent of the day life. It also serves the active members and the youngsters of the society in enjoying their time. Reference [3] submitted that housing must be suitable and possess the minimum facilities for human health and comfortability.

Reference [4] posited that human health manifest in physical and mental wellbeing of individual. He further stated that a better evaluation of the performance of the body system can be achieved when the physical and mental well being (health status) is approached holistically to understand individual roots of health problems. He also opined that clinical diagnose should go beyond physical examination to include social living conditions. It is when these are evaluated in relation to reported health problems that proper management can be possible.

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In addition, Reference [5] explained that environmental conditions are connected to the health of people. There are various unwholesome environmental conditions identified by scholar such as dumping of refuse indiscriminately, uncollected refuse, unprotected excretion, bushy surroundings and stagnant water among others mainly in the urban areas which may have a deleterious effect on health of residents.

This study will enhance and promote good housing condition in line with the Millennium Development Goals Strategies (MDGS) on adequate housing. It will open a new area of research on housing problems that previous studies eluded, which is very critical to human existence. Succinctly, it will serve as a guide to housing developers and policy makers toward formulation of physical development policy in Akoko region of Ondo State and similar areas in the country.

2 STUDY AREA

The study area is Akoko Region in the Northern Senatorial District of Ondo State, Nigeria (Figure 1 & 2). It lies between latitude 7°19'N and 7°46' North of the Equator and longitude 5°30'E and 6°15' East of the Greenwich Meridian (Figure 3). It covers land area of about 836,970 square kilometer [6]. It has four Local Government Areas, sprawling over 40 settlements. Akoko region is bounded in the East by Edo State, and in the West by Ekiti State. It is also bounded in the North by Kogi State, while in the South by Owo and Ose Local Government Area of Ondo State (Figure 2).

According to Reference [7] the study area is situated in the western upland areas of Nigeria, which is characterized by rugged topography. The land is underlain with the old Pre-Camberian complex basement rocks. These rocks are mainly of gneiss, schist and quartzite with an elevation ranges between 150-500 metres above the sea level. These hills are visible along Owo - Oba Akoko road, between Iwaro and Akungba, also between Akungba and Supare, Ikare, Epinmi, Sosan and Okeagbe Akoko. Because of the nature of basement - rock, access to under ground water is very difficult and the few ones available are seasonal. This makes availability of portable water a goldmine during the dry season. This is more reason why the residents of the area depend mainly on pond water in the absence of public tap, which may not be hygienic enough.

Reference [8] observed that the study area is associated with Tropical Climate. The mean monthly temperature is 27°C (80°f) with very little variation. This implies that cross ventilation need emphasis for comfort relaxation in the area. The size of windows should be standard rather than discretionary. The rainfall is usually torrential in nature and can last for several hours. This usually makes houses with poor materials susceptible to water erosion, especially, those situated on steep terrains.

The soil of the study area is ferruginous type. This is a thick clay soil, which is sticky when wet and becomes solid dry after a while. It is the main material for local housing construction, especially brick-making in the study area. The vegetation of the area is evergreen comprises of various species of hardwoods such as Iroko, Mahogany and Afara. These, among others, are good materials for housing construction.

According Reference [9], the Akoko Region is comprising of four local government areas has the population of 831,843 people. By virtue of function and services, the study area have five urban centers. The first is Ikare which is the commercial center of the region, Okeagbe is the headquater of Akoko North West, Isua is headquater of Akoko South East while Oka is also performing headquarter roles to Akoko South West, while Akungba renders Educational services through the university.

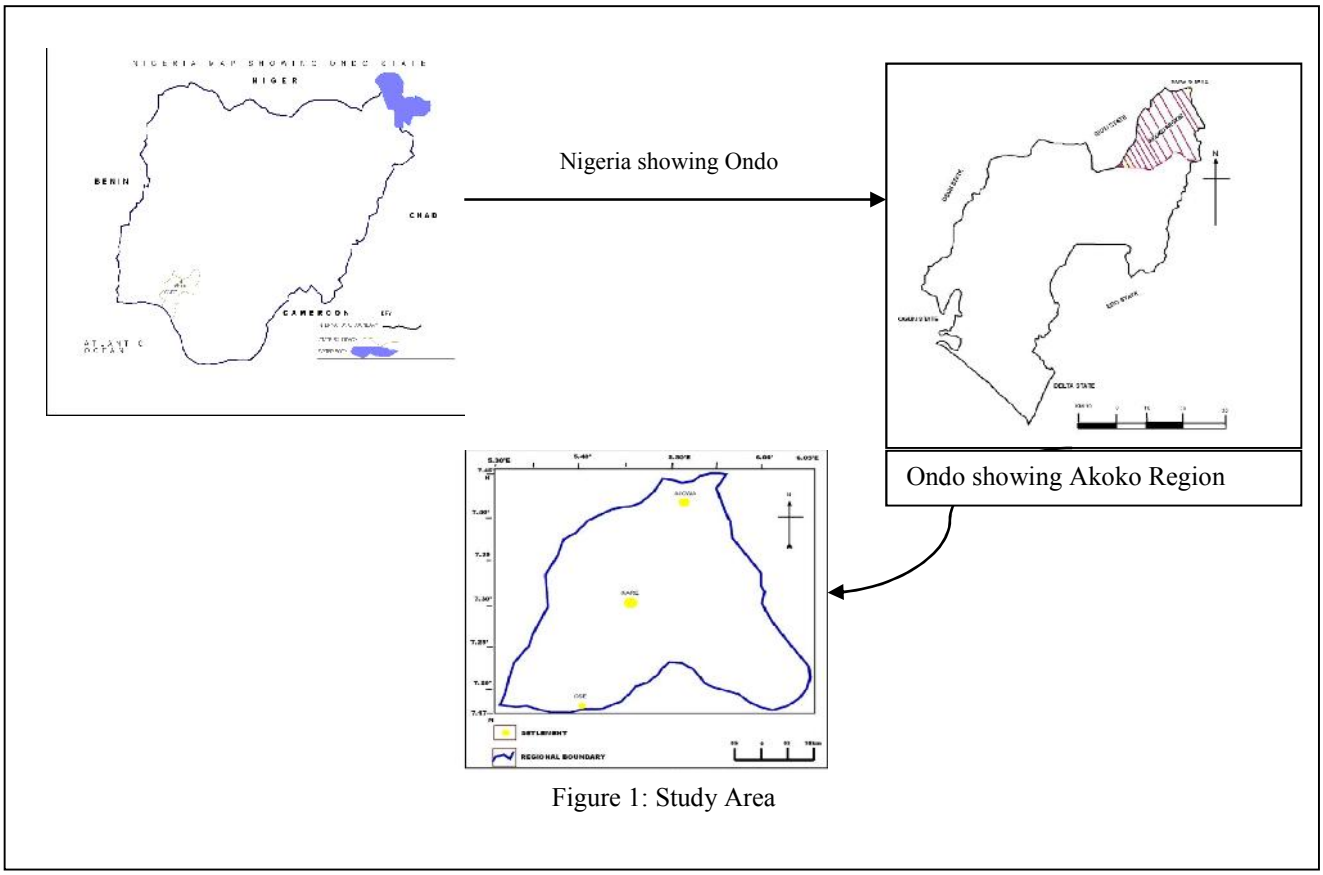

Figure 1: Study Area

3 CONCEPTUAL CLARIFICATION

3.1 HOUSING QUALITY

The Human Concept of housing quality as put forward by Reference [10] is made up of four sub-systems including, the tenant subsystem, the dwelling sub-system, the environmental sub-system and management sub-system and they are interwoven.

Dwelling sub-system - This is the type and quality of dwelling, which include size of compound, size of rooms, internal space and draught, construction quality plumbing and electrical fixture, external aesthetics, children play area such as streets, courtyards, verandas and storage space among others. These qualities are the major determinants of housing quality in the developing world. It may indicate elements for housing satisfaction, which Reference [11] observed to be influenced by the users' need and location.

The environmental sub-system - This is the location of the dwelling. The element of the environment are level of neighbourhood maintenance, level of privacy enjoyed by residents, peaceful / pleasant of the environment in relation to noise and unpleasant smell and number of rooms.

Management Sub-system - This is the institutional arrangement under which the dwelling is being managed or the pattern and type of dwelling management. This constitutes rent assessment, sanitation up keep of the compound, response to repair and regulation management.

Tenant Sub-system - This embraces all the other sub-system of which other subsystem are the textual elements of satisfaction [11]. All the elements of the sub-systems shaped the utility of resident on the quality of housing.

3.2 HOUSING QUALITY INDICATOR MODELS

Reference [12] also adopted housing quality indicator model that identified objective indicator, subjective indicator and

social indicator models.

Objective indicator model - Duel to few Study on housing quality and conditions is quite inadequate especially in this part of the world. Lots of scholars assessed policy formulation and implementation based on fractional parts of housing problems. Objective indicator helps gaining insight into housing problem, while some people felt it is not completes. The study of community housing satisfaction by Reference [7], shed light on objective quality indicator. This conceptual model assumes that satisfaction is different from the feelings of happiness. This is because the basis standard of assessing satisfaction depends largely on the elements used for evaluation. Marans and Rodger posits that general satisfaction depend on 'the physical conditions of the residential environment, the convenience of public and private facilities and services, the size of one's dwelling, the presence of such condition as space, quietness and safety of surrounding. Besides, the most immediate aspect of the residential environment for the individual and the one with which she or he is most closely identified is the private dwelling unit, be that a single family house, apartment, mobile home, or make-shift type.

Subjective indicator model - Reference [13] argue that 'measure of community or subjective indication many prove to be reliable contribution toward the development of multifaceted social indicator. The premise remains is on the level of community satisfaction being identify in particular term and directed at elements of satisfaction. The advocator of subjective indicator believes that subjective indicator is not enough to measure satisfaction level away residents but it is a starting point for the consideration of subjective indicators (perception assessments, satisfactions). It can only grant some understanding of the level of satisfaction. The pattern of satisfaction with housing expressed by various race, age, income, are similar to those of community and neighbourhood. Most of the relationship between personal characteristics and housing satisfaction is medicated by the assessment of specific housing characteristics [14].

When variables like household composition, housing conditions, lengths of occupancy, length of residency in community etc were used a study they usually have similar relationship to income or education an term of level of satisfaction [15]. It was verified with focus on effect of household composition, housing, length of house occupancy and residence into the community, and presence of friends or relatives in the community. The findings suggest that : (1) residents in homes with greater density were more critical on their communities; (2) house owners were no more satisfied with their communities than mere home owners; (3) length of residence in both the house and community were not consistently correlated with satisfaction with the community; and (4) perhaps the presence of relations in the community tends to result in a lower level of satisfaction, while the presence of friends increases the level of satisfactions. Reference [16] measured well-being in terms of sell-on closing serving scale, loud subjective differences in aspirations cross - culturally.

Reference [17] found that subjective evaluations of present and future situations are influenced by race, income and education and that a sense of well-being is supposedly enhanced by familiar people and living environment.

Social Indicator Model reveals a variety of conception of the nature and causes of subjective states of people. The difficulty of isolating even a few pertinent factors which might provide an adequate link between objective and subjective state of reality is apparent. However, one item which, tends to recur in the literature is housing. The walls, floors, and roof, which daily shelter an individual cannot help but continuously include into one's life space.

The indicators of housing quality may appear to be simple, unambiguous, and accurate. Reference [18] contends that this is not the case. His criticisms are three fold; first, existing indicators which rely on condition of structure, plumbing facilities, overcrowding, and rent. Objective do not seem to correlate to people's subjective reaction to their housing situation; second, the census Bureau has acknowledged serious shortcomings in the accuracy, if not meaningfulness of their data on housing; third the few theoretical attempts to deal with constructing new indicators are too limited in their efforts to serve as indicators of overall residential living quality. Marcuse suggests a new theoretical formulation using social indicators to develop new effective housing indicators. He said 'the new social indicators offers one approach to a reformulation of national housing goals.

According to Reference [19], the social indicators will comprise among others the social relation among neighbourhood, opinions about the neighbourhood, General organization and arrangement of the neighbourhood and location of essentials and distance to work, school, market, school among others.

These models are relevant to this work since they addressed the quality of housing and residents responses. Since housing is more than shelter, it is a combination of other essential utilities [2]. The models touch several variables abide dwelling ambient, which affect people in relative to their home. The model gave insight to various aspect of housing and how people perceived what they are using daily and feel everytime. They also helped people to know what they experienced daily where they spend more than 60% of day hours.

4 MATERIALS AND METHODS

Data for the study were collected through primary and secondary sources from Akoko Region. The settlements, as noted in Reference [20], were stratified into sizes using population criterion by considering population above 100,000 as large; those between 20,000 and 100,000 as medium, while less than 20,000 as small. Questionnaires were administered on household heads to draw information on physical housing variables, facilities available, infrastructural services, housing conditions, and health conditions of respondents. Three (3) settlements were purposively chosen as sampling size of which Ikare, Ajowa and Ose were represented with large, medium, and small towns respectively (Table 1). Simple percentages and correlation were used for data analysis. Tables, charts and figures are used for the summary and presentation of data.

Table 1: Sampling Size

Settlement	Status	Population	Housing Units	Selected Units	Percentage
Ikare	Large	152,528	5259	350	6.7%
Ajowa	Medium	24,003	1411	141	10.0%
Ose	Small	2,637	293	58	20.0%
Total		179,168	6963	549	8.0%

Source: Authors' field work, 2013

5 RESULTS AND DISCUSSIONS

5.1 HOUSEHOLD COUNTING

The number of persons in a household for the study area is revealed in table 2. In Ikare, 21.4% have 2 to 5 persons in their households, 30.1% have 6-8 persons, 8.4% have 9-12 persons while 3.3% have more than 12 persons. Ajowa has 13.7% with 2 to 5 persons in a household, 9.6% have 6 to 8 persons, 2.7% have 9-12 persons and Ose 4.3% said they have 2-5 persons, 5.1% have 6 to 8 persons while 1.6% have 9 to 12 persons in their households. The study established that majority of the household counting are above 5 persons and this indicates congestion that may put pressure on housing facilities and induction of related ill-health in the study areas.

Table 2: Number of People in Household

Location	Household Counting									
	2-5		6-8		9-12		> 12		Total	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Ikare	109	21.4	154	30.1	42	8.2	17	3.3	322	63
Ajowa	70	13.7	49	9.6	14	2.7	0	0	133	26
Ose	22	4.3	26	5.1	8	1.6	0	0	56	11
Total	201	39.4	229	44.8	64	12.5	17	3.3	511	100

Source: Authors' Field Work, 2013

5.2 REPORTED ILL-HEALTH IN AKOKO REGION

The recorded number of patients by various health institutions relating is examined and presented in table 3. It was observed that 9.9% were treated for cold in Ikare, 22.9% for sleeplessness, 19.5% for body pains, 7.6% for cough, and 2.1% for itch / rash, 1.1% for difficulty in breathing, 16.3% for malaria, 15.3% for typhoid and 5.3% for diarrhea. In Ajowa, a total of 1139 patients were received, out of which 9.6% have common cold, 2.4% were of sleeplessness, 32.8% have body pains, 5.0% for cough, 1.8% were affected with itch/rash, 0.8% have difficulty in breathing, where 26.7%, 16.0% and 4.9% were affected by malaria, typhoid and diarrhea respectively. In Ose, there were 565 patients received for the period, 8.5% are for common cold, 11.1% for sleeplessness, 18.4% for body pains, 10.8% for cough, 3.2% for itch/rash, 2.3% for difficulty in breathing, 23.7% for malaria, 16.3% for typhoid and 5.7% for diarrhea. The findings indicate body pains and malaria with highest percentage among the identified ailments. The study is related to the observation in Reference [4] who reported that body pains may be attributed to malaria parasites, since body pains are one of its major symptoms. The high occurrence of sleeplessness may not be unconnected with the kind of noise being exposed to in this area where socio-economic activities (such as multipurpose, religious, extreme labour activities) are regularly taken place.

Table 3 : Reported Ill-Health in Government Hospital

No	Ill-Health	SSH Ikare		CHC Ajowa		BHC Ose		Total	
		Count	%	Count	%	Count	%	Count	%
1.	Cold	566	9.9	109	9.6	48	8.5	723	9.7
2.	Sleeplessness	1309	22.9	28	2.4	283	11.1	1400	19.1
3.	Body pains	1116	19.5	373	32.8	104	18.4	1593	21.5
4.	Cough	430	7.5	57	5.4	61	10.8	548	7.4
5.	Itch / rash	121	2.1	21	1.8	18	3.2	160	2.1
6.	Breathing Problem	62	1.1	9	0.8	13	2.3	84	1.1
7.	Malaria	931	16.3	304	26.7	134	23.7	1369	18.5
8.	Typhoid	873	15.3	182	16.0	92	16.3	1147	15.4
9.	Diarrhea	302	5.3	56	4.9	32	5.7	390	5.2
Total		5710	100	1139	100	565	100	7414	100

Source: Government Health Centers, 2013
SSH: State Specialist Hospital, CHC: Comprehensive Health Centre, BHC: Basic Health Centre

5.3 INTER-RELATIONSHIP BETWEEN HOUSING CONDITIONS AND REPORTED ILL-HEALTH

The correlation output matrix of the study is presented in table 4. This shows the relationship between housing condition and environment-induced ill-health reported by residents in the study area. The variables under consideration include: type of houses (block or hand-mold), house models, water sources, building surroundings, source of power, waste point, flood prone, soil conditions, noise, room(s) per household, numbers in household and year of construction, condition of roof, wall, toilet, kitchen, store, access to road, security, food protection, fire safety and drainage system; while reported ill-healths include; cold, sleeplessness, body pain, cough, itch/rash, breathing problem, malaria, typhoid and diarrhea. The reported ill-health is dependent variables, while the housing quality variables were set as independent variables.

Correlation analysis revealed level of inter-relationship between house model, house surroundings, waste point, conditions of roof, building wall, available toilet, kitchen, store, pets intrusion, ventilation, temperature, food protection, drainage, number of persons in household and cold. Also, body pains is related to conditions of roof and house model; whereby, cough and condition of wall, room temperature, type of house have an established relationships. Condition of kitchen, room temperature, house model are related with and itch/rash; conditions of wall and house model determine breathing problem; where malaria is connected with condition of wall, room temperature, house model, and waste point proximity. It was equally observed that typhoid and diarrhea are associated with ventilation and house model.

Table 4: correlation between Housing conditions and reported ill-health

Housing Condition	Cold	Sleeplessness	Body pain	Cough	Itch/rash	Difficult in breathing	Malarial	Typhoid	Diarrhea
Roofing Condition	.040	-.008	.121**	.056	.167*	.052	.110*	.114*	-.010
Wall	.098*	-.013	.078	.118**	.113*	.128**	.142**	.084	.032
Toilet	.056	-.067	.075	.047	.006	-.018	.049	-.093*	-.015
Kitchen	.014	-.001	.052	.105*	.129**	.067	.091*	.080	.050
Store	.052	-.091*	.023	-.63	-.023	-.120**	-.025	.017	-.103*
Access to pets	-.040	.010	.078	.110*	.106*	.102*	.094*	.078	.068
Ventilation	.063	.039	.075	.069	.069	.006	.087*	.123**	-.049
Temperature	.063	.067	.076	.123**	.116**	.065	.126**	.144**	.-.001.
Access to road	.083	.008	-.096*	.105*	.030	-.016	.090*	.060	-.002
Security	-.010	.073	-.153**	.193**	.142**	.064	.105*	.138**	.169**
Food protect	.095*	.047	.107*	.063	.089*	.015-	.001	.067	.009
Safety Measure	.095*	.047	-.074	.089*	.068	-.033	-.002	.067	-.025
Drainage	-.001	-.049	-.042	.049	-.035	-.059	.032	-.059	-.058
Type of house	.061	.039	.105*	.129**	.016	.021	.057	-.130**	.029
Model	.058	.050	.160**	.108*	.166**	.178**	.093*	.120**	.111*
Water sources	.093*	.100*	-.056	.017	-.024	-.087*	-.031	-.034	-.076
Surroundings	.037	.017	.102*	.056	.071	-.039	-.010	-.054	.021
Power	-.123*	-.186*	-.051	-.131**	-.145**	-.209**	-.032	-.037	-.183**
Waste point	-.009	-.020	.109*	.010	.017	.113*	.120**	.078	-.022
Flood prone	.056	.054	-.058	.031	.015	.026	-.114	-.185**	.026
Soil control	.033	-.061	.081*	.063	-.056	.005	-.039	-.104*	-.053
Noise	-.156**	-.056	.227**	.031	.038	.059	.035	-.094*	.003
Room/household	.042	-.009	.020	-.006	.007	-.028	.020	-.018	-.046
Nos/household	.162**	.086	.025	.074	-.018	.076	.103*	.090*	-.058
Year of construction	-.087	.007	-.007	.003	-.027	-.121**	-.052	-.063	-.068

**correlation is significant at 0.05 level. **correlation is significant at 0.01 level*
Source: Authors' Survey, 2013

The above relationships show that the conditions of health in the study area varied with diverse influence of the above housing conditions in the study area. In additions, the wall, room temperature and house model accounted for the highest numbers of correlated patterns that play significant roles in the state of health conditions of the residents. It is generally clear that stable consideration for proper housing condition is pre-requisite to averting the incidence of reported ill-health in this area.

6 Conclusions And Recommendations

The study revealed the relationship between housing quality and health conditions of Akoko region in Ondo State, Nigeria. It was established that body pains and malaria have the highest proportion of 18.4% and 23.7% respectively among the identified ailments in the study area. This suggests that ill-health is multifaceted problems that dominates human immediate environment. The study therefore recommends that accessibility to quality housing should be prioritized by the people. Standard housing conditions has to be incorporated with such factors that include adequate hygiene, sanitation, and precautionary habits on unhealthy practices among other things for sustainable healthy living. This practice will check the incidence of living in unhealthy environment as identified in the study area.

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International Journal of Innovation and Scientific Research
ISSN 2351-8014 Vol. 2 No. 1 Jun. 2014, pp. 143-151
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http://www.ijisr.issr-journals.org/

CONSUMER PREFERENCE FOR CASSAVA PRODUCTS VERSUS DIFFERENT PROCESSING TECHNOLOGIES

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ABSTRACT: This study was proposed to explore the determinants of consumer preferences for cassava mechanically processed products. It was conducted in Pwani and Tanga regions in Tanzania. Primary data were generated from 120 consumers who were randomly selected with the use of questionnaire. The probit regression analysis was applied to determine the variables which influenced the consumers' preference for mechanically cassava processed products versus other processing technologies. The analysis suggests that quality of mechanically processed products, household size and quantity consumed per year were important factors that increase the probability of consumers' preference for mechanically processed cassava products versus different processing technologies in the study areas at $\alpha = 0.05$ significance level. On the other hand, price of the product was significant factor that reduce the probability of consumers' preference for mechanically processed cassava products versus different processing technologies in the study areas at the same significance level. Thus the study recommended that Processors and other stakeholders of the cassava sub sectors (SUA, Ministry of Agriculture, Food Security and cooperatives, NGOs and owners of the businesses) should focus on designing marketing strategy that integrates all the above attributes so that their products and services can satisfy customers' needs and wants.

KEYWORDS: cassava, consumer preference, mechanically processed cassava, probit regression analysis.

INTRODUCTION

Cassava (*Manihot esculenta* Crantz) is the starchy root crop that is grown almost entirely within the tropics. Although it is one of the most important crops in the tropical countries, it is little known elsewhere in some parts within the tropics, and considered to be a low grade substance crop (Cock, 2001).

Cassava ranks second in the list of staple food crops in developing countries after maize (Nweke, 2003). In sub-Saharan Africa, cassava is grown chiefly as human food, but it is also an important animal feed and has several industrial uses. Being one of cheapest source of food energy, cassava gives a carbohydrate production per hectare which is about 40% higher than rice and 25% more than maize. Thus cassava plays a major role in meeting developing countries' rising demand for consumption of both food and animal feed (Tonukari, 2004).

The total area harvested in the world in 2005 was about 16 million hectares, with 57% in Africa, 25% in Asia and 18% in Latin America. About 15% of the world's population of cassava is exported to Europe and Japan as chips, pellets and/or starch. The starch is used in food industries, textiles, paper industries and in beer brewing. The remaining 85% of the world production is used within the producing countries for food (58%), animal feed (28%) and industrial uses (3%) where the wastage is about 11% (CIAT, 1993).

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The area of land planted with cassava is greatest in Africa, but yields are lower than other continents, where in 2005 Africa, Asia and Latin America had 12 354 000, 3 429 000 and 2 649 000 hectares of land planted with cassava whereas productions were 109 755, 56 082 and 34 094 (000 metric tonnes) respectively (Prakash, 2008). Africa is the only part of the world where per capital food production has been declining in the last two decades, although cassava production has nearly double during the same period (De Bruijin and Fresco, 1999). Most cassava in Africa is produced by female farmers for food and is consumed near to where it is grown. There is a growing commercial market for cassava in Africa and men are gradually being involved in the production of cassava in Nigeria, Ghana and Democratic Republic of Congo (DRC) (FAO, 1995).

Cassava for human consumption is greatest in Africa, averaging to 409.5 g of fresh and dried cassava per capita per day. The highest consumption is found in Angola with 787 g per capita per day (Nhassico *et al*., 2008). The starch roots are the most commonly consumed part, but the leaves are also consumed as preferred green vegetable in many cassava-growing communities, especially in Central Africa (Hahn, 1998).

Both the tuber and leaves of cassava contain Cyanogenic glucosides, which may lead to toxicity if cassava is not properly processed. Safe consumption of cassava thus depends on successful removal of cyanogens. Depending on the processing methods used, the percentage of cyanide reduction varies from 70 to 100% (Nwapa, 1986). In order to minimize the cyanogens content, cassava is processed by different traditional methods, which includes fermentation (wet and solid-state) and drying. However, in solid state fermentation and drying, there is proliferation of spoilage and pathogenic micro-organisms on cassava, some of which may produce mycotoxins (Nwapa, 1986). The resulting flour is coloured thus not appealing to the consumer. This dissertation sought to evaluate the introduced cassava processing technologies on production and consumption using goal programming approach.

In Tanzania, cassava is grown in most parts of the country. However, chief growing areas are Tanga, Mwanza, Pwani and Lindi regions. In recent years, cassava is also grown in other parts of the country as a result of Government efforts to stimulate local self-sufficiency in food supply (Nang'ayo *et al*., 2007); as such, making cassava the most important root crop in the country. Despite its importance, Tanzania is estimated to produce 6.3 million tons of cassava per year.

Cassava is very high in starch and can grow even in areas with marginal rainfall, with possibility of contributing greatly to livelihood support. This led to insistence from policy makers and other bodies in the past to grow cassava as a food security crop. The main inherent problems with cassava include high perishability of the edible roots within 2-3 days after harvesting, high level cyanogenic glucosides in some variation (Mlingi and Ndunguru, 2003) and low nutritional value as it is mainly composed of starch. These have led to marginalization of the crop in terms of production and consumption, which have made it more of a subsistence crop. In addition, there exists stigma in some transects of Tanzanians to regard cassava as a poor man's food, therefore reduced production and consumption of cassava and increased vulnerability of cassava farmers to poverty (Mlingi and Ndunguru, 2003).

One solution to the perishability problem has been to leave the crop in the field and harvest in piecemeal only where there is need but this is uneconomical because it ties up the land unnecessarily. Another one has been to transfer the risk by selling the crop to businessman while still in the field at price set arbitrary and often very low, which gives very little income to farmers and thus a disincentive to increased cassava production. A noble solution has been to process the roots into shelf-stable product, for example flour but the methods used are still inadequate as in most area they are tedious, rudimentary and unhygienic, often leading to insufficient processing and poor quality products (Silayo *at al*., 2004).

However, mechanical chipping of cassava roots instead of manual chipping has been introduced, but the technology has not yet been reached by majority of cassava growers in terms of knowledge and physical ownership. The cyanide problem has been successfully dealt with through proper processing, e.g. dry and wet fermentation (Silayo *at al*., 2004). In recent years, the Programme for Agricultural and Natural Resources Transformation for Improved Livelihood (PANTIL) introduced the solutions of selection of low cyanide varieties and the processing machines which grant cassava prior to subsequent processing.

Grating and chipping machines have been introduced in few villages in Pwani, Dar-es-salaam and Tanga regions as a detoxification-method whereby High Quality Cassava Floor (HQCF) has been produced. However, the determinants for consumer preference on HQCF are not yet clearly established. Therefore, this paper was proposed to establish the factors which determine the consumer preference on the introduced cassava processing technologies' products.

The present paper focuses on the determinants of consumer preferences for cassava mechanically processed products. The principal research question is: How income, price, quantity of the product consumed and service quality, education level, household's size, age and sex do, clearly established determinants of cassava processed products choice.

LITERATURE ON CASSAVA PROCESSING TECHNOLOGIES

Three cassava processing technologies have been reviewed in this study, which includes traditional processing technology, wet and solid-state fermentation and mechanical processing technologies which have been recently introduced in Tanzania.

Traditional cassava processing technologies used in Africa probably originated from tropical America, particularly north-eastern Brazil and may have been adapted from indigenous techniques for processing yams (Jones, 2003). The processing methods include peeling, boiling, steaming, slicing, soaking or seeping, pounding, roasting and drying. These traditional methods give low product yields, which are also of low quality (Montagnac *et al.,* 2009).

Wet and solid-state fermentation cassava processing technology is a combination of two processing technologies that means wet fermentation and solid-state fermentation, reported to be very efficient in cyanide removal (Montagnac *et al.,* 2009) but resulted in high losses in nutrients of high value, such as proteins, carbohydrates, minerals, and vitamins (Hotz and Gibson, 2007).

Mechanical processing technology for cassava involves using chipping and grating machines, pressing devices, mills, gari fryers, and sifters (IITA, 1996). The technology involves chipping, grating and crushing which are usually very efficient in cyanide removal because they completely rupture plant cells of cassava and allow direct contact between linamarase and linamarin (Cardoso *et al.,* 2005).

CONSUMER'S PREFERENCE FOR CASSAVA PROCESSING TECHNOLOGIES PRODUCTS

The preference of any product is basically determined by a number of products. However the cassava processing technologies products can be influenced by the following factors:-

i) Quality of cassava products: In Ghana and Nigeria there is high quality traditionally processed cassava products such as *agbelima, fufu, gari and kokonte* which are mostly preferred by the people (Jumah *et al.,* 2008) have shown that traditional *fufu* accounts for the largest share 40% of the Ghanaian household budget for cassava food products.

Contrary, in Tanzania two governmental institutions that is Sokoine University of Agriculture (SUA) and the Ministry of Agriculture and Food Security (MAFS) under a joint project Tanzania Agricultural Research Project Phase II (TARPII-SUA) had implemented two cassava post-harvest researches. One of these was on processing of cassava for human consumption (Project 029) implemented in Magindu village (Kibaha district) and Songabatini village (Muheza district). The few successes realized included introduction, testing and adoption of chipping and grating machines by two farmers groups in these villages, invention of Kebab-looking food product (*kibabu*), and formulation of wheat-cassava flour buns, *chapatti* and *futari* (Laswai, *et al*., 2005; Silayo *et al*., 2004).

ii) Consumer's income: In Africa, cassava is a marginalized crop in food policy debates because it is burdened with the stigma of being an inferior, a low protein food that is uncompetitive with glamour crops such a imported rice and wheat. Many food policy analysts consider cassava an inferior food because it is assumed its per capita consumption will decline with increase of per capita income (Nweke, 2003).

iii) Education of the consumers: The consumers' education level also affected their preference for certain food products. Generally, people tend to process cassava roots mainly into traditional foods as *fufu* (Nigeria) or *bada/Makopa* (Tanzania). Widowati and Hartojo (2000) in their study on production and use of cassava flour in Indonesia revealed that more than 70% of those with formal education processed cassava into traditional foods while those with higher education level seemed to use cassava flour for preparing more alternative cassava products as buns, chapatti and chips.

iv) Household's size: Household's size played a very important role in explaining preference in cassava processed products. Jumah *et al.* (2008) found that the mean household size to be four and the number of persons consuming certain cassava products per household was found to be three. This implies that over 70% of the persons in households were consuming cassava products. Other factors which have been seen to influence the preference for cassava processed products were age, sex and how frequently cassava products were eaten or quantity consumed (Tomlins *et al*., 2007).

METHODOLOGY

Description of the Study Area

Location of the study area

This research was conducted in two regions which are Tanga and Pwani regions. The regions are situated on the Eastern part of Tanzania mainland along the Indian Ocean coastal belt. Economically, the coastal regions have a typical agricultural economy with more than 90% of its population depending on agriculture. The research was conducted at Tongwe village in Muheza District (Tanga region) and at Mikongeni village in Kibaha district (Pwani region). These have been chosen because cassava is widely cultivated by many farmers and cassava processing technologies (both traditional and mechanical) are used. Moreover, the study areas are in close proximity to urban markets such as Tanga and Dar es Salaam where there is potential growing demand for cassava and its respective products.

Economic activity

Economically, Pwani and Tanga regions have a typical agriculture economy with more than 90% of its population depending on agriculture. In the year 1996 Gross regional income of Pwani and Tanga regions were estimated as TZS 20.8 billion and TZS 92.8 billion respectively. Pwani region has lowest GDP per capita (TZS 28 149) while Tanga region has a GDP per capita of TZS 60 021. In 1994, Pwani and Tanga regions ranked last and 9th in the contribution to the National GDP, in which their contributions were 1% and 5.5% respectively according to NBS (1997). In 2002/03, Pwani and Tanga regions were among the most prominent cassava producing regions, contributing to about 17% of the total cassava produced in the country.

Cassava ranks the second after maize in terms of household producing it, area planted, and production volume in the country (MOA, 2003). In 2001/02 the crop contributed about 29% of food produced in the country preceded by maize which contributed about 49% of total volume of food (NBS, 2007).

Research Design

The research design for this study was a cross –sectional, where data were collected at a single point in time. The reason for choosing this design is simply because it is flexible, economical and easy to manipulate data and information (Bailey, 1994).

Sampling procedure and sample size

Purposeful sampling was used to select two villages where there is an on-going PANTIL cassava project. In this respect the village close to Kibaha town (Pwani region) and the other village more than 10 km off Muheza town (Tanga region), which situated along Arusha – Tanga main road were chosen, the villages were Mikongeni and Tongwe respectively. Then proportionate stratified sampling based on their income (i.e. those with low income versus those with high income) was employed.

Thereafter, random sampling was employed to get a sample of 30 respondents from each stratum. Ultimately sample of 120 respondents were used for this study. A sample size of 30 respondents is deemed large enough (Wooldridge, 2008). The Central Limit Theorem (CLT) states that the average from a random sample for any population, with finite variance, has an asymptotic standard normal distribution. Most estimators encountered in statistics and econometrics can be written as functions of sample averages (Wooldridge, 2002). Therefore, the t-statistic was used as inference test of the model, based on the law of large numbers and the Central Limit theorem (CLT).

DATA COLLECTION

Structured questionnaires with both closed and open-ended questions, group discussions and observation were used as methods for collecting primary data. Data were collected through interview of the sampled households and key informants who were the village chairmen and agricultural field officers to each village. The key variables asked were the farmers (household) characteristics, household sources of income, cassava production, processing (traditional, wet and dry and mechanical) and consumption.

The experimentations were used to collect information on efficiency (in terms of operational, time, fuel consumption) of the mechanical processing technology from the study area. The experiments were conducted by taking 5 kg of chunks/pieces of pealed cassava into each machine (manual cassava chipper, engine powered cassava chipper and cassava grater). The time used to process the cassava by each machine was recorded by using stopwatch as a pilot, and then the experiments were repeated four times, whereas deep stick was used to measure the fuel level. Secondary data were collected by reviewing document from the respective District Agriculture Departments, Ministry of Agriculture, Food Security and Cooperatives, International Institute for Tropical Agriculture (IITA) reports, Sokoine National Agricultural Library (SNAL) and Internet.

DATA ANALYSIS

The study employed the probit regression analysis to determine the significance of the number of factors which contribute to the consumer's preference (Eastwood *et al*., 1987) for cassava processed products to the household. Variables included in the model were income of the household, family size, number of years in schooling, gender of the household head, quality of the processed products, age of the household head and price of the processed products. In estimating probit regression model, the maximum likelihood estimation techniques were commonly used (Hennessy and Rehman, 2008). The consumer's preference for mechanically processed products by the household was estimated by maximum likelihood methods as shown in equation (6) as follows;

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + ... + \beta_7 X_7 + \varepsilon \quad \text{.....(6)}$$

Where;

Y= Preference for mechanical processed products (1= technology preference; 0 otherwise),

α = Constant,

X_1 = Income of the household (low, high),

X_2 = Quantity consumed by the household in bags,

X_3 = Household's size,

X_4 = Price of processed cassava products,

X_5= Quality of the processed products (1= Mechanical processing technology; 0 otherwise),

X_6 = Number of years in schooling,

X_7 = Sex of the household head (1= male; 0 = otherwise),

X_8 = Age of the household head,

ε = The error term.

RESULTS AND DISCUSSIONS

Social-economic Characteristics of the Respondents

Characteristics of respondents interviewed have important social and economic implications towards factors influencing cassava production and consumption. For example, family characteristics such as age usually influence the quantity of the agricultural output. Therefore, this section describes the characteristics of sampled respondents, focusing on age, gender, household size and education level.

Age of the respondents

The distribution of farmers according to age is presented in Table 1. Results show that majority of the respondents (67.5%) were above 36 years of age and people with active age (17 to 55 years) constituted 80.8% of total respondents. Meanwhile, respondents aged above 55 years were 19.2%. Basing on the information above, it is clear that in the study area the working force is available and able to work in agriculture as their main economic activity but large percentage (48.3%) of the sampled cassava farmers are falling in the age of 35 to 55 years (Table 1).

Sex of the respondents

Result in Table 1, shows that, about 63% of the respondents were male and the remaining 37% were female. Skewed results were expected since men are the household heads to whom the interview was directed. As far as cassava production is concern as observed by TADENA (2004), access and use of land for cassava production is not gender biased. Either of the sexes can get involved in cassava production. There is no bias when it comes to providing access to farmland for women. Likewise, there are no important cultural beliefs and practices that are likely to affect the development of cassava. The results also show that 32% and 38% of the men and women respectively within sampled households were using mechanized cassava processing technology.

Household's size of the respondents

Results in Table 1 shows that about 23.3% of the sizes of the household range from 1 to 3 members and 59% of the household sizes have members ranging between 4 and 6 and only 17.5% of the sampled households were above 6 household's members. Therefore, majority of the households (76.7%) have 4 members and above, which signifies that there is enough work force due to the fact that majority of population in the study area fall in the age of 17-55 years.

Table 1: Social-economic characteristics (n=120)

Variable	Categories	Frequency	Percentage
Age	17-35	39	32.5
	36-55	58	48.3
	>55	23	19.2
Gender	Male	75	62.5
	Female	45	37.5
Household size	1-3	28	23.3
	4-6	71	59.2
	>6	21	17.5
Education level	No formal education	22	18.3
	Standard four (iv)	3	2.5
	Primary education	74	61.7
	Secondary education	21	17.5

Education of the respondents

Education is one of the factors that influence cassava production. A farmer with formal education is likely to be innovative or adoptive to new technologies than a farmer with no formal education whereas other factors remain constant. The study revealed a moderate rate of literacy in the study area. Results on level of education showed that respondents in the study area have attained formal education. The majority of sampled household heads in the study area (61.7%) and (17.5%) had attained primary education and secondary education respectively. These findings support the observation by the assessment of agricultural marketing information needs study (URT, 2004), which found that there is a large number of farmers with primary education and above. This shows that, the introduced cassava processing technology could be easily adopted in the study area because most of the farmers have formal education although the adoption depends with the efficiency of the technology and its profitability to the farmers.

CASSAVA PROCESSING TECHNOLOGIES USED IN STUDY AREA

In Tanzania there are main three technologies that are commonly used for processing cassava; these are traditional sun drying of plain chunks (Makopa), traditional wet and solid-state fermentation and mechanical processing technology.

Traditional (drying) cassava processing technology is consummated by peeling and cutting the fresh cassava into large pieces before being left for drying process. Traditional wet and solid-state fermentation cassava processing technology is accomplished by peeling and cutting the fresh cassava into large pieces like in the production of unfermented chunks/pieces traditional (drying), then the chunks/pieces are soaked into water for 5-6 days, before being dried.

Mechanical processing technology is sub divided into two processes, which are grating and chipping processes. The grating is a technology which processes peeled cassava to produce very tiny (grated) cassava particles. The grated cassava therefore, is pressed in a pressing machine for dewatering process in order to reduce water content. Hence, it becomes easy to reduce the remained moisture content through sun-drying. The process is especially applied to varieties with high cyanide content.

The chipping process is a technology that produces small chips as compared to traditional (drying) and traditional (wet and solid-state fermentation). This is applied to varieties with low cyanide content. The type of equipment used are mostly made up of stainless still which are user friendly since it has harmless (poison free) effect to the products as well as consumers, for instance, rusting.

ANALYSIS OF CONSUMER'S PREFERENCE OF CASSAVA FLOUR BY METHOD OF PREPARATION

As noted in the methodology, the analysis was done to examine the consumer's preference for cassava mechanically processing products. The study revealed that, there were consumers of the mechanical processed products versus non users. Consequently, the analysis was centred on variation of variables in relation to cassava consumption versus different technologies.

The results from the consumer's preference for mechanically processed cassava products in Table 2, show the likelihood ratio statistic of the suggested model was significant (P < 0.05), correctly predicting participation in 74.2% of the cases. Therefore the most significant influencing consumer's preferences factors for mechanically processed products of cassava were quality of the product, quantity consumed, household size and price of the processed products.

The quality of the products was one of the most influencing factors for consumer's preference for mechanically processed products; it is positively related to the consumer's preference and statistically significant (p < 0.01). Being of high quality products increased the probability by 0.497 (marginal effect) to opt for mechanically processed products. This result was confirmed by Laswai *et al*. (2005) and Silayo *et al*. (2004) who found that the high quality processed products were mostly preferred by people.

The quantity consumed by the household was statistically significant (p < 0.05) and positively related to the consumer's preference for cassava mechanically processed products (Table 2). This implies that a unit increase in quantity consumed increases the probability to prefer mechanically processed products by 0.166 (marginal effect).

Table 2 also indicates that household size was statistically significant (p < 0.05) and positively correlated to preference of the mechanically processed cassava products. This suggests that an increase in household size by one unit (person) increases the probability of preference to mechanically processed products by 0.223 (marginal effect).

Table 2: Probit regression analysis results for consumer's preference

Variable	Coefficients	Std. Error	Probability	Marginal effects
Age	0.016	0.216	0.464	0.003
Sex	- 0.399	0.492	0.418	-0.074
Education	0.052	0.076	0.499	0.009
Household's size	1.199	0.355	0.001*	0.223
Income level	0.396	0.451	0.379	0.074
Quality of products	2.312	0.591	0.000**	0.497
Quantity consumed	0.893	0261	0.001*	0.166
Price	-1.099	0.523	0.036*	-0.291
Constant	-3.630	1.375	0.008	

Log likelihood value = -26.24, Likelihood ratio statistics χ_8^2 = 94.11, Pseudo R^2 = 64.19%, % of correct prediction = 74.2%, Number of observation (N) = 120, **statistically significant at *P* < 0.01, *statistically significant at *P* < 0.05.

The price of the product was statistically significant (p < 0.05) but negatively related to cassava mechanically processed products. This means that an increase in one unit for price caused a decrease in probability option to cassava mechanically processed products by 0.219 (marginal effect). This conforms with the Law of Supply and Demand which states that the high the price the low the quantity demanded and vice versa, at a given point in time *ceteris paribus.* Also there are other factors which contributed slightly with positive relationship but not significant like age and education whereas gender had a negative relationship.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions:

This study was meant to explore the determinants of consumer preferences in mechanically processed cassava products in Pwani and Tanga region in Tanzania. Using consumer behavior literatures and theories it was hypothesized that disposable income, price, quality and quantity of the processed product consumed, as important determinants of consumer choice for

the products. The hypotheses were tested with the data gathered from 120 respondents applying the probit regression analysis, and the following conclusions were generated.

The analysis of the data result reveals that quality of mechanically processed products; household size and quantity consumed per year were important factors that increase the probability of consumers' preference for mechanically processed cassava products versus different processing technologies in the study areas. On the other hand, price of the product was significant factor that reduce the probability of consumers' preference for mechanically processed cassava products versus different processing technologies in the study areas. Other factors such as age of household head, gender of the household head, education level and income level were not significant.

Recommendations:

These results suggest that processors of cassava should not only compete on the basis of quality, but also on other attributes identified by the study as important determinants of consumer preferential choices. Processors and other stakeholders of the cassava sub sectors (SUA, Ministry of Agriculture, Food Security and cooperatives, NGOs and owners of the businesses) should focus on designing marketing strategy that integrates all the above attributes so that their products and services can satisfy customers' needs and wants.

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International Journal of Innovation and Scientific Research
ISSN 2351-8014 Vol. 2 No. 1 Jun. 2014, pp. 152-163
© 2014 Innovative Space of Scientific Research Journals
http://www.ijisr.issr-journals.org/

Changement d'utilisation des terres et dégradation des sols en zone aride. Cas du sud du Hodna, Algérie

[Land use change and soils degradation in arid area. A case study of south Hodna, Algeria]

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RESUME: Depuis quelques décennies, la zone du Hodna, zone aride de l'Algérie, est soumise à une mise en culture en irrigué en utilisant les eaux souterraines. Le problème de la dégradation des sols au sud du Hodna a été abordé en étudiant les sols de surface de quatre sites et des témoins non cultivés. L'utilisation des analyses statistiques (ANOVA, ACP et test de conformité de moyenne) a permet de caractériser les sols, d'étudier la variation des paramètres pédologiques et de déterminer les facteurs influençant l'évolution des sols.

Les sols en surface sont peu calcaires et non gypseux. Ils sont influencés par la fraction grossière et sont, par voie de conséquence, perméables. Les sols présentent un pH alcalin et sont pour la plupart non ou légèrement salés. L'analyse en composante principale indique clairement que la morphogenèse hydrique et éolienne constitue le principal facteur qui influence les sols de la zone d'étude. La salinité et le gypse sont des facteurs secondaires. Les résultats montrent aussi que les sols, où l'intensité de la mise en valeur en irrigué est la plus intense notamment le site D et B, sont soumis au processus d'ensablement. L'évaluation de l'efficacité des aménagements hydro agricoles dans cette région exige, ici plus qu'ailleurs, un suivi de la qualité des sols et des eaux sans oublier, dans ce contexte, l'intérêt de la vulgarisation agricole.

MOTS-CLEFS: Hodna, paramètres pédologiques, analyses statistiques, ensablement, dégradation.

ABSTRACT: In recent decades, Southern Hodna, an arid region of Algeria, is subject to an agricultural development with irrigation using groundwater. The problem of land degradation in this area has been studied by the characterization of surface soils at four sites and uncultivated control samples. The use of statistical analysis (ANOVA, PCA and comparing a mean to a standard) was used to characterize the soil, to study the variation of soil parameters and to determine the factors affecting soils evolution. Generally, the surface soils have a low proportion of limestone and the gypsum is almost absent. They are influenced by the coarse fraction and are, consequently, permeable. The soils have an alkaline pH and are mostly not or lightly saline. The principal component analysis indicates that the water and wind morphogenesis is the main factor influencing the soils of the study area. Salinity and gypsum are secondary factors. The results also show that soils, where the intensity of development in irrigation is the most intense particular site D and B, are subject to silting process. The evaluation of efficiency of hydro-agricultural requires, here more than elsewhere, monitoring water quality and soil and not forgetting, in this context, special importance to agricultural extension.

KEYWORDS: Hodna, soil parameters, statistical analysis, siltation, degradation.

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1 INTRODUCTION

Dans les milieux steppiques, suite à l'accroissement démographique et à la sédentarisation d'une partie croissante de la population, on assiste actuellement à une extension rapide de l'agriculture au détriment des meilleures zones pastorales dont la végétation naturelle est détruite par des moyens mécaniques de plus en plus puissants. Cette destruction est également aggravée par l'accroissement de la pression animale sur les surfaces pastorales et par le prélèvement des produits ligneux destiné à la satisfaction des besoins en combustibles. Plusieurs travaux menés sur les milieux steppiques en Algérie ont révélé une amplification de la dégradation de cet écosystème [1], [2], [3], [4], [5], [6], [7], [8].

Le sud du Hodna, appelée aussi zone du R'mel (zone de sable), est une zone pastorale qui a connu, depuis quelques décennies, des changements importants de l'utilisation des ressources en eau et en sol [9], [10], [11], [12]. Depuis le début des années 1970 une mise en culture en irrigué s'est développée dans cette région faisant rupture avec sa vocation pastorale. Ce milieu steppique, marqué par des conditions physiques sévères, a subi une évolution importante en matière d'utilisation des ressources en eau et en sols en relation avec les politiques agricoles adoptées [9], [13], [14]. Les surfaces agricoles ont connu une extension aux dépens de parcours, et l'utilisation des potentialités en eau souterraine a permis le développement des superficies irriguées. L'évolution rapide d'usage des terres et les différentes pressions exercées sur l'environnement (d'ordre naturel et anthropique) exigent de faire un constat et d'établir un bilan de l'évolution du milieu. Depuis quelques décennies, on assiste dans le Sud du Hodna à une rapide transformation du paysage due principalement à l'ensablement, une des manifestations de la désertification. Ce phénomène constitue un défi majeur auquel les populations sont à l'heure actuelle confrontées.

Dans ce travail, Il s'agit de caractériser les sols de plusieurs zones agricoles et des témoins non cultivés, d'étudier la variation des paramètres pédologiques et de déterminer les facteurs influençant l'évolution des sols. L'objectif est d'aborder l'impact de la mise en culture en irrigué sur la dégradation des sols d'une zone aride de l'Algérie.

2 PHYSIOGRAPHIE

Le Hodna, localisée en zone aride au centre de l'Algérie, est une cuvette de 8500 km^2, très déprimée et entourée de massifs montagneux. Elle présente en son centre le Chott El Hodna (lac Salé) de 1100 km^2 qui sert d'exutoire aux Oueds dont les plus importants viennent du Nord.

La zone Sud du Hodna est constituée de dunes de sable, de dépôt alluviaux récents et de collines rocheuses isolées (cas de Djbel Meharga, 900 m). Cette zone est aussi sous l'influence d'une forte érosion éolienne. En effet, constituée de terrains légers sans tapis végétal consistant et constamment ameublis par les labours, le Sud du Hodna est le siège d'une érosion éolienne intense. En outre, il est drainé par de nombreux oueds. Les crues de ces derniers contribuent au lessivage des sels du sol en profondeur et à l'enrichissement du sol par les limons qu'elles transportent.

3 CLIMAT

Le climat du sud du Hodna est aride. La caractéristique essentielle du climat du Hodna est l'extrême variabilité des précipitations dans l'espace et dans le temps [9]. Selon les données de la station météorologique de Ain Diss (Sud du Hodna), la pluviométrie moyenne annuelle est de l'ordre de 172 mm répartie sur 57 jours pluvieux venant souvent sous forme d'averse, la température moyenne annuelle est de 19,4 °C et l'évapotranspiration potentielle d'environ 1422 mm/an. Les vents sont relativement fréquents dans cette région. On enregistre 59,7 jours de sirocco et 69,4 jours de vent de sable au cours de l'année. L'humidité relative moyenne est faible, elle est plus élevée en hiver qu'en été. Elle varie d'environ 27% en Juillet à 59% en Janvier. La moyenne annuelle est de l'ordre de 43 %. La radiation solaire est importante dans la région car l'atmosphère présente une grande clarté durant toute l'année. La durée d'insolation moyenne est de 8,2 heures par jour.

4 SOLS

Les sols, en majorité sableux, présentent des caractères salins, calcaires ou gypseux ou soumis à l'effet de la nappe phréatique ou à l'érosion éolienne. D'une manière générale, à cause de leur texture et leur faible teneur en matière organique, le niveau de fertilité est faible (faibles capacités d'échange ionique et de rétention en eau) ; le recours à la fertilisation et aux amendements organiques est indispensable pour assurer des rendements acceptables. Toutefois, la fertilisation est pratiquée d'une manière empirique.

En se référant à la carte pédolgique du Hodna [15], La zone soumise à la mise en valeur agricole en irriguée présente les principaux types de sols suivants selon la CPCS 1967 [16] :

- sols minéraux bruts non climatiques d'apport alluvial et minéraux bruts xérique inorganisés d'apport.
- sols peu évolués non climatiques d'apport alluvial et éolien,

- sols hydromorhes minéraux ou peu humifères à redistribution de calcaire ou gypse à encroûtement gypseux.
- sols halomorphes à structure non dégradée et/ou dégradée, salins à alcalis.

5 MISE EN CULTURE EN IRRIGUE ET CHANGEMENT DE L'OCCUPATION DES SOLS

La mise en culture en irriguée a commencé en 1976 environ dans le cadre de la révolution agraire avec comme objectif d'irriguer 300 ha à partir de la nappe en charge sous jacente [9]. Après une trentaine d'années, on a constaté une progression des surfaces cultivées, une diminution des zones de parcours et une augmentation de l'ensablement [17]. La réduction des superficies des parcours et leur dégradation est due non seulement à des causes climatiques mais aussi et surtout au surpâturage et à l'extension des surfaces agricoles ayant comme résultat une érosion éolienne [13] avec formation de surfaces dunaires.

L'agriculture s'est développée là où les potentialités en eau ont été mises en évidence. C'est à dire dans la zone sableuse du sud du Chott. Selon les données de la Direction des services agricoles (DSA), la superficie agricole utile (SAU) avoisine 42 000 ha. Les superficies irriguées ont enregistré une extension considérable depuis la mise en valeur en irrigué. Ainsi, les superficies irriguées avoisinent 21 000 ha ce qui représente approximativement 50% de la SAU.

6 MATERIEL ET METHODES

Après un examen des documents disponibles relatifs à la zone d'étude, des prospections de reconnaissance ont été faites au préalable dont le but de prendre connaissance du degré de complexité du terrain et du milieu dans son ensemble. Au terme de cette phase préliminaire, nous avons choisi la zone d'étude en se basant, d'une part, sur la diversité du paysage et de son aspect morphologique (zones d'accumulation de sable, zones affectées par les crues des oueds et la zone chotteuse), et d'autre part, sur la localisation de la zone affectée par la mise en culture en irrigué.

Nous nous somme intéressé à la couche arable influencée par le travail du sol. L'objectif est de vérifier les changements des caractéristiques de sol suite à la mise en culture en irrigué. Quatre sites présentant des diversités morphologiques ont été retenus (figure 1). Le site A est constitué de terres marginales destinées aux parcours ; la mise en valeur est récente. Le site B est une zone agricole de fertilité moyenne. Le site C est une zone affectée par la nappe phréatique, les sels et même par le sable et enfin le site D est une zone d'expansion des crues ou zone inondable. Il constitue les meilleures terres fertiles et favorables à l'agriculture.

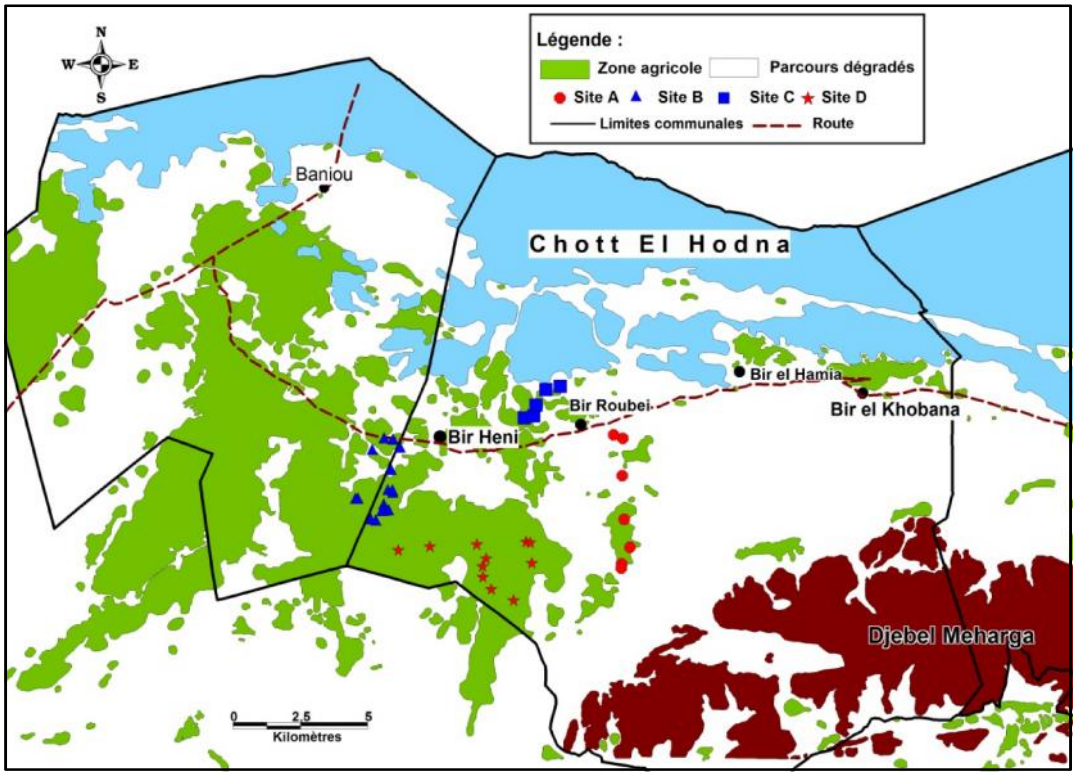

Fig. 1. Localisation des sites d'échantillonnage de sol

Pour chaque site, un témoin non irrigué, constituant l'état de référence, a été également échantillonné de la même manière. Au total, les sols de 40 parcelles irriguées, ayant des superficies inférieures à 5 ha, ont été échantillonnés sur une

profondeur de 0 à 30 cm. Les parcelles échantillonnées ont été irriguées durant des périodes variables. Les cultures pratiquées sont les céréales, l'arboriculture et le maraîchage. Il est cependant important de signaler qu'au sud du Hodna, où les sols sont dominés par la texture grossière, la pratique de l'irrigation par planche est généralisée et les quantités d'eau apportées semblent être au-delà des besoins des cultures et du lessivage.

6.1 ANALYSE DES SOLS ET TRAITEMENT DES ECHANTILLONS

Les échantillons de sols ont été séchés à l'air libre puis tamisés à 2 mm. Les méthodes analytiques utilisées sont celles décrites par Mathieu et Pieltain [18], [19]. La granulométrie par la méthode à la pipette Robinson, la perméabilité en utilisant la méthode des colonnes à charge constante et mesure sur échantillons remaniés avec l'application de loi de Darcy. Le calcaire total en utilisant le calcimètre Bernard, la capacité d'échange cationique par la méthode à l'acétate d'ammonium à pH 7, la conductivité électrique (CE) en utilisant une suspension sol/ eau 1:5, le carbone organique par la méthode Walkley-Black, le pH mesuré sur une solution avec un rapport sol-eau de 1:2,5. Enfin, le gypse a été déterminé par la méthode de chauffage proposée par Vieillefon [20].

Le traitement statistique des données a été réalisé par le logiciel Statistica V6. Trois méthodes ont été utilisées :

- Analyse de la variance entre sites (ANOVA).
- Analyse en composantes principales (ACP) des différents paramètres pédologiques.
- Test de conformité d'une moyenne [21]. Il s'agit de la comparaison d'une moyenne observée et d'une moyenne théorique [22].

7 RESULTATS ET DISCUSSION

7.1 ANALYSE GLOBALE DES ECHANTILLONS DE SOL

Dans cette caractérisation des échantillons de surface, on a pris en considération huit paramètres pédologiques : le calcaire, le gypse, la perméabilité, la texture, la capacité d'échange cationique (CEC), la conductivité électrique (CE), le pH et la matière organique. Les statistiques descriptives des résultats analytiques de tous les échantillons et les échantillons classés par site regroupant la moyenne et les valeurs limites sont représentées dans les tableaux (1 et 2).

Selon les résultats obtenus, on peut faire les constations suivantes :

- Généralement, les sols en surface sont peu calcaires et non gypseux. Ils sont influencés par la fraction grossière et sont, par voie de conséquence, perméables. Les sols présentent un pH alcalin et sont pour la plupart non ou légèrement salés.

Tableau 1. Statistiques descriptives des échantillons de sol

	N	Moyenne	Médiane	Minimum	Maximum	Ecart-type
Argile+ Limon fin (%)	40	21,38	19,50	0,00	52,00	13,68
Matière organique (%)	40	0,44	0,43	0,07	0,89	0,22
CEC (mé/100 g sol)	40	7,86	6,91	3,00	17,05	3,80
$CaCO_3$ (%)	40	13,30	13,72	0,99	29,11	6,96
Gypse (%)	40	0,76	0,00	0,00	22,15	3,58
Conductivité électrique CE (µS/m)	40	948,32	395,00	130,00	9770,00	1628,93
Limon grossier (%)	40	12,08	9,00	0,00	37,00	11,16
perméabilité K (cm/h)	40	6,95	5,24	1,43	35,30	5,96
Sables (%)	40	64,50	65,50	26,00	98,00	15,84
pH	40	7,81	7,82	7,06	8,41	0,29

- le site D est une zone relativement fertile en comparaison avec les autres sites. En effet, il bénéficie des crues de petits oueds qui traversent cette région et profite des limons calcaires qu'il transporte. De tels milieux qu'on peut trouver au sud du Hodna, mais qui n'ont pas fait l'objet d'étude dans ce travail, méritent une attention particulière. Compte tenu des possibilités limitées de mise en valeur des terres en irrigué dans cette région et dans la perspective d'une meilleure utilisation de ces terres dans le cadre du développement durable, ces endroits devraient d'être surveillés et protégés et des travaux de recherches doivent être focalisés pour une exploitation raisonnable.

- la salinisation et l'hydromorphie, qui autrefois caractérisent ses sols, sont moins marquants suite au retrait de la nappe phréatique.

- l'analyse statistique (ANOVA) a met en évidence des différences significatives entre les paramètres pédologiques des sites étudiés. Les résultats ainsi obtenus confirment bien les observations faites au cours de la prospection sur le terrain. Ceci traduit, d'une part, une bonne représentativité des sites retenus et, d'autre part, soutient les conclusions qui pourraient être émises à travers ses résultats.

Tableau 2. Moyenne et valeurs limites des analyses du sol des différents sites

	Moyenne Valeurs limites	Site A (n=6)	Site B (n=19)	Site C (n=5)	Site D (n=10)	ANOVA
Argile +Limon fin (%)	M	8,6667	21,21	11,8	34,1	P<0,001
	VL	2-20	0-39	2-30	15-52	
Matière organique (%)	M	0,3350	0,43	0,38	0,55	P=0,2
	VL	0,07-0,74	0,09-0,74	0,1-0,76	0,26-0,89	
CEC me/100 g sol	M	3,7817	8,87	4,23	10,22	P<0,001
	VL	3-4,81	4,15-13,79	3-6,11	5,69-17,05	
$CaCO_3$ (%)	M	8,8700	12,56	5,24	21,41	P<0,001
	VL	3,45-15,39	5,33-19,14	0,99-12,04	15,1-29,11	
Gypse (%)	M	0,1750	0,38	4,43	0	
	VL	0-1,05	0-5,34	0-22,15	0-0	
Conductivité électrique (CE µS/m)	M	948,8333	854,63	2341,52	429,41	P=0,86
	VL	203-2710	157,2-3080	130-98	197,1-807,0	
Limon grossier (%)	M	6,8333	13,47	16,2	10,5	
	VL	0-27	0-35	5-37	2-29	
Perméabilité K (cm/h)	M	12,3900	4,73	12,66	5,08	P=0,001
	VL	5,6-17,64	1,49-9,18	4,08-35,3	1,43-8,79	
Sables (%)	M	81,1667	63,16	70	54,3	P=0,005
	VL	72-98	39-78	48-98	26-86	
pH	M	7,8450	7,85	7,66	7,81	P=0,2
	VL	7,36-8,4	7,5-8,4	7,06-8,32	7,5-8,2	

7.2 ANALYSE EN COMPOSANTE PRINCIPALE (ACP)

L'étude statistique par l'analyse en composantes principales (A.C.P) a été effectuée sur un tableau de 40 individus (observations) et 9 variables. Les variables utilisées sont : Argile+limonfin (Alf), limon grossier (LG), sable fin+sable grossier (S), matière organique (MO), capacité d'échange cationique (CEC), perméabilité (K), calcaire total (Cal), gypse (Gypse) et conductivité électrique (CE). La reconstitution finale de la distribution des paramètres pédologiques (caractéristiques du sol), nous a permis de définir les axes factoriels ou facteurs responsables de cette distribution et par conséquent, faire ressortir les affinités entre les différents paramètres pédologiques (caractéristiques du sol) et déduire les paramètres qui les caractérisent au mieux.

Les trois premiers axes expriment 80% de la variance totale ; avec 48% pour le premier axe ; 19,7% pour le deuxième axe et 12,7% pour le troisième axe. Le tableau 3 exprime les valeurs propres de la matrice des coefficients de corrélation, le pourcentage de variance expliquée ainsi que celui de la variance cumulée pour chacun des axes.

L'observation de la matrice de corrélation des 09 paramètres étudiés (tableau 4) montre les faits suivants :

Tout d'abord, un premier groupe constitué d'éléments texturaux (argile et limon fin), la CEC, la matière organique et le calcaire sont interdépendants et présentent des corrélations positives. Un deuxième groupe formé par les sables et le coefficient de perméabilité K présente une corrélation positive. Ces deux groupes sont négativement corrélés.

Le gypse dans les échantillons de surface est généralement absent (90% de cas). Lorsqu'il est présent, il est corrélé négativement avec le calcaire, relation habituellement présentée dans les travaux relatifs aux sols gypseux [15]. Il est aussi corrélé avec le limon grossier ce qui suggère une individualisation de ce sel dans cette dimension.

La salinité globale, représentée par la conductivité électrique (CE), ne présente aucune corrélation avec les autres paramètres pédologiques sauf avec le coefficient de perméabilité K (r= 0,66) ; ce coefficient de corrélation doit être interprété avec précaution. En effet, cette corrélation est induite par l'échantillon sableux ayant la valeur la plus élevé de la CE, et avec l'éliminant de cet échantillon de l'analyse la relation devient non significative avec r= 0,29.

Ce premier résultat nous laisse penser que les paramètres pédologiques : gypse, limon grossier et CE ne semblent pas expliquer d'une manière très nette les changements au niveau de la surface du sol, ils ne constituent donc pas des variables essentielles à traiter dans l'ACP.

L'observation des corrélations entre les variables et les axes principaux (Tableau 5) montre que l'axe 1 est très bien corrélé positivement à matière organique, capacité d'échange cationique et Calcaire et négativement avec les sables et la perméabilité. L'axe 2 présente une très bonne corrélation positive avec le limon grossier et le gypse. Par ailleurs, l'axe 3 est corrélé positivement avec la conductivité électrique.

Tableau 3. Distribution des valeurs propres et de la variance selon les différents axes factoriels dans les échantillons de surface.

Axes	Valeur propre	% variance expliquée	% variance cumulée
1	**4,32**	**48,0**	**48**
2	**1,77**	**19,7**	**68**
3	**1,14**	**12,7**	**80**
4	0,63	7,0	87
5	0,40	4,4	92
6	0,33	3,6	95
7	0,21	2,4	98
8	0,17	1,9	100
9	0,03	0,3	100

Tableau 4. Matrice de corrélation

	Argile+ Limon fin	**Limon grossier**	**Sables**	**Matière organique**	**CEC**	**Perméabilité**	**Calcaire**	**Gypse**	**Conductivité électrique**
Argile+Limon fin	1								
Limon grossier	-0,22	1							
Sables	**-0,73**	**-0,45**	1						
Matière organique	**0,70**	0,07	**-0,63**	1					
CEC	**0,70**	-0,01	**-0,60**	**0,58**	1				
Perméabilité	**-0,54**	-0,18	**0,63**	**-0,44**	**-0,53**	1			
Calcaire	**0,81**	0,03	**-0,69**	**0,63**	**0,68**	**-0,54**	1		
Gypse	-0,22	**0,44**	-0,15	-0,02	-0,18	-0,07	**-0,32**	1	
Conductivité électrique	-0,22	-0,04	0,29	-0,09	-0,18	**0,66**	-0,24	-0,09	1

L'observation du graphe de la figure (2) qui est une représentation formée par les deux premiers axes principaux (plan 1x2) fournit 67,68% de l'information contenue dans le nuage de points.

Le premier plan factoriel représente (47,98+19,70) de la variance, ce qui est considérable ; le premier axe reflète près de la moitié de la variance.

Dans ce plan (axe1x2), on constate tout d'abord que les variables éléments fins (argile+ limon fin), CEC, Calcaire, matière organique se trouvent en abscisses positives alors que le sable grossier et perméabilité en abscisses négatives. Le limon grossier et le gypse se localisent en ordonnées positives.

Tableau 5. Corrélations variables/axes principaux

	Axe 1	Axe 2	Axe 3
Limon grossier	0,1102	**0,8111**	0,3478
Matière organique	**0,7728**	-0,0511	0,3179
CEC	**0,8082**	-0,1706	0,1043
Perméabilité K	**-0,7650**	-0,2887	0,4291
Calcaire total	**0,8729**	-0,2214	0,0865
Gypse	-0,1130	**0,8106**	0,1199
Conductivité électrique CE	-0,4125	-0,3146	**0,8096**
Sables	**-0,8600**	-0,3291	-0,2108
Argile+Limon fin	**0,8865**	-0,2941	0,0572

Cette disposition des variables permet de repérer un premier groupe homogène formé des éléments fin, de la CEC et de la matière organique qui évoluent dans le même sens témoignant d'une morphogenèse hydrique, et s'opposant aux éléments grossiers (sables) et la forte perméabilité du sol caractérisant une morphogenèse éolienne.

Le premier axe représente les deux phénomènes majeurs qui marquent l'évolution des sols de cette région. Il s'agit des zones qui bénéficiés des crues des oueds qui favorisent la régénération de la fertilité du sol par les apports des limons calcaires et les zones soumis aux effets des apports éoliens qui favorise la dégradation des sols sous l'action éolienne. Ces deux processus constituent donc le mécanisme principal de l'évolution de ces sols.

Le second axe représente l'individualisation du gypse qui semble se produire dans la fraction limon grossier mais qui reste un phénomène secondaire dans l'évolution des échantillons de surface dans cette région.

L'observation du graphe de la figure (3) qui est une représentation formée par les axes principaux 1 et 3 (plan 1x3) fournit 60,67% de l'information contenue dans le nuage de points.

Dans ce plan (axe1x3), on observe tout d'abord en abscisse les mêmes variables représentées dans la figure précédente, tandis que la salinité globale, représentée par la conductivité électrique (CE), se trouve en ordonnée positive.

Cette disposition nous permet de faire les mêmes constatations que précédemment. En effet, on retrouve les mêmes éléments expliquant la fertilité et la dégradation des sols portés sur le premier axe.

Le troisième axe représente la salinité globale qui constitue un phénomène secondaire dans l'évolution des échantillons de surface dans cette région.

Selon la figure (4), on constate que l'agencement horizontal des individus indique la fertilité des sols et dans le sens opposé la dégradation des sols. Par ailleurs, si on considère ces individus selon leur agencement vertical, on remarque que leur arrangement se fait selon leur teneur en gypse. Selon la figure (5), on constate que l'agencement horizontal des individus se fait de la même manière que dans la figure (4). Cependant, si on considère ces individus selon leur agencement vertical, on remarque que leur arrangement se fait selon leur salinité.

En conclusion, on peut dire que de l'approche statistique il faut retenir une opposition entre éléments : Ceux qui favorise la fertilité des sols dont l'évolution est liée à la présence des éléments fins (CEC, calcaire, matière organique) et ceux qui favorise la dégradation des sols dont l'évolution est lié au sables (perméabilité) ; l'individualisation du gypse et la salinité ne semble pas avoir un effet important sur l'évolution des sols en surface dans la zone d'étude.

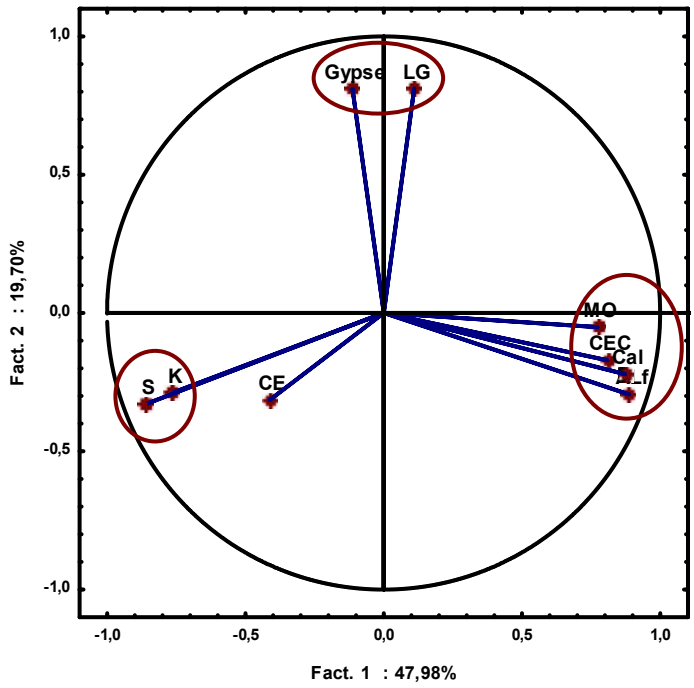

Fig. 2. ACP des sols en surface, représentation des variables dans le plan 1x2

(S : Sables, Alf : Argile+limon fin, LG : Limon grossier, K : Coefficient de perméabilité, Cal : Calcaire total, MO : Matière organique, CEC : Capacité d'échange cationique).

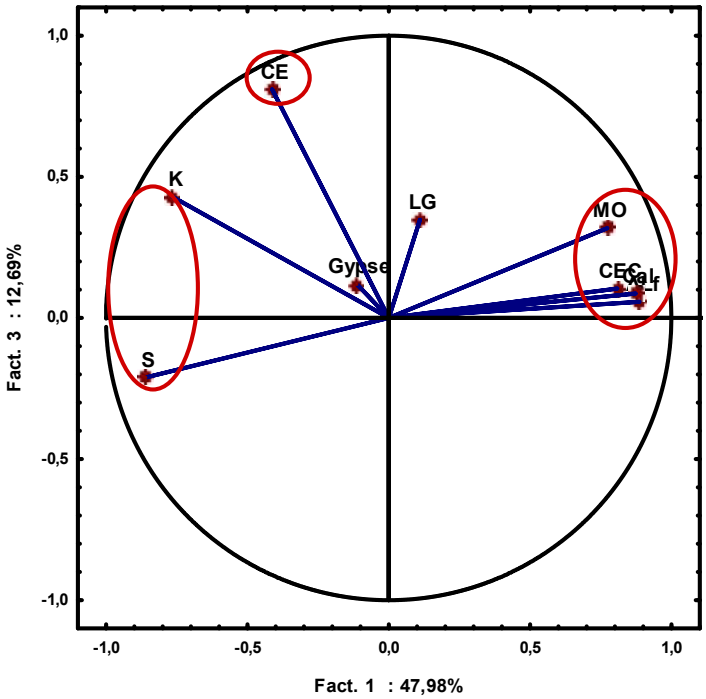

Fig. 3. ACP des sols en surface, représentation des variables dans le plan 1x3

(S : Sables, Alf : Argile+limon fin, LG : Limon grossier, K : Coefficient de perméabilité, Cal : Calcaire total, MO : Matière organique, CEC : Capacité d'échange cationique).

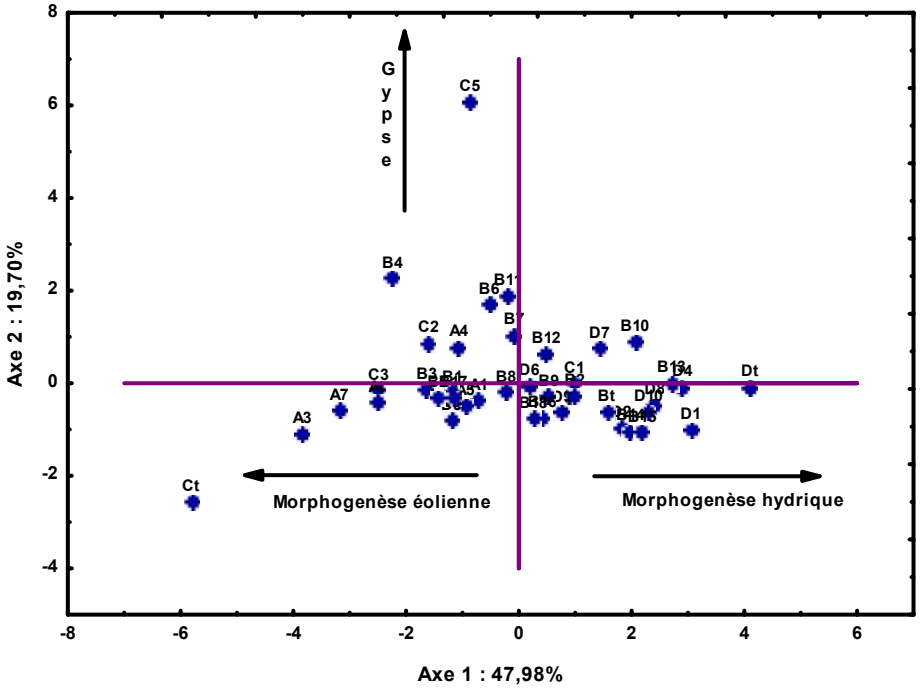

Fig. 4. ACP des sols en surface, représentation des individus dans le plan 1x2.

(A, B, C, et D : les sites d'échantillonnage).

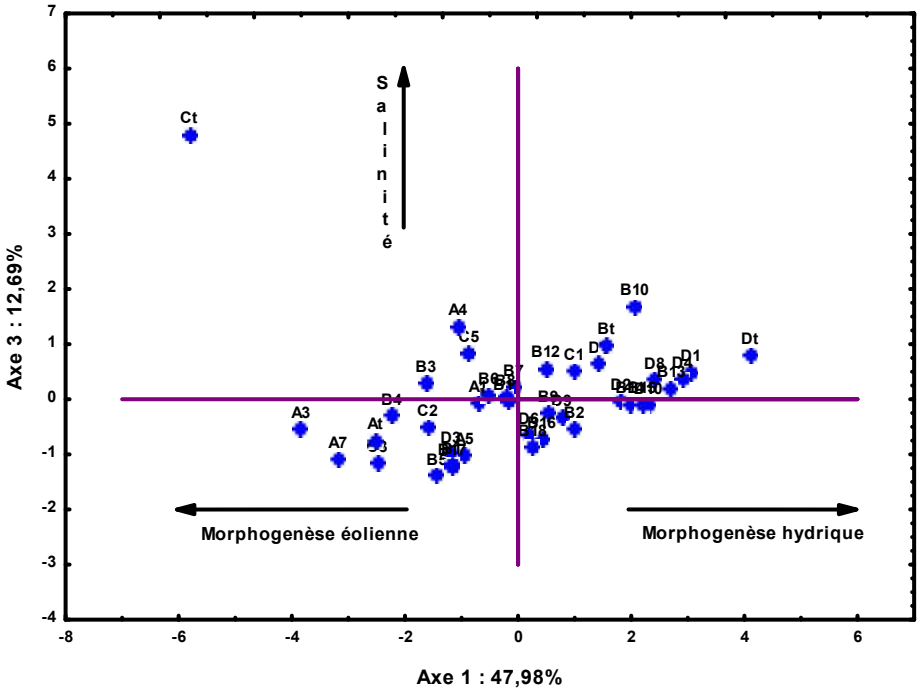

Fig.5. ACP des sols en surface, représentation des individus dans le plan 1x3.

(A, B, C, et D : les sites d'échantillonnage).

7.3 EVOLUTION DES PARAMETRES PEDOLOGIQUES

Dans le but de mettre le point sur l'état de la dégradation des sols suite à la mise en culture en irrigué dans les sites choisis en s'appuyant sur l'utilisation de tests statistiques, on a comparé, pour chaque paramètre pédologique étudié, la

moyenne du site à un témoin (référence) du même site qui a été échantillonné de la même manière et qui reflète le sol naturel non perturbé par l'action humaine. L'objectif est aussi de vérifier les paramètres qui contribuent le plus à la dégradation des sols dans cette région suite au changement d'utilisation des terres. Les paramètres pédologiques pris en considération sont ceux qui présentent une forte corrélation et dont l'analyse en composante principale a révélé une interdépendance sur le terrain. Les résultats obtenus (Tableau 6) permettent de faire les remarques suivantes :

-Pour le site D, le test t indique une différence significative entre la moyenne et le témoin pour les paramètres pédologiques fraction fine, sables et calcaires (Tableau 6). Ces résultats confirment que le changement de l'utilisation des terres par mise en culture en irrigué des zones autrefois consacrées au parcours dans ce site à engendrer une dégradation des terres qui se manifeste par :

- Une variation texturale se traduisant par une augmentation des sables et une diminution de la fraction fine favorisant ainsi un processus d'ensablement dans les zones agricoles de ce site.
- Une augmentation de la salinité globale dans les zones irriguées quoique toujours inférieure au seuil critique mais pouvant induire à la longue une salinisation secondaire.

-Pour le site de B, le test t montre une différence significative entre la moyenne et le témoin pour les paramètres pédologiques suivants :

Fraction fine, sables, calcaire, perméabilité et CEC (Tableau 6). De même, le test non paramétrique indique une différence significative de la CE ($Z=3,72$ et $p<0,01$).

Ces résultats nous permettent de faire les mêmes observations que pour le site de D. De plus, on enregistre une différence significative avec la CEC et la perméabilité qui semble être en relation avec les teneurs en argile et limon fin dans la fraction fine considérée et du taux des sables fins et des sables grossiers.

-Pour le site A, on n'a pas observé de différence significative entre les paramètres pédologiques et leurs témoins.

-Pour le site C, le test t montre uniquement une différence significative entre le limon grossier et son témoin.

Tableau 6. Test statistique de la comparaison d'une moyenne avec un témoin.

	Variable	Moyenne	Valeur de « t »	P
Site D	**$CaCO_3$**	20,70	4,47	**0,002**
	Sables	57,44	6,99	**<0,001**
	Argile+Limon fin	32,11	6,31	**<0,001**
Site B	**CEC**	8,65	6,22	**<0,001**
	Perméabilité K	4,85	4,30	**<0,001**
	$CaCO_3$	12,33	4,38	**<0,001**
	Sables	64	6,30	**<0,001**
	Argile+Limon fin	20,33	6,15	**<0,001**
Site C	**Limon grossierG**	11	6.47	**<0,001**

Les valeurs en gras indiquent une différence significative au seuil 5%.

Des résultats du test de conformité de la moyenne, on peut faire les constatations suivantes :

-Il ressort clairement que les sols, où l'intensité de la mise en valeur en irrigué est la plus intense notamment le site de D et B, sont soumis au processus d'ensablement. L'érosion éolienne constitue un phénomène qui menace l'environnement. Dans notre région, cette dégradation se manifeste par un changement textural qui s'exprime par une augmentation des sables et une diminution des éléments fin.

-Les sites de D et B, où l'action anthropique est la plus ancienne, malgré le passage des eaux des crues sur ces terres et l'utilisation des eaux de nappe profonde de qualité meilleure que celle de la nappe phréatique, présentent des signes de salinisation secondaire.

En surface, la comparaison des échantillons de sols irrigués avec des témoins révèle un changement textural. Les résultats obtenus indiquent une augmentation des sables contre une diminution de la fraction argile+limon. Ce résultat mérite une attention particulière car cet aspect est insuffisamment traité dans la littérature [25]. Par contre, les changements des propriétés du sol, dans les milieux steppiques, causés par le surpâturage ont été rapportés dans plusieurs travaux [26], [27], [28].

La cartographie de la de sensibilité à la désertification de la région steppiques en Algérie [23] , [5] démontre une évolution phénoménale de ce fléau naturel qui s'accélère selon un rythme d'environ 40 000 ha/an. Les études menées dans la steppe témoignent d'une forte vitesse de dégradation du milieu avec comme conséquences la réduction du couvert végétal, l'ensablement, la désertification et leur impact sur le plan socio-économique de ces régions [1], [23], [5], [24]. La zone sud du Hodna n'échappe pas à ce problème, elle est confrontée elle aussi à un problème d'ensablement très inquiétant.

Les causes de cet ensablement sont liées à des périodes de sécheresse parfois prolongées mais surtout à l'action anthropique qui se manifeste dans cette région par le défrichement des terres pour l'agriculture et le surpâturage [13]. En effet, L'extension de l'ensablement au sud du Hodna est en relation directe avec l'extension des surfaces irriguées aux dépens des parcours. Les labours et la jachère prolongée exposent le sol à l'érosion éolienne et la réduction des parcours aux dépens de l'évolution des surfaces irriguées favorise la surexploitation des maigres parcours déjà dégradés dans cette steppe sableuse. A l'état actuel, l'ensablement constitue le principal problème de dégradation rencontré qui menace la durabilité des aménagements hydro-agricoles.

8 CONCLUSION

Cette étude porte sur les changements d'utilisation des terres et son impact sur la dégradation des ressources en sols au Sud du Hodna, zone aride de l'Algérie. Cette région steppique, marqué par des conditions physiques sévères, a subit une évolution importante en matière d'utilisation des ressources en eau et en sols en relation avec les politiques agricoles adoptées. Les surfaces agricoles ont connu une extension au dépends des surfaces des parcours, et l'utilisation des potentialités en eau souterraine a permis le développement des superficies irriguées.

L'étude des paramètres pédologiques de l'horizon de surface de quatre sites et des témoins a été réalisée. L'application de tests statistiques (ANOVA, ACP et test de conformité de moyenne) a permet d'aborder l'évolution des sols et le problème de leur dégradation. Les résultats obtenus montrent que cette région est sous la dépendance d'une morphogenèse hydrique et éolienne ; la salinité et le gypse sont des facteurs secondaires. Les sites, où l'intensité de mise en culture en irrigué est intense sont le siège d'ensablement ce qui peut compromettre la durabilité des aménagements hydro-agricoles si des mesures ne sont pas prise. A cet effet, la mise en place d'un système expert de suivi de la qualité des sols et des eaux parallèlement à un dispositif de vulgarisation des agriculteurs serait indispensable.

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International Journal of Innovation and Scientific Research
ISSN 2351-8014 Vol. 2 No. 1 Jun. 2014, pp. 164-176
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http://www.ijisr.issr-journals.org/

Capital social et croissance économique : analyse empirique sur données de panel

[Social capital and economic growth: empirical analysis of panel data]

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ABSTRACT: This article analyzes the relationship between social capital and economic growth for a panel of developed and developing countries during the period 1990-2004, using static and dynamic panel data method and a simultaneous equations model. The main results of this study are, first, the level of social capital and growth are significantly and positively correlated, on the other hand, a high level of social capital as an indirect effect on economic activity through its effect on institutional development. The results support the fact that the improvement of the social infrastructure with high levels of trust and cooperation between individuals not only a direct but also an indirect effect on economic growth through the development of institutions in economy.

KEYWORDS: Social capital, economic growth, institutional quality, panel data, GMM.

RESUME: Cet article analyse la relation entre le capital social et la croissance économique pour un panel de pays développés et en développement au cours de la période 1990-2004. Notre étude sera effectuée en utilisant la méthode des données de panel statique et dynamique, ainsi qu'un modèle à équations simultanées. Les principaux résultats de cette étude sont, d'abord, le niveau du capital social et la croissance sont significativement et positivement corrélés, d'autre part, un niveau élevé de capital social a aussi un effet indirect sur l'activité économique par son effet sur le développement institutionnel. Les résultats corroborent le fait que l'amélioration de l'infrastructure sociale à des niveaux élevés de confiance et de coopération entre les individus n'a pas seulement un effet direct, mais aussi un effet indirect sur la croissance économique par le développement des institutions dans l'économie.

MOTS-CLEFS: Capital social, croissance économique, qualité institutionnel, données de panel, MMG.

1 INTRODUCTION

Après la publication de la contribution fondamentale de [1] sur le rôle de l'infrastructure sociale sur la performance de la croissance régionale en Italie, une attention croissante a été donc consacrée à cette question. À la fin des années quatre-vingt-dix, la littérature sur la croissance a vu une contribution envahissante cherchant à résoudre le lien possible entre une diffusion généralisée de la confiance, l'accumulation du capital et les modes de développement ([2], [3], [4], [5]).

La principale caractéristique de cette littérature c'est que le comportement des agents dépend toujours des facteurs qualitatifs, tels que les normes sociales et culturelles dans le sens que les relations de confiance et un climat de coopération sont aussi importantes que les mesures classiques et peut générer des externalités positives dans le processus de production. Cette nouvelle orientation en économie du développement traduit une nouvelle méthode de recherche tente de combler l'écart qui sépare la société de l'économie.

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Ainsi, le capital social peut avoir un impact positif sur le processus de développement et en particulier sur la croissance économique. Il offre un formidable moyen potentiel d'établir une distinction entre les pays et leurs perspectives de croissance ([4], [6]). Le nombre croissant d'études sur le capital social a poussé les institutions financières internationales à recommander, dans leurs politiques de développement, la considération du capital social entant qu'instrument politique et de renforcer toutes les actions qui sont susceptibles de promouvoir la participation volontaire à des organisations civiles.

Cependant, malgré le volume des investigations empiriques des effets exercés par les aspects sociaux, traduites par le terme de capital social, sur l'activité économique. A notre connaissance, il n'existe pas d'études qui ont présenté un intérêt des impacts de la croissance sur le capital social. Généralement, nous constatons dans l'analyse empirique une corrélation positive et significative de l'effet du capital social sur le taux de croissance du PIB par habitant, mais sans insister sur les différents canaux de transmission. En d'autres termes, outre l'effet direct que le capital social peut exercer sur la croissance économique, la structure sociale peut également avoir des effets indirects sur l'activité réelle par le biais d'autres variables qui, à leurs tours, affectent la croissance.

2 ROLE DU CAPITAL SOCIAL DANS LE PROCESSUS DE LA CROISSANCE ECONOMIQUE : REVUE DE LA LITTERATURE THEORIQUE ET EMPIRIQUE

2.1 LA LITTERATURE THEORIQUE

La relation entre capital social et performance économique a fait l'objet de nombreuses études au cours de la dernière décennie. Cependant le concept n'est pas nouveau et remonte au moins à [7] qui a souligné l'importance de la participation communautaire dans l'amélioration de la performance scolaire. L'auteur définit le capital social comme *« ces substances tangibles qui comptent le plus dans la vie quotidienne des gens à savoir, la bonne volonté, la camaraderie, la sympathie et les relations sociales entre individus et familles ».* Plus tard, [8] a utilisé le concept de capital social pour tenir compte du déclin économique du sud de l'Italie. D'autres travaux ont fait usage de ce terme, parfois avec des variations dans la signification ([9] et [10]) pour suggérer que la mobilisation des relations sociales et la coopération peuvent aider les individus à améliorer leur bien-être.

Mais, la popularisation de ce concept, pendant les dernières décennies, est due à [11] qui s'est aussi servi de la notion de capital social pour faire référence à certains types de ressources qui découlent de l'appartenance à des associations, communautés et réseaux sociaux. Pour [11] : *« Le capital social est l'ensemble des ressources actuelles ou potentielles qui sont liées à la possession d'un réseau durable de relation plus ou moins institutionnalisées, ou en d'autres terme, à l'appartenance à un groupe ».* [12] a donné une nouvelle dimension à ce concept en le définissant par sa fonction, où il est reconnu comme une variété d'entités avec deux éléments communs : des caractéristiques de structures sociales et la facilitation des actions individuelles au sein de la structure. Pour [12] : *« Le capital social désigne la capacité des individus à travailler ensemble pour un objectif commun dans des groupes ou organisations ».*

Dans le début des années 90, ce concept sociologique a connu une renaissance puisqu'il a été adopté par des politologues comme [13] et [14]. Putnam définit le capital social comme «*les caractéristiques de la vie sociale telles que les réseaux, les normes et la confiance mutuelle, qui permettent aux participants d'agir ensemble plus efficacement pour atteindre des objectifs partagés»*. ([13], p. 67).

Dans une perspective convergente avec celle de Putnam, Fukuyama trouve que la confiance sociale constitue la principale composante du capital social. Celui-ci est, pour Fukuyama, « *un actif qui naît de la prédominance de la confiance dans une société ou dans certaines parties de celle-ci. Il peut s'incarner dans la famille, le groupe social le plus petit et le plus fondamental, aussi bien que dans, la nation ou dans des corps intermédiaires*.» ([14], p. 37). Dans ce contexte et en fonction de ce point de vue, le capital social devient une vertu des nations où les individus obéissent à la loi, choisissent leurs dirigeants d'une manière démocratique et montrent des niveaux élevés de coopération entre eux. Pour cela, les politologues, en opposition avec les sociologues qui se concentrent sur le niveau de capital social au sein d'un petit groupe, mesurent le capital social dans une communauté plus large par des indicateurs tels que la participation politique, la participation aux élections et l'adhésion à des associations.

En économie, il est de plus en plus admis que le capital social améliore non seulement les capacités des agents individuels, mais aussi la performance économique au niveau collectif et agrégé. [15], qui se réfère explicitement à Coleman, situe le concept de capital social dans le cadre de la théorie de l'interaction sociale, présentée d'abord dans [16]. « *Le capital social s'y intègre sans difficulté, où il figure, et devient même partiellement endogénéisable quand les réseaux et relations sont posés comme le résultat de choix guidés, toujours, par la maximisation de l'utilité* » ([15]). En outre, un environnement social sain où les gens se réunissent librement et fréquemment est un terrain idéal pour l'adoption et la diffusion des bonnes

normes génératrices de confiance. Par conséquent, une confiance généralisée dans la société réduit les incertitudes, les coûts de surveillance, d'information et généralement de transaction ([17] et [5]).

Au niveau global, le capital social peut avoir un impact positif sur le processus de développement et en particulier sur la croissance économique. Il offre un formidable moyen potentiel d'établir une distinction entre les pays et leurs perspectives de croissance ([4], [6]).

Le nombre croissant d'études sur le capital social a poussé les institutions financières internationales à recommander, dans leurs politiques de développement, la considération du capital social entant qu'instrument politique et de renforcer toutes les actions qui sont susceptibles de promouvoir la participation volontaire à des organisations civiles.

Cependant, l'utilisation du terme capital n'est pas largement acceptée dans l'économie du développement, car il ne se réfère pas à un facteur qui peut être possédé. Dans ce contexte, [18] prétend que le terme capital est aliénable, en ce sens qu'il est transférable ce qui n'est pas le cas du capital social. En plus, [19], soutiennent que le terme «communauté» est plus pertinent en soulignant que ce qui est important n'est pas ce que les communautés détiennent, mais ce qu'elles font ; un choix qui favorise la perspective agrégée du capital social au détriment de sa perspective individualiste.

2.2 LA LITTERATURE EMPIRIQUE

La contribution fondamentale de la littérature du lien entre capital social et croissance économique a été examinée par [1] au cours des années 90 dans un livre intitulé : « *Making Democracy Work* ». Dans cette investigation les auteurs ont trouvé une corrélation positive et significative entre la performance économique et le capital social, ou ce dernier est mesurée par le moyen d'indicateurs représentant le nombre d'organismes bénévoles, le nombre de lecteurs des journaux, la participation électorale et enfin le retard civique. Dans une étude ultérieure, [20] ont utilisé les mêmes indicateurs du capital social et ont montré qu'il y a un impact positif sur la croissance économique à long terme dans les provinces italiennes.

[1] en déduit que : «Le capital social existant dans les normes et les réseaux d'engagement civique semble être une condition préalable au développement économique ainsi qu'à l'efficacité des gouvernements » ([1], p 37)

[3] et [21] ont testé l'hypothèse de [1] en utilisant les données du World Value Survey (WVS) où le capital social est mesuré par le niveau de confiance dans chaque pays de l'échantillon. L'indice de confiance est calculé comme le pourcentage de personnes qui pensent que « la plupart des gens sont dignes de confiance ». [3] ont constaté que les normes civiques et la confiance sont positivement et significativement corrélées avec la croissance économique dans un échantillon de 29 pays. [21] ont montré que les organismes des pays affichant un niveau de confiance élevé sont significativement plus efficaces, en se basant sur la performance du gouvernement, la participation à des organismes communautaires, la taille de la plus grande firme par rapport au PIB ainsi que sur d'autres éléments du système social. [5] ont ajouté d'autres pays pour le premier échantillon utilisé par [3] et ont trouvé que la confiance est plus forte dans les pays possédant des institutions plus efficaces.

Au niveau régional, l'existence d'activités associatives développe la confiance entre les partenaires et stimule la croissance économique régionale. ([22]). En outre, dans une étude récente et originale [6] ont testé la relation entre le développement financier et le capital social. Ils ont mesuré le capital social par des indicateurs tels que la participation électorale et les dons de sang, et ils ont conclu que ces indicateurs sont significativement corrélés avec les indicateurs de développement financier. [23] ont constaté également qu'aux États-Unis, les personnes qui interagissent le plus avec leur entourage et leurs voisins, investissent relativement plus dans les marchés financiers.

3 LES CANAUX DE TRANSMISSION DU CAPITAL SOCIAL A LA CROISSANCE ECONOMIQUE

Dans la littérature à ce sujet, le capital social mesuré par le niveau de confiance dans l'économie est un facteur déterminant de l'activité d'investissement ([3]), du capital humain ([12], [24], [25]), de la qualité des institutions ([26], [27]) et du développement financier ([28], [23]).

3.1 LE CANAL DE TRANSMISSION DE L'INVESTISSEMENT

La littérature relative à l'effet du capital social sur l'investissement suppose que l'accumulation du capital améliore la coopération entre les acteurs économiques et réduit les coûts de transaction, ce coût est estimé par la part non dépensée pour des dépenses de contrôle et de vérification. Selon [3], le capital social est de nature à accroître l'investissement et, à travers lui, il peut affecter le taux de croissance d'une économie. Dans ce contexte, les entrepreneurs doivent consacrer beaucoup de temps à anticiper d'éventuelles tromperies de leurs concurrents, employés ou fournisseurs. Il leur reste peu de

temps à consacrer à l'innovation dans de nouveaux produits. Par conséquent, un individu dans une société où le capital de confiance est élevé réalise des économies sur des dépenses, qu'il devrait envisager pour se protéger de toute exploitation lors des transactions économiques.

3.2 LE CANAL DE TRANSMISSION DE L'EDUCATION

Le deuxième canal de transmission traite de la relation entre le capital social et le capital humain. Dans sa contribution fondamentale, [12] a examiné que dans les communautés où la confiance est élevée, le capital social aidait à répondre aux attentes des familles à l'égard des études de leurs enfants, dès lors, à réduire les taux d'abandon des études secondaires. [24] ont examiné le rôle du capital social dans le niveau de scolarité et ont constaté que le capital humain et le capital social avaient des impacts significatifs sur le taux d'abandon scolaire. Cette relation a été étudiée par [29] pour le cas de l'Allemagne et par [30]. Les auteurs ont conclu que l'investissement dans l'éducation est relativement moins cher dans les sociétés à haut niveau de confiance que dans les sociétés à faible niveau de confiance.

De même, [3] ont démontré qu'il existe un lien positif entre le capital humain et le capital social, ils relèvent une forte corrélation entre la confiance et la moyenne d'années d'étude. Cependant, [25], [31] affirment que le capital social affecte et est affecté par l'accumulation de capital humain.

3.3 LE CANAL DE TRANSMISSION DE LA QUALITE INSTITUTIONNELLE

Dans le processus de développement économique, il existe une littérature considérable sur le rôle du capital social dans l'amélioration de la qualité institutionnelle. [26] et [27] montrent que la qualité des institutions est un important déterminant de la croissance économique. Ainsi, les bonnes institutions seront les règles formelles et informelles qui restaurent un climat de confiance dans les échanges et réduisent les coûts de transaction, alors que les autres s'identifieront aux mauvaises institutions.

De même, [3] ont utilisés des indicateurs institutionnelles pour mesurer les risques-pays tel que le risque d'expropriation, les règles du droit, la répudiation des contrats par le gouvernement, la corruption gouvernementale et la qualité de la bureaucratie, les auteurs constatent que les pays dotés de bonnes institutions et protégeant les droits de propriétés sont ceux qui enregistrent des taux de croissance économique plus élevés. Dans ce cas, les institutions ne sont pas seulement les droits, obligations et responsabilités, elles dépendent également de la confiance respective des acteurs. ([5]).

3.4 LE CANAL DE TRANSMISSION DU DEVELOPPEMENT FINANCIER

En ce qui concerne le développement du marché financier, seulement quelques articles ont analysé le rôle de la confiance dans le développement financier ([6], [28], [23]). En fait, [6] ont constaté que les mesures de confiance et de développement financier sont fortement corrélées. Plus précisément, leur étude sur le nord et le sud de l'Italie a montré que dans les régions bénéficiant d'un niveau élevé de confiance, les agents investissent plus dans les valeurs mobilières et ont plus accès aux crédits institutionnels qu'aux crédits informels. [28] ont étudié le lien entre le niveau de confiance et un ensemble d'indicateurs de développement financier, les auteurs ont trouvé une corrélation significative entre le niveau de confiance, l'approfondissement financier et la structure financière.

Il s'avère que, le niveau de confiance dans une économie influence de façon significative le développement du secteur financier. En fait, dans les relations financières, le capital social permet d'améliorer l'information sur le risque de la personne à qui l'on prête et de s'assurer qu'elle fournira l'effort nécessaire pour honorer ses dettes. En d'autres termes, lors de l'établissement d'un contrat financier, les prêteurs et les emprunteurs sont influencés par le niveau de confiance. Si les prêteurs vont se douter de l'aptitude des emprunteurs à honorer leurs engagements en matière de remboursement, l'utilisation des contrats financiers sera réduite, ceci peut entraîner l'insolvabilité des banques et au niveau général peut conduire à la situation de fragilité financière. Pour [28] un faible niveau de confiance peut aggraver les différents types de risques et ils concluent que « *la probabilité d'une mauvaise conduite de l'emprunteur est plus élevé que dans le cas où le niveau de confiance est important*».

4 ETUDE EMPIRIQUE DE LA RELATION CAPITAL SOCIAL ET CROISSANCE ECONOMIQUE POUR UN PANEL DE PAYS DEVELOPPES ET EN DEVELOPPEMENT

Notre objectif dans cette partie est d'étudier empiriquement les effets directs et indirects du capital social sur le taux de croissance du PIB par tête pour un échantillon de pays développés et en développement. Pour cela, nous utilisons

l'économétrie des données de panel en résolvant les problèmes d'endogénéité de la variable indépendante, en l'occurrence, le capital social.

En conséquence, nous réalisons tout d'abord des estimations sur un modèle à effets individuels. Ensuite, nos estimations porteront sur le modèle dynamique où nous introduisons la variable endogène retardée comme variable explicative pour voir si la croissance économique d'une année est influencée par celles des années passées.

4.1 SPECIFICATION DU MODELE ECONOMETRIQUE

A la suite des travaux de [32], [33], l'objectif de notre étude empirique, est d'ajouter d'autres déterminants de la croissance économique dans l'équation du modèle de croissance de Solow augmenté du capital humain, traitant de la relation entre capital social et croissance économique. Par conséquent, nous tenons compte du modèle suivant comme équation à estimer :

$$\mathbf{Y_{it} = \alpha_i + \beta_1\, lgdp\_f_{it} + \beta_2\, lKS_{it} + \beta_3\, lKH_{it} + \beta_4\, lINV_{it} + \beta_5\, lDF_{it} + \beta_6\, QI_{it} + \varepsilon_{it}} \quad \mathbf{[1]}$$

Où i et t dénotent respectivement le pays et le temps.

Pour i = 1,……, 45/ t = 1990,……,2004.

Avec α_i l'effet spécifique individuel, β_1, β_2, β_3, β_4, β_5 et β_6 sont les paramètres à estimer dans ce modèle et ε_{it} est le terme d'erreur.

4.2 PRESENTATION DES VARIABLES ET DE LEURS SOURCES

Les variables qui seront présentées sont recueillies pour un panel de 45 pays développés et en développement au cours de la période 1990-2004. La variable dépendante est le taux de croissance du PIB par tête (Y) et les variables indépendantes sont le logarithme du PIB initial (lgdp_f) qui sert à contrôler la convergence, le capital humain (KH), le taux d'investissement par rapport au PIB (INV), le développement financier (DF), la qualité de l'environnement institutionnel (QI) et le capital social (KS).

4.2.1 LA VARIABLE DEPENDANTE

Nous utilisons, dans notre analyse empirique, le taux de croissance du PIB par habitant comme variable dépendante. Les données, pour les 45 pays de notre échantillon représentatif, relatives à cette variable sont retirées à partir des données de Penn World Tables (2009).

4.2.2 LE CAPITAL HUMAIN

La théorie de la croissance endogène suggère qu'il existe une relation positive entre le capital humain et la croissance économique. En effet, l'accumulation du capital humain accroît la productivité des facteurs en augmentant la capacité d'innovation du pays, en permettant une meilleure allocation des ressources et en engendrant des externalités positives ([34]). Le capital humain est mesuré par le nombre moyen d'années d'éducation secondaires de la population de 15 ans et plus, à partir de la base de données de Barro et Lee (2001).

4.2.3 LE CAPITAL PHYSIQUE

Nous calculons le stock de capital physique en utilisant la méthode de l'inventaire permanent décrite par [35]. Cette méthode définit l'évolution du stock de capital fixe comme suit : $K_t = (1- \delta) K_{t-1} + I_t$. K_t est le stock de capital au temps t, I_t est la formation brute du capital fixe (FBCF) et δ est le taux de dépréciation du capital.

Le stock de capital physique initial K_0 est égal à l'investissement initial I_0 divisé par la somme du taux de croissance annuel ρ de l'investissement I_t et du taux de dépréciation δ du capital physique : $K_0 = I_0 / (\rho + \delta)$. Le stock de capital physique par tête est le rapport entre le stock de capital physique calculé et la population totale.

Les données d'investissement brut sont tirées de la base de données de la Banque Mondiale.

4.2.4 LE DEVELOPPEMENT FINANCIER

L'étude de la relation entre le développement financier et la croissance économique a connu un regain d'intérêt depuis une dizaine d'années avec les modèles de croissance endogène. Le premier article d'importance capitale est celui de [36], ces auteurs ont étudié l'impact du développement financier sur la croissance, le rythme de l'accumulation du capital et la productivité des facteurs.

Le développement financier est mesuré par le passif quasi-liquide en pourcentage du PIB qui est la somme des devises et dépôts de la banque centrale (M0), plus les dépôts à terme fixe et d'épargne, les dépôts transférables en devises étrangères, les certificats de dépôt, et les mises en pension de titres, plus les chèques de voyage, les dépôts à terme fixe en devises étrangères, les effets de commerce, et les parts de fonds communs de placement ou de fonds fournis aux conditions du marché détenus par des résidents. Cela équivaut à la masse monétaire M3 moins les dépôts transférables et les devises électroniques (M1).

4.2.5 LA QUALITE DES INSTITUTIONS

Il existe de nombreux indicateurs synthétiques d'institutions ou de gouvernance rassemblent généralement une large gamme de mesures de la liberté et de la stabilité politique, de la qualité des institutions et des libertés économiques. La gouvernance telle que définie par les concepteurs de ces indicateurs recouvre par conséquent le champ des institutions (politique et économiques), mais également ceux de la stabilité et des politiques.

La qualité des institutions est mesurée par un indice général qui s'appuie sur deux catégories distinctes : les libertés civiles (fh_cl) et les libertés politiques (fh_pr) publié par une ONG, « *Freedom House* » qui est une organisation indépendante non gouvernementale, fondée en 1941, aux Etats-Unis. Cette organisation a pour but l'appui et le soutien de la promotion des libertés, des droits de l'homme et de la démocratie dans le monde.

Ace niveau, «les libertés civiles» renvoient à la liberté, d'expression et de croyance, au droit d'association et d'organisation, à l'autonomie individuelle, au droit à la vie privée. Les libertés politiques recouvrent quant à elles la capacité des individus à participer librement au processus politique : le droit de vote, le droit d'appartenir à un parti politique, le pluralisme des élections, le pouvoir effectif des représentants élus.

Les pays se voient attribuer deux notes et une lettre. La première note est relative aux droits politiques, la deuxième concerne les droits civils. Chacune des deux notes est comprise entre 1 et 7, 1 étant la meilleure situation et 7 la pire. Cette notation provient des études annuelles Freedom in the World, établie par la Freedom House.

4.2.6 LE CAPITAL SOCIAL

Les mesures du capital social les plus souvent utilisés sont ceux formulés par les politologues et les sociologues, basées sur des mesures de la densité associative de Putnam ([1]; [13]) et sur les indices de confiance obtenus à partir des enquêtes générales (WVSd' Inglehart[1], ESG, etc.). La principale faiblesse de ces deux approches réside dans la relation entre le concept de capital social et la variable utilisée pour le mesurer (l'adhésion volontaire des groupes ou des associations dans le premier cas, et la manifestation du degré de confiance dans les autres dans le second). A partir d'une conception du capital social similaire aux études mentionnées ci-dessus, [37] modèle le processus par lequel le capital social est crée et accumulé. Cette modélisation formelle est utilisée pour spécifier un modèle empirique qui permet d'estimer le capital social.

Cette étude présente une nouvelle base de données couvrant un ensemble de pays du monde, compilée par la Fondation BBVA[2] et l'Instituto Valenciano de Investigaciones Económicas (Ivie) en utilisant la méthodologie développée dans [37]. La nouvelle base de données comprend un panel non cylindré de 78 pays pour la période 1970-2005, de la même période couverte par la base de données de l'OCDE. Cette étude décrit la méthodologie théorique et empirique sur laquelle la mesure du capital social a été élaborée. Celle-ci s'articule autour de deux références de base. La première est l'étude de [38] dans

[1] Voir Inglehart et al [2004]

[2] Banco Bilbao Vizcaya Argentaria (BBVA) est un groupe bancaire espagnol d'origine basque qui est présent dans 37 pays, BBVA est le deuxième groupe bancaire d'Espagne et d'Amérique latine et le premier acteur bancaire au Mexique (au travers de sa filiale Bancomer, contraction de Banco de comercio, acquise en 2000).

lequel ils présentent un cadre théorique pour l'analyse des déterminants du capital social. Cela commence à partir de l'analyse à la fois de la prise en compte de la manière dont le capital social est formé en utilisant un modèle de décisions d'investissement individuel optimal du processus d'accumulation du capital social. La deuxième référence est la mesure du capital social d'une manière similaire au capital physique (OCDE, 2001). Selon cette méthodologie, une fois la décision d'investissement et l'accumulation du stock net de capital social ont été analysés, leur contribution productive doit être quantifiée au moyen des flux des services. Les flux des services du capital social dépendent du degré de relation dans le réseau des relations sociales. L'agrégation du capital social entre les individus pose des problèmes similaires à ceux rencontrés dans les différents regroupements des biens de capital physique, qui peuvent être résolus avec l'aide des prix appropriés (le coût d'usage du capital). Ainsi, les auteurs ont obtenu une expression du capital social agrégé qui est une fonction d'un ensemble de variables qui permettent d'estimer le capital social empiriquement.

4.3 METHODES D'ESTIMATION ET INTERPRETATIONS DES RESULTATS

Deux méthodes d'estimation ont été utilisées. Premièrement, nous utilisons une méthode qui permet de prendre en compte l'hétérogénéité inobservée des pays de l'échantillon. Ces caractéristiques individuelles peuvent être de nature déterministe ou aléatoire. Le test de spécification de Hausman permet de choisir l'une ou l'autre de ces spécifications. Le modèle à effets fixes (MEF) sera retenu si la probabilité attachée à la statistique de test de Hausman est inférieur à 10%. Deuxièmement, nous utilisons la Méthode des Moments Généralisés (GMM) en panel dynamique dans lequel le taux de croissance retardé d'une période figure parmi les variables explicatives.

4.3.1 LA METHODE DES DONNEES DE PANEL STATIQUE

TESTS DE SPECIFICATION

La première étape consiste à vérifier si la spécification est en accords avec le principe d'homoscedasticité, autrement dit de savoir si l'on a le droit de supposer que le modèle théorique étudié est parfaitement identique pour tous les pays, ou au contraire s'il existe des spécificités propres à chaque pays pouvant entrainer des coefficient différents en relation notamment avec des variables omises.

Le principe du test est le suivant :

$$\left|\begin{array}{l} H_0 : \text{Homogénéité complète des comportements} \\ H_1 : \text{Hétérogénéité partielle des comportements} \end{array}\right.$$

$$\equiv \left|\begin{array}{l} H_0 : y_{it} = \alpha + \beta' .x_{it} + \varepsilon_{it} \\ H_1 : y_{it} = \alpha_i + \beta' .x_{it} + \varepsilon_{it} \end{array}\right.$$

Décision : On accepte H_0 si :

$$F^c < F^* = F^{\alpha}_{((n-1)n\,(T-1)-k)}$$

- On retrouve la structure d'homogénéité totale des comportements : modèle totalement homogène

On rejette H_0 si non :

- Pas d'homgénéité au niveau des constantes
- Il sagit d'un modèle de données de panel avec effets individuels :

$$y_{it} = \alpha_i + \beta' .x_{it} + \varepsilon_{it}$$

On commence à tester l'hypothèse d'une structure parfaitement homogène (la constante et la pente sont identiques). Si les statistiques de Fischer associées au test d'homogénéité totale sont supérieures au Fischer de la table, on rejette donc cette hypothèse.

Ensuite, on teste la présence des effets individuels en supposant ainsi que les β_i sont constantes pour tous les pays. Après avoir effectué ces deux tests, le modèle retenu sera estimé par deux spécifications de panel hétérogène, où la seule source d'hétérogénéité provient des constantes individuelles :

Pour ce type de modèle, on distingue deux cas : le cas où les paramètres α_i sont des constantes déterministes (*modèle à effets fixes*) et le cas où les paramètres α_i sont des réalisations d'une variable aléatoire d'espérance et de variance finie (*modèle à effets aléatoires*). Il convient, ainsi, de savoir quel est le bon modèle pour notre échantillon (*modèle à effets fixes ou à effets aléatoires*). Pour cela, on procède à une analyse de test de spécification de *Hausman*.

TEST DE HAUSMAN

Le test de spécification de *Hausman* (1978) est un test de spécification des effets individuels. Il sert à discriminer les effets fixes et aléatoires. L'hypothèse testée concerne la corrélation entre les effets individuels et les variables explicatives :

$$\begin{cases} H0 : E(c_i \setminus X_i) = 0 \\ H1 : E(\alpha_i \setminus X_i) \neq 0 \end{cases}$$

Sous H_0, le modèle peut être spécifié avec des effets individuels aléatoires et l'on doit alors retenir l'estimateur des *MCG* (estimateur BLUE). Sous l'hypothèse alternative H_1, le modèle doit être spécifié avec des effets individuels fixes et l'on doit alors retenir l'estimateur *Within* (estimateur non biaisé). La statistique de test de *Hausman* appliquée au test de la spécification des effets individuels est la suivante :

$$H = (\hat{\beta}_{within} - \hat{\beta}_{MCG})' \left[Var(\hat{\beta}_{within} - \hat{\beta}_{MCG}) \right]^{-1} (\hat{\beta}_{within} - \hat{\beta}_{MCG})$$

Sous H_0, la statistique H suit asymptotiquement un Chi-deux (χ^2) à K degrés de liberté.

RESULTATS D'ESTIMATION

En utilisant la méthode des données de panel statique pour 45 pays développés et en développement sur les périodes 1990-2004, on obtient les résultats présentés dans le tableau1.

Tableau 1. Effets du capital social sur la croissance économique (Panel statique)

Variable dépendante : Croissance du PIB réel par tête (Y_{it})	**MEF**		
	(1)	**(2)**	**(3)**
Lgdp_f	-0.2777 (0.0389)***	-0.2895 (0.0412)***	**-0.2920** **(0.0406)***
lKS	0.0010 (0.0003)**		**0.0009** **(0.0003)**
lKH		-0.0002 (0.0165)	0.0076 (0.0166)
lINV		0.0561 (0.0245)**	**0.0401** **(0.0251)*
lDF		-0.0034 (0.0167)	-0.0023 (0.0164)
QI		-0.0072 (0.0089)	-0.0073 (0.0088)
Constante	2.5490 (0.3506)***	2.5187 (0.3581)***	2.5794 (0.3544)***
Observations	225	225	225
Nombre de pays	45	45	45
R2	0.4905	0.4847	**0.5009**
Test de Hausman	(0.0017)	(0.0071)	**(0.0035)**

****significativité à 1%, ** significativité à 5%, * significativité à 10%. La période d'étude 1990-2004 est subdivisée en Cinque sous-périodes de trois années chacune. Toutes les variables sont exprimées en logarithme népérien, sauf la variable QI. La variable dépendante est la croissance du PIB réel par tête (Y_{it}). Le test de Hausman correspond à la statistique du test de Hausman, avec la p-value entre parenthèses.*

Les résultats du test de Fisher nous amènent à rejeter l'hypothèse nulle, celle d'homogénéité interindividuelle, il faut donc privilégier un modèle tenant compte des spécificités individuelles.

D'après les résultats d'estimation, et plus précisément, les statistiques des tests de *Hausman*, on constate que les estimations retenues, seront celles des modèles à effets individuels fixes. Le test de Hausman réfute l'hypothèse d'absence de corrélation entre le terme aléatoire et les variables explicatives du modèle. (P-value = 0.35% < 5%). Les estimateurs du modèle à erreurs composées sont biaisés, il est préférable de retenir ceux du modèle à effet fixe qui sont sans biais.

La régression (1) dans le tableau (1) montre que le capital social présente un coefficient positif et significatif, ce constat est conforme à la littérature récente théorique et empirique présentées ci-dessous. En plus, le PIB initial présente également un coefficient négatif et significatif qui confirme l'hypothèse de convergence conditionnelle, comme dans [32], où les pays en développement ont tendance à croître plus rapidement que les pays développés.

Dans l'équation (2), nous introduisons d'autres déterminants de la croissance économique tels que le capital humain (KH), le taux d'investissement (INV), le développement financier (DF) et la qualité des institutions (QI) qui est mesuré par l'indice de liberté civile compris entre 1 (pays à degré de liberté civile élevé) et 7 (pays à faible degré de liberté civile), par conséquent nous espérons un coefficient négatif lorsque nous utilisons l'indice de liberté civile. Tandis que l'on exclut l'indicateur de capital social de la liste des variables explicatives. La régression (2) montre qu'il existe un effet positif et significatif avec l'accumulation de capital physique (taux d'investissement), alors que l'indice de la qualité des institutions et le capital humain présentent des effets négatifs et non significatifs.

Dans la régression (3), toutes les variables indépendantes mentionnées ci-dessus sont présentées comme des déterminants (des variables explicatives) de la croissance économique. Le capital social et le taux d'investissement ont conservé leur importance statistique significative par rapport aux précédentes régressions. En plus, en introduisant le capital social dans la troisième équation, les deux variables : capital humain et développement financier sont devenus positives.

4.3.2 LA METHODE DES DONNEES DE PANEL DYNAMIQUE

Un modèle dynamique est un modèle dans lequel un ou plusieurs retards de la variable dépendante figurent comme variables explicatives. A l'inverse du GMM (*Generalized Method of Moment*) dynamique, les techniques économétriques standards comme les MCO ne permettent pas d'obtenir des estimations efficientes d'un tel modèle, à cause de la présence de la variable dépendante retardée à droite de l'équation.

L'avantage de cette méthode est qu'elle permet de résoudre les problèmes de biais de simultanéité, de causalité inversée et de variables omises qui affaiblissaient les résultats des études antérieures. Elle permet aussi de traiter le problème de l'endogénéité de toutes les variables explicatives, qui se pose lorsqu'on étudie la relation entre capital social et croissance économique.

Il existe deux variantes d'estimateur des GMM en panel dynamique : l'estimateur GMM en première différence et l'estimateur GMM en système. L'estimateur GMM en première différence de [39] consiste à prendre pour chaque période la première différence de l'équation à estimer pour éliminer les effets spécifiques des pays, et ensuite à instrumenter les variables explicatives de l'équation en première différence par leurs valeurs en niveau retardées d'une période ou plus. L'estimateur GMM système de [40], consiste à combiner les équations en première différence avec les équations en niveau dans lesquelles les variables sont instrumentées par leurs valeurs en niveau retardées d'au moins une période.

Deux tests sont associés à l'estimateur des GMM en panel dynamique : le test de suridentification de Sargan/Hansen, qui permet de tester la validité des variables retardées comme instruments, et le test d'autocorrélation d'Arellano et Bond où l'hypothèse nulle est l'absence d'autocorrélation de premier ordre des erreurs de l'équation en niveau.

Dans nos régressions, les résultats de ces deux tests sont conformes aux attentes. Les statistiques des deux tests ne nous permettent pas de rejeter l'hypothèse Ho, celle de la validité des variables retardées comme instruments.

RESULTATS D'ESTIMATION

En partant de l'équation (1), les estimations ont été réalisées avec la méthode du GMM *system* en panel dynamique : en introduisant la variable endogène retardée comme variable explicative. On obtient ainsi l'équation (2) :

$$Y_{it} = \alpha_i + \beta_1 Y_{it}\_1 + \beta_2 lgdp\_f_{it} + \beta_3\, lKS_{it} + \beta_4\, lKH_{it} + \beta_5\, lINV_{it} + \beta_6\, lDF_{it} + \beta_7\, QI_{it} + \varepsilon_{it} \quad [2]$$

Les résultats d'estimation sont présentés dans le tableau (2).

Tableau 2. Effets du capital social sur la croissance économique (Panel dynamique)

Variable dépendante : Croissance du PIB réel par tête (Y_{it})	**GMM System**		
	(4)	**(5)**	**(6)**
Y_{it}_1	0.0761 (0.1601)	0.0427 (0.1226)	0.0192 (0.1345)
Lgdp_f	0.0338 (0.0371)	0.0216 (0.0277)	0.0280 (0.0277)
lKS	0.0017 (0.0008)**		**0.0018** **(0.0007)****
lKH		0.0437 (0.0286)	**0.0548** **(0.0304)***
lINV		0.0332 (0.0421)	0.0098 (0.0486)
lDF		-0.0240 (0.0275)	-0.0148 (0.0260)
QI		-0.0003 (0.0152)	**-0.0016** **(0.0144)***
Constante	-0.2642 (0.3326)	-0.2009 (0.2669)	-0.2219 (0.3170)
Observations	180	180	180
Nombre de pays	45	45	45
Test de Hansen	(0.016)	(0.044)	**(0.100)**
AR(2)	(0.856)	(0.761)	**(0.911)**

****significativité à 1%, ** significativité à 5%, * significativité à 10%. La période d'étude 1990-2004 est subdivisée en Cinque sous-périodes de trois années chacune. Toutes les variables sont exprimées en logarithme népérien, sauf la variable QI. La variable dépendante est la croissance du PIB réel par tête (Growth). Le test de Hansen correspond à la statistique du test de validité des instruments pour l'estimation en GMM, avec la p-value entre parenthèses : l'hypothèse nulle est la validité des variables retardées en niveau et en différences comme instruments. AR(2) : statistique d'Arellano-Bond du test d'autocorrélation des erreurs de second ordre, avec la p-value entre parenthèses : l'hypothèse nulle est l'absence d'autocorrélation de second ordre.*

Pour l'estimateur GMM *system*, les statistiques de diagnostic sont favorables. Le test de suridentification de Hansen ne rejette pas la validité des instruments utilisés et le test d'Arellano et Bond ne rejette pas l'autocorrélation à l'ordre 2.

Les résultats des différentes régressions effectuées avec la méthode du GMM *system* en panel dynamique confirme l'effet positif et significatif du capital social sur la croissance économique et l'hypothèse des canaux de transmission évoqués ci-dessus. Les résultats montrent aussi qu'il existe une relation positive et significative entre le capital social et la qualité des institutions. Néanmoins, les autres variables (le taux d'investissement, le capital humain et le développement financier) sont étonnamment jugées non significatives, malgré le signe positif. Ces résultats peuvent s'expliquer par la présence du niveau initial de revenu comme une variable explicative.

Il en résulte donc que le capital social a deux effets sur la croissance économique : un premier effet direct vient du fait qu'il peut être considéré comme un déterminant de la croissance économique comme le capital physique ou humain ([12]). Un deuxième effet indirect est transmis à la croissance économique à travers les autres variables mentionnées : la qualité des institutions, l'éducation, l'investissement et le développement financier.

Pour distinguer les effets directs et indirects du capital social sur la croissance économique, nous utilisons un modèle à équation simultanées.

4.3.3 LE MODELE A EQUATIONS SIMULTANEES

EFFETS INDIRECTS DES CANAUX DE TRANSMISSION SUR LE CAPITAL SOCIAL

Pour tester empiriquement l'effet du capital social sur chaque canal de transmission, nous avons effectué une série de régressions qui sont présentées dans l'équation (7), ensuite nous avons utilisé un modèle à équations simultanées (équation (8)), qui permet aussi de surmonter le problème d'endogénéité. Les résultats des estimations sont présentés dans le tableau ci-dessous :

$$\begin{cases} lKH_{it} = \alpha_i + \beta_1\, lgdp\_f_{it} + \beta_2\, lKS_{it} + \varepsilon_{it} \\ lINV_{it} = \alpha_i + \beta_1\, lgdp\_f_{it} + \beta_2\, lKS_{it} + \varepsilon_{it} \\ lDF_{it} = \alpha_i + \beta_1\, lgdp\_f_{it} + \beta_2\, lKS_{it} + \varepsilon_{it} \\ QI_{it} = \alpha_i + \beta_1\, lgdp\_f_{it} + \beta_2\, lKS_{it} + \varepsilon_{it} \end{cases}$$

L'estimation de ces équations permet de prendre en compte les effets indirects du capital social sur la croissance économique.

Tableau 3. L'estimation par la méthode des équations simultanées

Variable dépendante :	lKH	lINV	lDF	QI	Y_{it}
	(7)				(8)
Lgdp_f	0.0853 (0.0517)*	0.2291 (0.0277)***	0.2290 (0.0489)***	-0.8985 (0.0983)***	**-0.0004** **(0.0066)**
lKS	0.0009 (0.0043)	0.0028 (0.0023)	0.0041 (0.0041)	-00024 (0.0082)	**0.0010** **(0.0004)****
lKH					**0.0096** **(0.0064)***
lINV					**0.0003** **(0.0117)***
lDF					**0.0027** **(0.0068)***
QI					**-0.0018** **(0.0033)***
Constante	-0.0062 (0.4678)	1.0111 (0.2510)***	0.8000 (0.4424)*	11.1806 (0.8898)***	**0.0280** **(0.0570)**
Observations	225	225	225	225	**225**

****significativité à 1%, ** significativité à 5%, * significativité à 10%. La période d'étude 1990-2004 est subdivisée en Cinque sous-périodes de trois années chacune.*

Les résultats des différentes régressions montrent qu'il existe une relation positive et significative entre la confiance et la qualité des institutions. Néanmoins, les autres variables (le taux d'investissement, la mesure du capital humain et le développement financier) sont étonnamment jugée insignifiantes en corrélation avec le niveau de confiance, malgré le signe positif. Ces résultats peuvent être dus à la présence du niveau initial de revenu comme une variable explicative.

L'estimation des équations rapportées dans l'équation (8), montre que le capital humain, l'investissement, le développement financier et la qualité des institutions ont des effets positifs et significatifs. Le Tableau (3) révèle également

que le capital social est positivement et significativement corrélé avec la croissance économique. En d'autres termes, après avoir pris en compte les effets indirects du capital social sur la croissance économique à travers les canaux de transmissions, nous constatons que le capital social devient significatif au seuil de confiance de 5%.

Dans d'autres études sur le lien entre la confiance et la croissance, [3] ont trouvé qu'une augmentation d'un écart-type dans le niveau actuel de confiance est associée à une augmentation de la croissance économique de plus de la moitié d'un écart-type. Selon [5] la croissance économique augmente d'environ 1% en moyenne suite à une augmentation de 15 % de la confiance. Un tel résultat s'est avéré robuste dans les travaux de [41] qui ont utilisés l'analyse extrêmes liés.

Néanmoins, à notre connaissance, toutes ces contributions n'ont pas explicitement étudiées les canaux de transmission de capital social à la croissance économique. C'est pourquoi le but de ce travail est de centrer l'analyse sur ces aspects en étudiant la contribution relative de chacun des déterminants de la performance économique.

5 CONCLUSION

L'objet de cet article était de mettre en valeur le rôle que peut jouer le capital social dans le processus de la croissance économique. Dans ce contexte, nous avons présenté une synthèse de la littérature théorique et empirique qui existe sur la relation entre le capital social et la croissance économique.

Selon [12], le capital social comme un concept multidimensionnel « *n'est pas une entité unique, mais une variété d'entités avec deux éléments communs : des caractéristiques de structures sociales et la facilitation des actions individuelles au sein de la structure* ». Cette définition a fait l'objet de plusieurs critiques en raison de la nature vague de ce concept et des différentes mesures proposées de celle-ci. Ce travail traite le sujet de cette littérature empirique relative aux canaux de transmission du capital social à la croissance économique.

Les analyses théoriques, présentées tout au long de ce travail, sont confirmées empiriquement par l'utilisation d'un modèle de croissance complet de Solow. L'utilisation de ce modèle, nous a permis de trouver un effet significatif et de signe attendue entre le capital social et la croissance économique, pour les 45 pays entre 1990 et 2004.

L'objet de ce travail est d'étudier empiriquement les effets directs et indirects du capital social sur la croissance économique en utilisant l'économétrie des données de panel.

Les principaux résultats de cette étude sont premièrement, le capital social et la croissance économique sont significativement et positivement corrélés. Deuxièmement, le capital social a aussi un effet indirect sur l'activité économique par son effet sur le développement institutionnel. Ils corroborent le fait que l'amélioration de l'infrastructure sociale à des niveaux élevés de confiance et de coopération entre les individus n'a pas seulement un effet direct, mais aussi un effet indirect sur la croissance économique par le développement des institutions dans l'économie.

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