

Effectiveness of Blended Teaching Strategy on the Achievement of Third Grade Students in Mathematics

Kholoud Subhi Yaghmour

Dep. of Educational Science, Al-Balqa Applied University, Irbid College, Jordan

The research is financed by Asian Development Bank. No. 2006-A171(Sponsoring information)

Abstract

The study aimed to investigate the Blended Education strategy in the achievement of the third grade students in mathematics. The study sample consisted of (97) male and female students distributed on four classes: (47) male and female students in the experimental group and (50) male and female students in the control group. To achieve the objectives of the study, an achievement test was applied after making sure of its validity and reliability. To process statistical data, means, standard deviations, and covariant analysis were used. The study showed the following results: there is a statistical difference on items of achievement test for third grade students in mathematics combined between the performances of the members of the two groups in favor of the experimental group who were taught using the (Blended Education strategy). There is no significant difference at ($\alpha=0,05$) between the two means of performance of members of the study groups on items of the achievement test of third grade students in mathematics due to sex variable. The results of the study also showed that there is no significant differences at ($\alpha=0,05$) between the means of the performance of members of the study groups on paragraphs achievement test for third grade students in mathematics all together due to bilateral interaction between the two variables: teaching strategy, (traditional and Blended) and sex (male, female).

Keywords: (Blended Education, Mathematics, achievement, primary third grade)

1. Introduction

The revolution of scientific developments in ICT, which are provided by networks and internet in all walks of life is accelerating, which facilitates the processes of communicating and information and expertise sharing among the various countries all over the world, which made the world as a small village, due to computer technologies which shortened distances, facilitated communications and saved time.

Using and employing the computing capabilities have become among the main features of the present time, due to the requirements of the styles of civil life, which necessitates keeping up with the current changes in our communities in order to establish comprehensive and integrated cultures and policies that ensure the removal of the traditional methods of daily practical life and the use of the analytical scientific method in solving the various problems. The scientific and technological developments are related to the computer and its culture, which necessitates from all our formal and public institutions to work side by side, and to make the required efforts in order to deal with this increasing challenge through qualifying the citizens technically so that they become able to live, produce and compete effectively in the next stage (Subuh & Al-Ajlouni, 2003).

Blended learning is one of the recently developed teaching strategies, and which began to replace e-learning in most educational institutions. Salameh (2005) suggests that blended learning is the acceptable alternative of e-Learning, and which creates higher returns and requires lower costs and is the most developed modern learning method. Blended learning can be defined as the process of blending the traditional roles of teachers with the roles of the e-teacher in classes. Thus it is a learning which integrates traditional and electronic learning.

Blended learning is a strategy that incorporates both the direct learning through the internet as well as indirect learning. Direct e-learning usually incorporates the use of intra-and internet, while indirect learning is the one applied in traditional classes. An example of this type of learning is a learning program which provides educational materials and research sources on the web, while the guidance of the teacher and training sessions provide an essential instructional means (Al-Khan, 2005).

Several definitions of blended learning were proposed, and Whitlock and Jelfe (2003) proposed three definitions for blended learning as follows: the complete integration of traditional learning and internet-assisted learning; the integration of instructional means and the use of educational technology in learning; and the integration of several instructional methods regardless of technology. Bersin (2003) defines blended learning as a modern method which depends on technology and the use of instructional methods suitable for solving the problems related to class management as well as the learning-directed activities, which require accuracy and mastery. It can be concluded that blended learning is an instructional method that integrates computer technology and the traditional methods familiar to teachers.

The most important features of blended learning include decreasing the cost of learning significantly, face to face interaction, supporting the humanistic aspects and social relations among learners, and between them

and the teacher, the flexibility required for the fulfilment of the individual needs, the learning styles of students from different backgrounds, ages and regions, using the technological development in designing, implementation and practice, enrichment of knowledge, improving the quality of teaching process, learning outcomes and the efficiency of teachers, as well as the educated discourse among the various cultures and making use of the new developments in sciences (Bonk & Graham, 2006).

Al-Zoubi and Bani- Doumi (2013) summarized the factors which contribute to the success of blended learning as follows:

- Communicating and guidance: the learner in this method doesn't know when will he need help, and the equipment, tools and applications needed in order to examine his skills, so, blended learning ought to incorporate instructions concerning the behaviors, activities and expectations, as well as methods for diagnosis and tasks recommended for the learner and written and well specified roles.
- Collective work: in blended learning, every individual ought to be persuaded that participation of all students as a team, in which each member has specific roles, is important.
- Encouraging innovative work: blended learning encourages self-learning and group learning, because the technological means available in blended learning makes this possible, through class interactions which encourage innovation and improves work.
- Flexible choices: blended learning enables students to access information and answer questions regardless of time and place, and the previous learning of the student. Thus, blended learning should incorporate several flexible choices which enable students to find those suitable to their preferences.
- Participation of the students in choosing the suitable blend: the teacher ought to assist his students in choosing the suitable blend (online learning, individual work, traditional lecturing, reading printed materials, e-mail). The teacher motivates students as well, and ensures that they choose activities suitable for the achievement of mastery and maximum efficiency.
- Continuous communication: a quick means of communication should be available for both learners and instructors for guidance all the time, and network communication among students should be available for the purposes of sharing information, solving problems and sharing applications.
- Repetition: repetition is one of the most important features of blended learning, and one of the factors which contribute to its success, because it enables learners to receive the same message from several sources, in different forms and at different times. Thus, a lesson can be delivered in a traditional manner, then through the web. And supervisors of the program can hold a seminar which tackles the topic another time, and video conference about the same topic can be used, in addition to the use of chatting and e-mails and Self-administered exams can be applied also. All those repetitions enrich the topic, and meet the needs of learners. What is important is that all those repetitions and various versions ought to be of a high level technology.

Stuhlmann and Taylor (1996) recommended introducing blended learning into the curriculum, and employing it in classes. Their recommendations included also establishing a safe learning environment, and improving the stamina of the student, providing opportunities for students for applying the skills in meaningful contexts, enhancing reading and writing skills, which is achieved through the use of simple forms, introducing of technology to students, as well as the applications which assist innovation, productivity of students and decrease the levels of anxiety towards the use of computers among the students.

2.1. Problem and Questions of the Study:

Through their experience in teaching, the two researchers noticed several problems which prevent the achievement of the objectives of teaching mathematics to third graders, including the use of traditional teaching methods, which decrease the motivation and interaction of students, in addition to the inability of some students to use e-learning in Maths classes. Thus, this study seeks to explore methods that may improve the teaching and learning strategies in Maths, and seeks to find methods which are appropriate for teaching third grade students, and the lower elementary grades, and increase the activity of students and enable them of keeping up with the developments of technology, through the use of blended learning in teaching Maths to third grade students, which integrates both traditional and electronic teaching. This study attempts to answer the following question:

- Is there a statistically significant difference at the sig. level ($\alpha=0.05$) between the means of performance of the participants of the study (third graders) in the items of the achievement test in Maths, due to the variables of: teaching strategy (traditional, and blended teaching), and gender and their interaction.

2.2. Aim of the Study:

This study aimed to measure the extent of the effectiveness blended teaching strategy on the achievement of third grade students in Maths.

2.3. Importance of the Study:

The importance of this study is related to providing indicators for sustaining or stopping the extending application of computerized Maths in schools and different regions. The importance of the study is related also to the significance of using blended teaching in Maths, which contributes to motivating students through the variation of motivation methods which result in integrating correct answers, and the achievement of sustainable learning. The computerized educational materials in e-textbooks motivates self-learning of the students, assist their self-assessment and considers their achievement levels. The researcher believes it is necessary to use a variety of teaching methods, through the use of technologies such as the computer in teaching Maths (Al-Awadh & Yunis, 2011). This study is expected to pave the way for researchers in teaching Maths in order to examine this field which is adopted by the ministry of education in Jordan at schools. The importance of the study is related also to the modern global educational trends which are based on the use of educational technologies in teaching in addition to the traditional methods.

2.4. Operational Definitions:

- Blended learning: a method of teaching that depends on the integration of traditional teaching methods and the computer-assisted teaching for the purposes of improving the educational process.
- Bersin (2003) defined blended learning as a strategy which employs technology and the selection of appropriate teaching methods in solving the problems related to class management and the learning-directed activities which requires accuracy and mastery.
- Traditional methods: teaching methods in which the teacher presents the educational material through any means he chooses, which are specified in the teacher's guide, with the exception of computer in education.
- Achievement: the set of information and knowledge acquired by third grade students in Maths, and is measured by the student result in the achievement test.

2.5. Limitations of the Study:

This study is limited to:

- The educational directorate of Bani Kenanah.
- Kufr Soom elementary school and Avicenna elementary school for boys in the educational directorate of Bani Kenanah.
- First semester of the academic year 2015/2016.
- An educational unit from the Maths Textbook for the third Grade which is concerned with the numbers below 9999.
- The study was restricted to third graders (males and females).
- PowerPoint was used in teaching the educational unit.

2.6. Literature Review:

Several studies examined the impacts of blended learning. Al-Basheer and Al-Hasanat (2013) explored the impact of blended learning on the improvement of the performance of elementary grade students in Arabic Listening skills. In order to achieve this objective the researchers chose two schools purposefully, one for males and the other for females. Two classes were selected from each school, one was used as a control group, the other as an experimental group. The researcher used Gold Wave Program with the experimental group, while the traditional method was used with the traditional method. The impact of blended learning on the performance of students was measured through a test developed by the researchers. Results showed the presence of statistically significant differences at the sig. level of ($\alpha=0.05$) in the results of the post test of the experimental group, as well as differences ascribed to gender. Results showed also the absence of statistically significant differences due to interaction between teaching strategy and gender.

The study of Dauod and Mahmoud (2013) aimed to examine the impact of blended teaching on the achievement of fifth graders in chemistry, and their attitudes towards blended learning in Mosul. Two secondary schools were chosen randomly; one was used as a control group ($n=31$ students) and was taught using traditional method, and the second class was used as an experimental group ($n=32$ students) was taught using blended teaching method. In order to achieve the aims of the study, two tools were developed by the researchers: the achievement test and the attitudes towards blended learning scale. Results of the study showed statistically significant differences between the means of the achievement of the participants of the experimental group, and the means of the participants of the control group; and statistically significant differences between the means of the scores of the participants of the control and experimental groups in the attitudes scale, on behalf of the experimental group.

Bani- Doumi and Al-Zoubi (2012) conducted a study which aimed to investigate the impact of blended learning on the achievement of fourth graders in Maths and their motivation towards learning. The sample of the study consisted of (71) male and female students, distributed into 4 classes. The experimental group included (38) students and the control group consisted of (33) students. The achievement test was used, and the motivation scale after being tested in terms of reliability and validity. Means, standard deviations, ANCOVA, and t-test were used for data processing. Results showed significant differences between the means of the participants of the experimental and control groups in the achievement exam, on behalf of the experimental group. No significant differences were found between males and females in the achievement exam. Results showed also significant differences between the scores of the two groups of the study in the motivation scale on behalf of the post test. A significant difference was found between the performance of the participants of the two groups in the motivation scale, and on behalf of the experimental group.

The study of Bani-Hamad (2011) aimed to explore the impact of blended learning on achievement and motivation in learning Arabic among third grade students, in comparison to traditional methods. The sample of the study consisted of (44) male and female students, who were chosen purposefully, and divided into two groups: experimental and control group. The experimental group was taught Arabic using blended teaching, while the control group was taught using traditional teaching methods. The experiment continued for the whole semester. Results of ANCOVA analysis showed statistically significant differences in achievement due to the teaching variable strategy, and on behalf of the experimental group. Results showed also statistically significant differences in motivation towards learning Arabic, and on behalf of the experimental group as well.

The study of Al-Awadh and Yunis (2011) aimed to investigate the impact of blended learning on the achievement of eighth graders in solving equations' unit as well as their attitudes towards learning Maths, two pilot schools in Amman third educational directorate. Two groups: an experimental (n=75) and control group (n=73) were selected and the tools of the study were administered which included: 1- prerequisites exam, 2- an achievement test in solving equations and functions, 3- scale of attitudes towards learning Maths, after checking reliability and validity of the scales. The experimental group was taught using blended learning method, while the control group was taught using traditional teaching methods. Posttests were applied on the participants of both groups. Results showed the lack of a significant impact of the achievement level on the attitudes of the students towards Maths, as well as the lack of an impact on the achievement of the students in functions and equations solving, and attitudes due to the teaching method and the achievement levels of the students.

The study of Al-Ma'aytah (2006) aimed to examine the impact of blended learning and teaching based on CORT program for the development of the language communication skills among the students at the Jordanian university. The sample of the study consisted of (78) students who were divided into two groups; an experimental and control group. Results showed significant differences in direct and postponed achievement in the language communication ascribed to teaching method, on behalf of the experimental group, and the study recommended the use of blended teaching for the development of language skills.

Akkoyunlu and Soylu (2006) aimed to explore the attitudes of the students towards blended learning setting, through a sample of (64) male and female students in the department of computer sciences and teaching methods, in the academic year 2005/2006. Results of the study showed that students enjoyed participating in the setting of blended learning, and that the level of their achievement and participation in discussions improved their attitudes towards the setting of blended learning. Results showed also that the achievement of the student was better in blended learning settings.

Maguire (2005) conducted a study which aimed to investigate the impact of blended learning on the achievement of secondary grades students in Maths in Toronto in Canada. The sample consisted of (56) teachers who use blended teaching in Maths. Results showed significant differences in the scores of the students due to blended teaching method.

2.7. Comments on the Studies:

The review of literature showed that all the studies dealt with the impact of blended learning on the achievement of students, regardless of the subject. Doumi and Al-Zoubi (2012), Al-Awadh and Yunis (2011) and Maguire (2005) explored the impact in Maths, while Al-Basheer and Al-Hasanat (2013), Bani-Hamad (2011), Al-Ma'aytah (2006), and Dauod and Mahmoud (2013) examined the impact in chemistry. Some studies used samples from elementary grades such as the study of Al-Basheer and Al-Hasanat (2013), and Bani-Hamad (2011). In most of the studies, exams were used as tools, and the attitude scale such as the study of Dauod and Mahmoud (2013). And in most of the studies the impact was on behalf of the behalf of the experimental group (blended teaching).

The previous studies were used in the theoretical framework of the study, and the results were used through field implementation through the teachers who practiced blended teaching.

3. Method and Procedures of the Study:

3.1. Method of the Study:

The researcher used semi-experimental method in examining the impact of the independent variable (using blended teaching versus using traditional teaching methods) on the dependent variable (achievement of the students in the Numbers' Unit Below 9999).

3.2. Sample of the Study:

The sample of the study consisted of (97) students (45 males and 52 females) who were chosen from two schools in Bani Kenanah which include several third grade classes. From each school, two classes were chosen randomly, one to be taught through the traditional teaching methods, the other to be taught through blended teaching through the same teacher at each school. The number of the students in the experimental group was (47) students (22 male and 25 female students), while the number of the students in the control group was (50) students (23 male and 27 female students).

3.3. Tools of the Study:

The tool of the study is an achievement test, developed particularly for the present study, and consisted of 30 multiple choice items, and was applied to the control and experimental groups.

3.4. Validity of the Tool:

The content of Maths was analysed, and the objectives were identified, and the table of characteristics was developed. The test was reviewed by ten instructors specialized in curricula and teaching methods, elementary education at the universities, as well as a number of educational supervisors in Maths and elementary education, and third grade teachers. Those referees were asked to comment on the formulation of the items, their appropriateness for the third grade level, their comprehension for the objectives of the lessons and the educational content. Items were modified on the light of the comments, so that some items were removed, and some were modified and others were reformulated.

3.5. Reliability of the Test:

In order to test the reliability of the test, the researchers administered it upon modifications based on the comments of the referees on a sample which consisted of (15) male and female students, and reliability was determined through Cronbach Alpha test. The exam took 45 minutes, and was administered again ten days after the first administration. Reliability value was (0.84). And consistency coefficient was calculated using Cronbach Alpha and the result was (0.89). Thus, reliability of the test was deemed acceptable.

3.6. Blended Teaching Method and Its Implementation Mechanism

The male and female teachers at both schools were asked to teach the students through blended teaching method. Qualification of the teachers were tested through the ICDL and Intel Certificate holding, and the availability of computers in both schools were checked, as well as the readiness of the computers, monitors and a computerized unit about Numbers below 9999, as well as activities and printed materials, and the access to them. Computerized units were provided where they were lacking. And the time for instruction was supervised for both traditional and blended teaching methods.

3.7. Educational Materials

The study was conducted through the teaching of the numbers below 9999 Unit for third Grade, which took five weeks, with 5 weekly classes on average for each group. Maths content was referred to, and lessons included several media, educational tools which integrate learners effectively through the use of technological media and traditional teaching methods, so that teachers employed monitors connected to computers for the presentation of the educational media in order to enrich interaction in class, and to facilitate the students flexible progress through the educational material. Computerized lessons were designed based on specified methods and mechanisms, based on previous experiences, and the provision of the educational aims and outcomes. The teacher presents previous experiences he implemented, then students participate in work, and later they work independently and use blended learning in activities. This is intersected by the interaction and motivating through teachers and students, as well as preparing worksheets to be used by the students in answering questions in blended learning.

3.8. Variables of the Study:

First: Independent Variables:

- 1- Teaching method; which has two levels:
 - Blended teaching.
 - Traditional teaching method.

2- Gender: which has two levels (males and females).

Second: the dependent Variable:

Direct achievement of third grade students in Maths, which is measured through the total scores achieved by students in the exam developed for that purpose.

3.9. Procedures of the Study:

- Developing the educational software, through the use of computer, and revising it by referees.
- An achievement exam was prepared which consisted of (30) items, and reviewed by referees.
- The educational directorate of Bani Kenanah was addressed for permission to conduct the study.
- Choosing the sample of the study, dividing it into experimental and control groups. Kufr Soom elementary school for girls, and Avicenna School for boys were selected.
- The achievement test was administered in order to check the equivalence of the groups.
- The achievement test was administered upon the completion of the experiment.
- Data were collected and processed statistically.

3.10. Statistical Processing:

In order to answer the question of the study, means and standard deviations for the pre- and post-tests were calculated, and the Two Way ANCOVA analysis for the means of the performance of the participants of the study in the items of the Maths achievement test; as well as Bonferroni test for post comparisons between the corrected means of the performance of the participants of the study in the whole items of the achievement test. Effect size was calculated also, through the use of Eta Square.

4.1. Findings of the Study:

- Findings related to the first question which states that " Is there a statistically significant difference at the sig. level ($\alpha=0.05$) between the means of performance of the participants of the study (third graders) in the items of the achievement test in Maths, due to the variables of: teaching strategy (traditional, and blended teaching), and gender and their interaction".

In order to answer this question, means and standard deviation for the performance of the participants of the study in the pretest and posttest, for the achievement of third grade students in Maths, based on the variables of: teaching strategy (traditional versus blended teaching), and gender. Table (1) shows this.

Table (1): means and standard deviations of the performance of the participants of the study in pretest and posttest of achievement test items in maths, according to the variables of: teaching strategy (traditional versus blended teaching) and gender.

Teaching strategy	Gender	Pre-test performance			Post-test performance	
		Number	Mean	Standard deviation	Mean	Standard deviation
Traditional	Male	23	9.61	2.46	12.74	3.39
	Female	27	10.67	3.13	12.63	3.04
	Total	50	10.18	2.86	12.68	3.17
Blended teaching	Male	22	10.36	4.50	16.18	3.06
	Female	25	11.44	2.77	17.08	2.84
	Total	47	10.94	3.68	16.66	2.95
Total	Male	45	9.98	3.58	14.42	3.64
	Female	52	11.04	2.96	14.77	3.68
	Total	97	10.55	3.29	14.61	3.65

Table (1) shows that means of posttest performance of the participants of the experimental group were higher than the means in pretest performance, and that means of the posttest performance of the experimental group were higher than those of the control group. Table (1) shows also differences in the means of posttest scores of the participants of the study in the total items of the achievement test, according to the variables: teaching strategy (traditional versus blended teaching) and gender. And in order to eliminate the pretest differences in performance, and identify the statistical significance of the difference according to the two variables, Two Way ANCOVA was used as shown in table (2).

Table (2): results of Two Way ANCOVA analysis of the means of the performance of the participants of the study in the items of the post achievement test in Maths as a whole, according to the variables: teaching strategy (traditional versus blended teaching) and gender and their interaction.

Source of variance	Total squares	Freedom degrees	Means of squares	F	Sig.	Effect size
Covariance (pretest)	264.016	1	264.016	39.188	.000	.299
Teaching strategy	300.050	1	300.050	*44.536	.000	.326
Gender	.563	1	.563	.084	.773	.001
Teaching strategy× gender	6.004	1	6.004	.891	.348	.010
Error	619.827	92	6.737			
Modified total	1277.113	96				

*statistically significant at ($\alpha=0.05$).

The analysis of covariance in Table (2) shows that the sig. of the teaching strategy variable is (0.000), which is less than ($\alpha=0.05$), which suggests the presence of a significant difference ($\alpha=0.05$) between the post achievement test means of the participants of the study in the items of the achievement test in Maths, due to the teaching strategy variable (traditional versus blended teaching), which indicates the presence of an impact for the blended teaching strategy on the achievement of third grade students in Maths. In order to calculate the difference, between the means of the performance of the participants of third grade students in the post test according to the variable of the teaching strategy (traditional versus blended teaching), Bonferroni test was used for post comparisons, and table (3) shows the results.

Table (3) results of Bonferroni correction for the post comparisons of the corrected means of the performance of the participants of the study in the items of the test in Maths according to the variable of teaching strategy (traditional versus blended teaching) while controlling the effect of performance in the pretest.

Teaching strategy	Corrected mean	Standard error	Difference between means
Traditional	12.90	0.37	
Blended teaching	16.45	0.38	*3.55

*statistically significant at ($\alpha=0.05$).

Results in table (3) shows a significant difference between the performance of the two groups in the items of the achievement test in Maths, and on behalf of the experimental group who were taught through blended teaching method. In order to find the effectiveness (size of the impact) of the teaching strategy (traditional versus blended teaching) on the achievement of third graders in Maths, Effect Size was calculated using Eta Square, which resulted in (0.326) as shown in table (3), which indicates that the variable of teaching strategy (traditional versus blended teaching) accounts for (32.6%) of the variance in the means of the performance of the participants of the study in the achievement of third graders in Maths as a whole.

Table (3) shows also that the sig. of the gender variable (male, and female) was (0.773), which is higher than ($\alpha=0.05$), which indicates the lack of significant difference between the means of the performance of the participants of the study in the items of the achievement posttest ascribed to the variable of gender, which shows the lack of an effect size for gender on the achievement of third grade students in Maths as a whole.

The statistical significance of the interaction between the two variables: teaching strategy (traditional versus blended teaching) and gender (male and female) at (0.348), which is higher than ($\alpha=0.05$), indicates the lack of significant differences (effect) between the means of the performance of the participants of the study in the post achievement test in Maths due to the interaction between the variables: teaching strategy (traditional versus blended teaching) and gender (male and female).

4.2. Discussion of Results:

- Discussion of the first Question, which states that: "Is there a statistically significant difference at the sig. level ($\alpha=0.05$) between the means of performance of the participants of the study (third graders) in the items of the achievement test in Maths, due to the variables of: teaching strategy (traditional, and blended teaching), and gender and their interaction".
- Results showed that a statistically significant difference exists in the performance of the two groups of the study in the items of the achievement test in Maths as a whole, and on behalf of the experimental group which was taught through the use of blended teaching. The researchers expected this result, based on the characteristics and advantages of blended teaching, which include the individualization of learning and student- centered learning, and other modern trends in teaching, as well as the use of various effects including sound, image, motion and color, which provides students with opportunities to search for the information and self-discovery, which facilitates comprehension of concept in a smooth manner. Additionally, blended teaching presents the content in an attractive manner, due to the various effects, which enables meeting the different levels of the students, and designing activities which are

appropriate to the real levels of the students. The better performance of the experimental group can be ascribed to the prevention of boredom, and attracting the attention of the students. Blended learning is more compatible with the pace of the student, which enabled it to improve the achievement of the students. The results of the study agree with the results of all the previous studies (Bani-Doumi and Al-Zoubi, 2012; Daoud and Mahmoud, 2013; Akkoyunlu & Soylu, 2006; Maguire, 2005), and do not disagree with the results of any study.

- Results showed also the lack of a significant difference (effect) at the level ($\alpha=0.05$) between the means of the performance of the participants of the study in the post administration of the achievement test due to the variable of gender. The researcher ascribed this to the use of blended teaching for the male participants of the study, which decreased the differences in achievement between the two classes. The difference can be ascribed to the attention paid by the students (males and females) to the program, and its perceived impact on their performance during the implementation of lessons, because students were provided with copies of the program to be used at home. The result can be ascribed also to the equivalent efforts exerted by both male and female students in order to improve their achievement. This result agrees with the results of Al-Basheer and Al-Hasanat (2013), and Bani-Doumi and Al-Zoubi (2012) which didn't find differences ascribed to gender.
- Results suggested also the lack of a statistically significant difference ($\alpha =0.05$) between the means of the performance of the participants of the groups of the study in the post administration of the achievement test in maths which are due to the variables: teaching strategies (traditional versus blended teaching) and gender (male and female). This result agrees with the results of Al-Basheer and Al-Hasanat (2013), and Al-Awadh and Yunis (2011). The researchers ascribe this result to the nature of the program, and its media and procedures, which affected both male and female participants equally. The teaching method was appealing to them, which may be due to its newness, in addition to the similarities in the educational setting, and the social and economic backgrounds among the participants of the study who were from the same region.

5. Recommendations:

Based on the results of the study, the researcher recommends the following:

- Using blended teaching by both male and female teachers of elementary grades, as well as other grade levels, which assist in supporting the achievement of the students and improves the quality of teaching.
- Conducting more studies, concerning the teaching of Maths and other subjects, for the elementary grades.
- Providing the resources and staff required for supporting the use of blended teaching.

6. References

- Akkoyunlu, B. and Soylu, M. (2006). A study on students' views on blended learning environment, *Turkish Online Journal of Distance Education*, 7(3): 43-56.
- Al- Awadh, Fawzi; & Al-Yunis, Yunis. (2011). Impact of Blended Teaching Method in the Achievement of Students in the units of Functions and Solving Equations and on their Attitudes towards Maths, *Educational Research Journal*, 38 (2), 2351-2368.
- Al-Basheer, Akram; & Al-Hasanat, Isa. (2013). Impact of Blended Learning on the Improvement of Listening Comprehension Skills in Arabic for Lower Elementary Grade Students, *Journal of Educational and Psychological Studies*, 14 (3), 495-521.
- Alexander, David (2004). Cisco Learning Institute for Blended Learning.
<http://www.Cisco Learning Institute>.
<http://www.Rubicon.com.jo/em/PD/html>.
- Al-Khan, Badr. (2005). E-Learning Strategies (Translated by: Al-Mousawi, Ali; Al-Waeily, Salem; & Al-Tiji, Muna), Shoa'a publishing House, Aleppo.
- Al-Ma'aytah, Wilma. (2006). Impact of Using Blended Teaching and Learning through CORT Program for Thinking on the Development of Language Communication among the Students of the University of Jordan, A published doctoral Dissertation, Addustour Publishing Company, Amman, Jordan.
- Al-Zoubi, Ali; & Bani- Doumi, Hasan. (2012). Impact of Blended Learning on the Achievement and Motivation of Fourth Grade Students in Maths, *University of Damascus Journal*, 28(1), 485-518.
- Bani-Hamad, Ali Ahmad. (2011). Impact of Blended Teaching Method on the Achievement and Motivation of Third Grade Students in Learning Arabic, *Educational Sciences Research*, 38(1), 176-188.
- Bersin. D. (2003). Blending Learning What Works?. Retrieved March 2011. From [http:// www. Bersin.com](http://www.Bersin.com).
- Bonk. C. J. & Graham. C. R. (Eds.) (2006). *Handbook of blended learning: Global perspectives. local designs*. San Francisco. CA: Pfeiffer Publishing.

- Dauod, Haidar; & Mahmoud, Raed. (2013). Impact of the Use of Blended Teaching on the Achievement of Fifth Grade Students in Chemistry and their Attitudes towards this Type of Teaching. The Regional Conference of E-Learning, Kuwait, 25-27 March.
- Rossett. A. Douglis. F. & Frazee. R.V. (2003). *Strategies for building blended learning*. Alexandria. VA. USA: ASTD Learning Circuits.
- Salameh, Hasan. (2005). Blended Learning: The Natural Development of E Learning, E-Learning Forums, retrieved from: www.elearning.edu.sa/forum/attachment.php?attachmentid=635&d=118206521
- Stuhlmann. J. & Taylor. H. (1996). *whole-language strategies for integrating into language arts*. ERIC: Dissertation Abstract.
- Subuh, Yousef, & Al-Ajlouni, Khalid. (2003). Impact of Using Computer in Teaching Maths to Secondary School Students of Scientific Stream on their Achieving and Attitudes Towards Computer, *Research Journal*, 30(1); 166-186.
- Whitelock. D. & Jelfe. A. (2003). Editorial: journal of educational media special issue on blended learning, *Journal of Educational Media*. 28(2-3).99-100.