

The Effect of Using Ipad on the Achievement of Children in Layla Kindergarten in Saudi Arabia

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Abstract: *This study investigated the effect of using the iPad on children's achievement of Layla kindergarten in Saudi Arabia, in Aflaj district, compared to the traditional method. The study sample was formed of (42) male and female children during the second semester of the scholastic year 2013/2014. The sample population were randomly selected using the simple sample selection and then distributed into two groups: the control group (22 children) were taught using the traditional method, and the experimental group (20 children) were taught using the iPad. An achievement multiple choice test was given to the population of the two study groups, and the test credibility and reliability were confirmed (reliability coefficient was 0.85). The study results showed the existence of differences with statistical indication ($\alpha = 0.05$) between the achievement of the experimental group children and those of the control group. The implications of the results are that the iPad can benefit children in improving their language skills in a motivating learning environment. The results were in favor of the experimental group children, which were attributed to iPad teaching method. They showed that there were no statistically differences attributed to the gender variable or to the interaction between the gender variable and teaching method variable. The study was concluded by giving some recommendations and suggestions pertaining to this study.*

Keywords: *Ipad, Education, smart class unit, Aflaj.*

I. Introduction

In the era of information technology, iPads have become an effective technology in foreign language teaching. iPads have been integrated into teaching methodologies, and most of the recent research revealed that iPads can enhance student learning. iPad based learning aims at raising students' awareness of learning strategies and providing learners with systematic practice, reinforcement and self-monitoring of their strategy use with language learning activities[5].

iPads allow students to interact interactively with the content of the textbooks, which may not exist in any other educational tools[5]. iPads have been introduced to the market in 2010 and ever since they have been dramatically changed the perspective towards education, teaching and learning nowadays. Thus, they lead to creativity and hands-on learning. There are many educational applications for all types of learners that are available and have free access to them. Students can do their assignments, have self-learning, and get an immediate feedback thru this new device, while teachers can give lessons, monitor progress, and guide their students thru online contact.

Using iPads in technology-enhanced learning environments has caught many educators' attention. In regard to iPad use, some investigations have been conducted into in what ways integration of the iPad changes learning outcomes and attitudes. The graduate school of digital content (2011) conducted a comparative research: students who enrolled in the same digital content creation subject were divided into two groups, one with iPads and one without. The results showed that students in the experimental group achieved higher scores, and their self-study time was double that of the control group. Their understanding of the content was greater; 85% of students in the iPad class said they fully comprehended the content but only 46% said so in the class without iPads.

Tchasel considers e-learning as a challenge to the educationalists in particular and to the community in general. However, it should be accepted and dealt with it as a main part in our life. Otherwise, we will find ourselves back hundred years using the primitive writing tools and the other world is using fiberglass pens and learns via smart phones[15].

Altowaijry examined the development of the educational system in Saudi Arabia by expanding its parameters to take advantage of telecommunications technologies and to incorporate the distance learning method. This research shows the merits of such a method to the concerned authorities in the Kingdom of Saudi Arabia and addresses the difficulty and the inherent resistance to applying the new method in all Saudi educational institutions. The results showed a positive relationship between applying the new method of distance learning and decreasing the number of students who drop out of the educational process for many reasons[3].

All the teachers in Saudi Arabia should be involved from the earliest education levels and in-service training courses for advanced 82 digital competences and e-Learning should be introduced. The training should consider aspects of using information communication technology (ICT) both as a learning tool within subject teaching and a tool used by learners for their coursework outside school settings[2].

Literature suggests that while iPads can be effective in some regards there are challenges. One of the challenges is the technological professional knowledge of teachers and students[1]. However, in spite of the e-learning advantages in learning and teaching processes, its applications are still developing which encounters some challenges and obstacles. Consequently, the researcher has dedicated his efforts in studying the possibility of using iPads in teaching English as a foreign language to the kindergarten children in Aflaj in Saudi Arabia. This endeavor aims at developing teaching English methods in order to help the students comprehend the material in a better way and that will be reflected in the students' achievement. This study adds to previous investigations on the impact of using iPads in English language achievements for kindergarten children.

1.2 Statement of the problem

The researcher observes from a survey questioner and a real observation that the English teachers in Layla kindergarten in Aflaj are still using the traditional methods and resources of teaching such as the real objects, flash cards and textbooks. These tools lack the latest types of attractions for students, in aspects of not involving the suitable means to help them for a proper understanding of the information conveyed. The study problem is determined by knowing the effect of using the iPad on the achievement of the kindergarten children in Layla kindergarten in Aflaj, compared with their colleagues who study through traditional education.

1.3 Research Questions

This study attempts to answer the following questions:

1. What is the effect of using iPads on the achievement of the kindergarten children in Aflaj? From the previous question, the following sub-questions arise:
 - Does the achievement of the children in Layla kindergarten differ according to the method of teaching?
 - Does the achievement of the children in Layla kindergarten differ according to the gender?
 - Is there any impact on the children's achievement in Layla kindergarten due to the interaction between teaching method and gender?

1.4 Objectives of the study

This study tries to view on of the modern e- learning devices, and it's applications in teaching Layla kindergarten in Saudi Arabia. The objectives can be depicted as the following:

1. To apply new and alternative modules away from traditional ones in teaching layla kindergarten through taking advantage of e-learning devices .
2. To identify the differences in the achievement of the kindergarten grade children who use the iPad in studying Layal kindergarten unit and among those who are studying in the traditional manner, as well as knowing the impact the gender variable, and the interaction between the traditional method and gender.
3. To raise the awareness of Layla kindergarten teachers of other majors to use the iPad in the educational process.
4. To improve the methods and resources of Layla kindergarten in the rest of kindergarten schools.
5. To emphasize the importance of using the iPad in providing an interactive learning environment which takes into account individual differences among learners.

1.5 Significance of the study

- The present study highlights the importance of the modern educational trends that emphasize the importance of applying the iPad in the educational process.
- This is the first study – according to the researcher's knowledge - which focused on employing iPads in teaching Layla kindergarten in Saudi Arabia.
- The research contributes to fostering the Layla kindergarten teachers to use the modern methods in teaching, and increasing their awareness of the importance of their use.
- The present study provides language instructors and curriculum designers with a systematically and electronically designed language learning program adopting apple applications.

1.6 Instruments of the study

The instruments required for the study is a survey questionnaire for English teachers and a proficiency test that might be beneficial for English as a foreign language (EFL) researchers.

1.7 Definition of the Terms

- The iPad: is a tablet PC designed by Apple Inc. The iPad features a 9.7-inch touch screen that users can interact with directly through finger strokes. This portable device can be used for browsing the Web, listening to music, watching movies, reading e-books and playing games, among other things.
- The traditional method of teaching: refers to long-established customs found in schools that society has traditionally deemed appropriate. Some forms of education reform promote the adoption of progressive education practices, a more holistic approach which focuses on individual students' needs and self-expression. In the eyes of reformers, traditional teacher-centered methods focused on rote learning and memorization must be abandoned in favor of student-centered and task-based approaches to learning.
- Achievement: the quality and quantity of a student's work . In this study achievement is defined as the quality and quantity of children's achievement of unit one of smart class textbook.
- Unit of Smart Class : It is one of the units in the book of smart class text book and includes different topics like colors, letters, numbers as well as all the four basic skills.

EFL: English as a foreign Language.

Aflaj: Is a city in central region of Saudi Arabia.

Apps: Mobile applications on the apple store.

Mall: Mobile assisted language learning.

1.8 Limitations of the study

This study is limited to the following:

- It is limited to the kindergarten third-grade children and they are in a range of 5-6 years old in Layla Educational kindergarten , the Directorate of Aflaj Education in Layla, for the academic year 2013 /2014.
- It is limited to the impact of the use of iPad on students' achievement.
- It is limited to unit one of smart class in Layla kindergarten.

II. Literature Review

Teaching and learning thru smart devices are very important in the educational field. iPads can greatly improve the outcomes of any Educational system. The scope for mobile applications written specifically for teaching and learning is huge. Educationalists can work with developers to create new and innovative software which reflect the learner's needs and expectations in technology. It can be noticed that some of new articles and studies discussed the importance of applying varieties of iPads applications in teaching and learning .

Sekiguchi investigated in what ways integration of tablet technology changes learning outcomes and attitudes toward Japanese students' English language learning. The students were provided with one iPad each for their self-regulated study within and outside the school. In this preliminary qualitative case study, the students' learning is examined using data including proficiency test scores, reflective journals, online surveys, observation, and interviews with participants. The results revealed critical reflections on the improvement of pedagogical practice for EFL using tablet technology[14].

Aronin and Floyd conducted a study of using iPads in language teaching and learning environment, the findings of their study showed significant effects especially for learners in the early childhood[4].

Pilgrim has conducted research on promising applications of the iPad in kindergarten grade focusing on its impact on the children learning process, and consequently on their performance. He recommended that next coming researches can be extended to cover other applications of the iPad to develop new instruction and learning techniques[12].

Kiger carried out a study on third grade students at a Midwestern elementary school. The students were divided into two groups. The first group used the conventional method in learning multiplication for nine weeks. The other group used the iPad to practice multiplication skills for the same period. The result showed that the performance of the iPad group was higher than that of the conventional group[9].

Moreover, Miller found that e-books is not costly and saves money comparing that to printing textbooks' cost. He also found that e-books displayed on iPad tablets are more accessible and interactive than printed textbooks in first primary classes[10].

Milman examined the use of the first year implementation of an iPad initiative in a PK-4 school in the United States. In this study, the teachers usually initiated the learning activities, and then the students were given the opportunity to carry out the assignments with full freedom to show their creativity[11].

However ,Rossing found in the first primary stage, that a teacher can use some specific applications of iPad to design some activities which will enhance active learning and student participation. Students are allowed to view other's work and share their findings. And when completing each activity, students send their work to their teacher's e-mail for review and feedback. The results showed that students were highly motivated and improved their way of learning in a collaborative environment thru the use of iPads[13].

Crichton carried a study in K-12 schools in order to measure the impact of the iPad on students' interaction and motivation towards learning. Also, to measure the impact of using this new technology on the teachers' performance. Specifically, the iPad was well received and used by the majority of participants in the elementary and junior high schools. The results showed that both students and teachers were more enthusiastic to find educational applications of the iPad tablets[6].

2.1 Similarities and differences between the current study and the previous ones

iPads let students interact with course content in an interactive ways, may not exist in any other educational tool. Thus, it inspires creativity and hands-on learning. Students can search for the meaning of new vocabulary with a single click that leads them to the dictionary or thesaurus[1]It's enabling collaborative and networked interaction between teachers and students and focusing on its impact on the students' learning process, and consequently on their performance[1&9&12]. It also agrees with the previous studies in a way of manifesting the effect of using the iPad on the students' achievement . However, this study differs from the previous literature in its procedures, in significant ways in terms of context, participants, materials, and data analysis procedures. It highlights the importance of using iPad technology in enhancing learning and teaching English processes, particularly in Layla kindergarten. According to the survey questionnaire, the iPad technology has not ever been applied in teaching in Layla kindergarten. Hopefully, this will be the milestone for other studies in teaching English in Saudi Arabia that can be extended to other countries.

III. Methodology And Procedures

3.1 Design of Study

The present study adopts the quasi-experimental of equivalent control group design with its pre and post measure. It is a semi-empirical study. One group, taught by a traditional method, was used as a control group, and the other group was taught by using the iPad. This study is compares the effect of using the iPad with the traditional method on the learning achievement of the students of Layla kindergarten in Aflaj in Saudi Arabia.

The independent variable in this study is the teaching method which has two levels:

- Teaching Method using the iPad.
- Traditional Method using dialogue and discussion.

Whereas, the dependent variable is the students' achievement in unit one from smart class textbook.

Table one : shows the distribution of the study sample according to the sections, gender and groups. It also shows the distribution of study sample

Group	Section				Total
	Male		Female		
	A	B	C	D	
Experimental	10		10		20
Control		10		12	22

3.2 Equivalence Measures

3.2.1.Age

The age of the students was obtained from the kindergarten records. The students' age was ranged between 5-6 years.

3.2.2 Students' Learning Performance

The scores of the first semester was taken from the official school records. The researcher used the T-test to find the difference indicators as shown in Table (2) that shows the Mean, Difference, Standard Deviation, and "T" value for the experimental and control groups.

Table two: T –test for the equality of means between the experimental and control groups of the first semester scores of the students in Layla kindergarten.

Group	N	Mean	S.D	t	df	Sig.
Experimental	20	172.1520	22.221	.581	40	.564**
control	22	169.5520	21.460			

*The final score is 50

**Significant at ($\alpha = 0.05$)

Table (2) shows no differences that have statistical indication ($\alpha = 0.05$) which ensures that the two groups are equivalent.

3.2.3 Performance Level

A pretest was given to the groups prior to the starting of the English course to make sure that the two groups are equivalent in their learning performance.

Table three: T –test for the equality of means between the experimental and control groups on the performance pretest scores

Group	N	Mean	S.D	t	df	Sig.
Experimental	20	14.218	1.475	.240	40	.812**
control	22	14.143	1.555			

*The final score is 20

**Significant at ($\alpha = 0.05$)

The above table shows the mean of the scores of the experimental group is (14.218) with standard deviation of (1.475) whereas the mean of the scores of the control group is (14.143) with standard deviation of (1.555). The t and df values ($t = 0.240$, $df = 40$) indicate that the mean differences between the two groups is not significant.

3.3 Study Tools

3.3.1 The achievement Test

The test was designed to measure the achievement of the kindergarten students in smart class unit of mm-publication at Layla kindergarten. The test aimed to find the effect of using the iPad and comparing it with the traditional method. The researcher followed these steps to prepare the test:

- Analyzed the content of smart class textbook for the second semester at Layla kindergarten for the year 2013/2014.
- Identified the behavioral objectives and shaping them to match the criteria of Bloom's taxonomy of the educational objectives.
- Prepared a table of specifications to cover the distribution of test topics of the unit including the objective levels and the percentage of each one.
- Prepared the test units in an objective way in the form of multiple choice and matching .

3.3.2 Test Validity

The validity of test was confirmed by referring it to a group of reviewers from the faculty members in Aflaj community college as well as supervisors and teachers of Aflaj directorate of education. Reviewers gave their opinions regarding the suitability of the test to the present study purposes. After their feedback, the revision was made through deletion, addition, and modification. The final form of the test contained (6) topics in unit one of multiple-choice and matching type.

3.3.3 Test Reliability

The reliability was measured by applying it on a trial sample which is selected randomly from the students of Layla kindergarten (all research samples were excluded). This sample was selected in a simple form of sample selection. It included 18 students distributed in two sections: one for males and the other one for females of 5 hours a week. After four weeks, the same test was repeated, and the reliability coefficient of (0.85) was calculated using Person formula. The duration of the study was 12 weeks. This value is considered suitable for the purposes of this study. Also, the difficulty coefficient was calculated for each of the test units. The coefficient values were in the range of (0.20 and 0.89). In addition, the discrimination coefficient was calculated for each test unit, and the values were in the range of (0.28 and 0.35). These values are reasonable and can serve the purpose of this study.

3.3.4 Test Correction

The way of correcting the test was given one point for each right answer, and zero point for each wrong answer. So, the highest achievable score is 20, and the lowest is zero.

3.3.5 Test Duration

The duration of the test was timed based on results of the trial test. The fastest student was able to finish the test in 20 minutes, while the lowest student finished the test in 40 minutes. Therefore, the average duration of the test is 28 minutes, which is equivalent approximately to a study period.

3.3.6 Teaching by iPad

The material of the study which was taught by iPad, prepared based on the following steps:

- Subject material identification: This study dealt with the material of smart class unit at Layla kindergarten. The material included colors, letters, numbers and.
- Analyzing the content of the smart class unit for Layla first kindergarten grade approved for the second semester.
- Shaping the behavioral objectives of unit one to make them suitable for the learning situation.
- Choosing the study material content: The researcher chose very well the content to ensure that the content of smart class unit . In choosing the content, the researcher took into account the learners' characteristics, plenty of activities assigned to them, clearance of the language, which has no linguistic mistakes. Also, the researcher focused on the effects of sound, motion, drawings, illustration shapes in all unit lessons, and this is known as Interactive Learning. The researcher referred to a group of expertise to make sure of the study materials and objectives if they are compatible with that content.

The teacher of Layla kindergarten applied the following steps in her teaching method under the researcher's supervision:

- Loaded the content of electronic lessons on iPad, and checked well that all iPads are in excellent conditions.
- The teacher demonstrated to the students how to use the iPad and
 - explained the electronic content supported by manual guide.
- At the end of each lesson, students were asked to answer the electronic evaluation questions that are given in each topic.

3.4 Statistical Treatment

In order to answer the study questions, the data were computerized using the Statistical Packages of Social Sciences (SPSS) by using the following statistical analytical and descriptive procedures: Arithmetic Means, Standard Deviations, T-test, and Two Way interaction ANOVA

IV. Results And Discussions Of The Study Questions

4.1 First Question: Is the achievement of Layla kindergarten children affected by the teaching method?

In order to answer this question, the researcher conducted a posttest after the completion of teaching the experimental and control groups. The posttest was prepared identically to the pretest to find the effect of the teaching method on the learning of children.

Table four: Arithmetic Means and Standard Deviations of the experimental and control children scores in the achievement post-test.

Gender	Statistics	Exper. Group	Contr. Group	Group Total
Male	N	10	10	20
	Mean*	21.820	19.958	20.868
	S.D	2.890	5.390	4.405
Female	N	10	12	22
	Mean*	22.293	20.694	21.464
	S.D	2.928	2.869	2.980
Total	N	20	22	42
	Mean*	22.068	20.367	21.180
	S.D	2.888	4.212	3.715

*The final score is 20

The above table shows that the Arithmetic Means of the scores for both male and female children in the experimental groups are higher than those in the control groups. In order to find the range of the statistical indicators of these differences, an analysis using the 2-way Interaction Anova has been conducted. The following table shows the analysis results.

Table five: results analysis of students' performance in experimental and control groups using the 2-way interaction Anova method.

Source of Difference	Sum of Squares	df	Average of Squares	f	Indicator Level *
Gender	8.775	1	8.775	0.658	0.422
Teaching Method	70.489	1	70.489	5.274	0.026
Teaching Method X gender	0.409	1	0.409	0.032	0.864
Error	1216.728	38	13.373		
Total	43910	42			

* ($\alpha = 0.05$)

The above table shows differences that have statistical indication at the level of ($\alpha = 0.05$) attributed to the teaching method. The calculated f value was (5.274) at the indicator level of (0.026) which means that the difference in teaching methods was statistically indicative. This indication was in favor of the experimental group whose arithmetic mean (22.068) was higher than the value (20.367) of the control group, and this confirms that the students' performance is affected by the teaching method. Also, the difference in the arithmetic means of the two groups indicates that the achievement of male and female students who used the iPad in their learning was better than the achievement of those who used the traditional method. The researcher believes that the above result is mainly due to the effectiveness of the iPad in teaching the smart class. This method takes into account the learner's capability and his self-learning speed. Also, the iPad is a modern teaching method that increases the children interaction with the content of Layla kindergarten smart class unit. For example, a video was photographed showing the students acting their roles in connection with the two lessons of other topics. The video was presented to the students through the iPad which has significantly contributed to the children achievement. This result is attributed to the fact that the learners in the experimental group were exposed to a continuous learning experience that upgraded their performance. In addition, the high performance might be due to the fact that the iPad method enabled the students to present the learning content using various learning tools and media such as sound, movable and stable pictures, written text, and colors. Also, the students were given feedback on what they have learned and the degree of their learning proficiency, and accordingly they were supported at the appropriate time, and placed in an active learning environment. This gives the students a learning incentive on one hand, and retention of what they have learned on the other hand. In view of the above, the students of the experimental group were provided with a better quality and more effective learning than what was given to the students of the control group.

Moreover, the results of this study are consistent with previous findings of [6&7&8&9&12&13] and provide further evidence of the effectiveness of the iPad with its direct and explicit instruction in enhancing students achievement.

4.2 Second Question: Is the achievement of Layla kindergarten children affected by gender?

Table (4) shows that the average performance of the male children in the control group (19.958) is close to the average performance of the female children (20.694) in the same group. Also, the average performance of the male children in the experimental group (21.820) is close to the average performance of the female children (22.293) in the same group. These results indicate the absence of remarkable differences in the performance of the two groups attributed to the gender of the children.

The results of the 2-way interaction analysis shown in Table (5) indicates the absence of any difference with a statistical indication between the achievement of the male and female children of the Layla kindergarten in smart class unit. This means that the children of the two genders are equivalent in their learning aptitude using the iPad which has the same learning importance for both genders. This is due to the similarity of their learning circumstances pertaining to the education opportunities, time, and curriculum that are available for both male and female students.

4.3 Third Question: Is there any impact on the achievement of the kindergarten grade?

In regards to the interaction between the gender and teaching method, the study results showed no differences, which have statistical indication at level ($\alpha = 0.05$) in the achievement of children. This result might be attributed to applying the iPad in teaching the smart class unit using a new method that has a positive impact on all student groups regardless of their gender. This impact was clearly reflected in the achievement level of both male and female children, and resulted in eliminating the interaction between the genders and teaching method.

V. Conclusion

According to the results of this study, the following conclusions can be drawn:

- Using the iPad in learning has a significant effect on the academic achievement of kindergarten children compared to those who learned by the traditional method. The analysis of the study results has shown a difference, that has a statistical indication at the level ($\alpha=0.05$), in the achievement of the experimental group and control group. When comparing the arithmetic means of both groups, it was clear that the difference was in favor of the experimental group. This indicates that the achievement of children (males and females) who learned by the iPad was better than those who learned by the traditional method.
- The 2-way interaction ANOVA analysis indicates that there is no difference, with statistical indication at the level ($\alpha=0.05$), between the achievement of the male and female children.
- Regarding the interaction between the gender and teaching method, the achievement test results of male and female children in the control group indicated no differences with statistical indication at the level ($\alpha = 0.05$). This means that the iPad has no effect on the achievement of children attributed to their gender.

5.1 Recommendations

In the light of study results, the researcher recommends, at the theoretical level, conducting more research on using the iPad as a teaching method for all learning stages and in various study materials. At the practical application level, the researcher also recommends that iPad tablets and software be made available for students in all study stages. In addition, it is recommended that teachers of Layla kindergarten can be qualified and trained for using the iPad and applying its educational programs.

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