The Effects of Animation Usage on First Grade Reading

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Authors' contributions

*This work was carried out in collaboration between both authors. Both authors read and approved the
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ABSTRACT

Success in learning all the lessons depends on the level of student's reading skill. This article is the
result of a quasi-experimental study that was carried out in two schools among four classes of
elementary first grade during 2013-2014 in Yazd city. It aimed to determine the extent of the
animation effect on upgrading the reading skill level compared to the traditional and routine
methods of training. The findings showed that training with the help of animation, compared to the
common traditional method had influenced on the performance of the students on reading skill
among the first grade elementary students based on three factors of fast-reading, correct-reading
and fluent-reading. Therefore, training with help of animation, which can be used in populous
classes and rural schools, where teachers have fewer opportunities for individual training of weaker
students, can also effectively help to promote fast-reading, correct-reading and fluent- reading of
bilingual students.

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1. INTRODUCTION

Language is a gift that God deposits in human beings, As God says in the Quran:

The merciful, has taught the Quran. He created the human, and taught him its pronunciation.

Language has skills including: Listening, speaking, reading and writing. The first two elements are called aural language skills and the second two elements are written language skills [1]. Some people think the reading refers to identifying the word, whereas correct reading entails the need to think about and understand the author's message, although, the words are essential tools for reading.

But what is more important is that when the person is to be really involved in the reading process, s/he should focus on the sense beyond the words to achieve the author's ideas. Reading is a process and a process always involves the change. The correct reading changes the written words to senseful thought that a reader understands [2].

The acquisition of speaking and reading skills starts from the beginning of pre-school periods and expands to the beginning of formal education. The reading skill is one of the most important requirements of students in their life. The ability to comprehend, interpret and make conclusion out of the educational and non-educational texts, the students need to be familiar with the new ideas and information to help them learn how to think and live in better ways [3].

Weakness in reading is a common disorder in elementary school's pupils. It is not allocated to a specific language, and Persian language is not an exception in this respect. Studies by Pirls represent a rather low performance of Iranian students compared to the international average.

The reading can be considered the most important skill among the educational ones. It can be said that almost there is no lesson in which understanding, learning and success in final examinations does not depend, more or less, on the extent of student's reading skill. Even, out of school or university, in our daily lives, we can see that a large part of our information in life comes from reading [4].

But reading skill is a complicated skill and needs special kind of teaching, because as soon as we see a word, a set of complex physical and neurological processes come to work in order to be able to interpret the related meaning. Nervous impulses of the eye stimulate the posterior area of the brain and we can see the clear and dark areas that represent each letter. There is an area in the brain that moves ahead this process and changes letters into sound, then sounds turn to language. Finally, another part of the brain makes these shuffled words a meaningful and interpretable sentence [5].

Learning to read is a process including three chains: a) Decoding, which is a base for fast and fluent reading in children. In the other words, decoding means obtaining the meaning of individual words that is possible through the detection of their formal characteristics and ascribing meaning to them; b) comprehension, which is the second act of reading, depends on the ability to decode and dominance over the observed words. When the word detection is done automatically, the readers can better focus on the meaning of the paragraphs and the sentences they read: c) memorizing which is the final act in reading, it is memorizing or remembering what is read. Children should be able to summarize the contents of material and make them into order; and immediately associate them to what they already knew. Reading memorizing enables students to keep the information in their long-term memory and recall and use them in the future [5].

Reading is almost always a meaningful activity. It is something more than matching sounds with written or printed symbols on the page. Reading is a cognitive process in which the reader's point of views and reading process have so much to do with the material that is about to be learn. Reading is a skill that we all consider it as a common process, but it is in fact a complicated and excellent process including different components [6].

The first effort of teachers to use computers in the traditional classroom was usually in the form of lectures. The learning experiences associated with the act of teaching by teacher carrying out in

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other educational environments were displayed or used as background for further studies. Along with the improvements in other sections, the educational systems have also been changed and the tendency from teacher-centered learning to learner-centered one is increasing. So, teaching and using technology has been included in the curriculum of developed countries. For example, in the United Kingdom the textbooks in any subject consist of three books as the student's book, teacher's guide and student's guide. In all these three books, one can find some activities on information and communication technology.

In recent years, information technology has been so welcomed that it seems being essential element in every aspect of public and private life. The application of new information technologies and their rapid changes has made significant evolutions in all aspects of learning and teaching. Communication and information networks, especially the internet have changed the traditional teaching appearance and interaction between teacher and student in all its levels from the pre-school level to the university.

Technology makes education simple and versatile, increases learning speed and encourages students to seek available resources and take advantage of them (Karami Pour, 2002, P.27) [7]. A few examples of the application of information technology in teaching are presentation with PowerPoint facilities and making use of e-books.

Educational video is a phenomenon with a special position in developed countries. Such countries have long achieved the affective and successful patterns in teaching with modernizing educational system and combining the traditional methods with information and communication technology. However, in Iran with the forty years of experience in educational film and television, the educational textbooks are the only official training media. The role of other media, especially the modern information and communication technologies is not so significant in the official educational system.

Although there is no research on Persian language teaching with the help of animation, one can find a number of studies in English language teaching to the native and non-native English speakers as well as mathematics teaching to the elementary students using educational multimedia.

1.1 Related Works

In the field of reading and problems related to it, several studies have been done. In recent decades, the use of different methods and tools as computer in order to upgrade the level of reading skill has been the main concern of many foreign language researchers. Although the small number of studies focus on appropriate approaches of e-reading for a various categories of learners, and most of them concentrate only on the effectiveness of reading-based approaches [8], there are still a variety of studies representing the influence of electronic approaches on the progress of reading skill.

Aist in a research entitled "helping children to learn vocabulary through loud-reading by a computer "that executed on the second and third grade 144 students during one year, believes that although there was no significant difference between the results of test and control groups of the second grade, the third grade students who were taught by computer compared to a group taught in usual classes and even a group with individual teaching method had a remarkable priority in terms of saving vocabulary and comprehension [9].

Silverman and Hines by employing an advanced multimedia compared to the traditional method in language learning between two groups of native and non-native English speakers showed that although multimedia had no added value for non-English speakers, it had positive effects for English speakers and caused the gap between educational words of children instructed by multimedia to disappear, and it reduced the gap in their public words knowledge [10].

Unfortunately no research in the field of teaching to read with the help of animation has been done in Iran, but making use of digital multimedia in teaching the courses other than Persian language has been reported in some studies. Behrangi and Asadi investigated the impact of accompanying multimedia Builder software with teaching pattern of word writing on increasing the vocabulary scope and power of student's comprehension in English course [11]. The method used by these researchers needs a necessary access to special software which most schools lack. But using animation in the form of a file even playable by simple cell phones will make the use of such learning device so easy that the majority of students can get more benefit out of it without any serious problem.

Some other researchers compared a teaching software to the traditional method in teaching 4th grade mathematics and showed that computer-assisted teaching in comparison to the traditional approaches has significantly been effective in academic math achievement of students [12].

Heydari, and his colleagues compared the impact of teaching English using educational software to the traditional approaches on the academic achievement of students, and stated that not only using educational software in teaching is effective on the academic achievement of students in English learning, but also teaching English with the use of educational software has been effective on student's motivation towards learning English [13].

Sheykhzadeh and mehrmohammadi by making the math educational software based on constructivism perspective and implementing it in comparison to the traditional method in elementary school announced that there is a meaningful difference between teaching with constructivism software and conducting group activities, also between teaching with constructivism software and the student's response rate to questions of high level cognitive domain (in the test group compared to the evidence group). They also concluded that teaching by constructivism software increases motivation, problem designing and solving skill in learners compared to the non-computer teaching method [14].

More recently in an interesting study Bahrul Islam and his colleagues tried to examine the impact of student's abilities to acquire new knowledge or skills through visual learning materials and blended leaning that is integration of visual learning materials with teacher's instructions. They visited a primary school in Dhaka city for their study and conducted teaching with three different groups of students. The first group consisted of teacher taught students by traditional system on same materials and marked level of student's ability to adapt by a set of questions. The second group was taught with only visual learning material and assessment was done with 15 questionnaires. The third group was taught with the video of solar system combined with teacher's instructions and assessed with the same questionnaires. In fact, the third group was instructed using a blended approach of learning integrating visual materials (solar system) with verbal instructions. The results of this study showed that interactive blended approach greatly promoted students ability of acquisition of knowledge and skills. It also revealed that the students' response and perception were very positive towards the blended technique than the other two methods [15].

2. METHODOLOGY

This research tries to evaluate the ability of fast-reading, fluent-reading and correct-reading of first grade elementary students with help of animated images. In this study one lesson from first grade Persian reading lessons was prepared and used as animation in order to upgrade the level of reading skill in three factors of fast-reading, correct-reading and fluent-reading. To do a fast-reading test, correct-reading and fluent-reading, a lesson made in the form of animation was provided and 30 of 40 words that all had letter چ (ch) selected by education experts of elementary schools and some first grade elementary teachers from Yazd city and one sentence was determined for fluent-reading test. After preparing these materials, one class was taught the 17th lesson in the form of animation. The animation presented two times for the class and then a similar lesson was read to the students. After that, students practiced with 30 selected words (Table 1) to be able to read them. During this stage and after fixing letter چ (ch) for fast-reading test, students were asked to read 30 selected words in 90 seconds and the teacher recorded the allocated time by stopwatch. In the same time, the number of correct-reading words was recorded by the researcher. Then the students were asked to read the mentioned sentence and detect their fluent-reading. The number of their pause was then recorded.

The research method in this study is quasi-experimental. The statistical community consists of all girl students studying in the first grade elementary school from two areas of Yazd city in the year 2013-2014. Among these first grade classes, 4 classes were selected randomly, two classes in each group. Thus, 50 students were selected as evidence group and 47 students as control group. The age range of these students was between 6 to 7 years. With manipulation of independent variable, namely, teaching with the help of animation and student's interaction of test group with it, while the lack of such teaching method for the control group, its impact on dependent variable, namely, the improvement of

reading skills (fast-reading, correct-reading and fluent-reading) was investigated.

The validity of the materials of the study was tested and justified by education experts of elementary schools and some first grade elementary teachers from different schools in Yazd city. The Cronbach' Alpha test was also applied to examine the reliability of the various parts of the experiment. It was calculated more than 70% which was encouraging for this experiment. For analysis of data in this experiment we used descriptive statistics, and for verifying the research hypotheses the inferential statistics, mainly independent t-test was used.

The main research question of this study can be formulated as follows:

Is there any significant difference between the reading comprehension of students taught with animation and those with traditional method in terms of fast-reading, fluent-reading and correct-reading factors?

To determine the student's fast-reading and correct-reading, 30 words were written on the board and the students were asked to read them. If a student could not read a word, the next word was exposed to him/her. In order to determine correct-reading of each word, the score of 1 was assigned to the words that a student would read correctly, and for each word with the wrong reading, a score of zero was recorded. The time allocated for reading every word was equal to 3 seconds. A rerecord of their fast-reading rate was done by one of the elementary school teachers using a stopwatch. And for recording the correct-reading rate of each of them, the number of correct words was recorded by the researcher. To assess fluent-reading, the selected sentence was written on the board and the students were asked to read it, then the number of their pauses was recorded.

There were some limitations due to the educational authorities' reluctancy to carry out the experiment in their schools. They believed that doing such experiments in the regular classrooms would lead to a kind of suspension in students learning process. So, we had to limit our experiment to some selective schools. For this very reason there were not enough samples for those students whose native language were other than Persian to be included in the experiment.

2.1 Research Findings

To verify the research hypotheses and extract the overall conclusions out of this study, and to compare the mean of both control and test groups in the three factors of reading skills in this research, namely, fast-reading, correct-reading and fluent-reading, the statistics measures like descriptive statistics, inferential statistics and independent t-test were used.

According to Table 2, 47 cases (48.5%) of the sample group were taught with help of animation and 50 cases (51.5%) were taught with traditional methods.

Table 1. 30 selected words for evaluating fast-reading and correct-reading

گچ (chalk)	چسب (Glue)	چکمه (Boot)
کوچه (Alley)	آچار (Screwdriver)	چوب (Wood)
چاقو (Knife)	پیچ (Screw)	چشم (Eye)
چنگال (Fork)	چشمه (Spring)	چراگاه (Pasture)
کوچ (Migration)	چادر (Tent)	چتر (Umbrella)
چنار (Plane)	قوچ (Ram)	چرک (Dirt)
دوچرخه (Bicycle)	چوپان (Shepherd)	قارچ (Mushroom)
چراغ (Lamp)	چرخ (Wheel)	چانه (Chin)
چای (Tea)	پارچ (Jar)	چمن (Grass)
یخچال (Refrigerator)	مورچه (Ant)	قیچی (Scissors)

Table 2. The frequency distribution of the students in terms of teaching method

Teaching method	frequency	Percent
Animation	47	48.5
Traditional	50	51.5
Total	97	100

According to Table 3, 72 cases (74.2%) were Persian, 20cases (20.6%) were Afghan, and 5 cases (5.2%) of sample group were Arab.

According to Table 4, the minimum time of reading was 50 and its maximum was equal to 90 seconds. The average duration of reading was 82.73 seconds and its standard deviation was equal to 10.078.

According to Table 5, the minimum number of correct-reading words by students was 15 and its maximum was equal to 30 words. Average number of correct-reading words was 25.04 and its standard deviation was equal to 4.83.

According to Table 6, the minimum number of pauses in reading the sentence was zero and its maximum was equal to 3. Average number of pauses in reading the sentence was 1.8 and its standard deviation was equal to 0.909

To compare the performance of fast-reading factor in students taught with help of animation and those taught by traditional method, the independent T-test was performed. Considering the meaningful level of independent T-test that was less than the assumed error in research (0.05), the difference between the both groups was meaningful. According to the mean of both groups shown in Table 7, it can be seen that the students taught with help of animation were able to read faster than those taught with the traditional approach.

Table 3. The frequency of the students distribution in terms of language group

Language group	frequency	Percent
Persian	72	74.2
Afghan	20	20.6
Arab	5	5.2
Total	97	100

To compare the performance of correct-reading factor in students taught with help of animation and those taught by traditional method, the independent T-test was done. Considering the meaningful level of independent T-test that is less than the assumed error in research (0.05), the difference between the both groups was meaningful. According to the mean of the both groups shown in Table 8, it can be seen that students taught with help of animation were able to read more correctly than those who taught by traditional approach.

To compare the performance of fluent-reading factor in students taught with help of animation and those taught by traditional method, the independent T-test was done. Considering the meaningful level of independent T-test that is less than the assumed error in research (0.05), the difference between the both groups was meaningful. According to the mean of the both groups shown in Table 9, it can be seen that the students taught with help of animation were able to read more fluently than those who were taught by traditional approach.

Table 4. Descriptive indices of reading duration

	number	minimum	Maximum	Mean	Standard deviation
Duration of reading	97	50	90	82.73	10.078

Table 5. Descriptive indices of the number of correct words

	number	minimum	Maximum	Mean	Standard deviation
Number of correct words	97	15	30	25.04	4.830

Table 6. Descriptive indices of the number of pauses in reading a sentence

	number	minimum	Maximum	Mean	Standard deviation
The number of pauses in reading a sentence	97	0	3	1.80	0.909

Table 7. The comparison of the performance of fast-reading factor in students taught with animation and traditional method

Teaching method	number	Mean	Standard deviation	Amount of T	Freedom degree	Meaningful level
Animation	47	75.00	9.668	-10.974	95	0.001
Traditional	50	90.00	.000			

Table 8. The comparison of the performance of correct-reading factor in students taught with animation and traditional method

Teaching method	number	Mean	Standard deviation	Amount of T	Freedom degree	Meaningful level
Animation	47	28.57	1.229	9.908	95	0.001
Traditional	50	21.72	4.589			

Table 9. The comparison of the performance of fluent-reading factor in students taught with animation and traditional method

Teaching method	number	Mean	Standard deviation	Amount of T	Freedom degree	Meaningful level
Animation	47	1.17	0.481	-9.035	95	0.001
Traditional	50	2.40	0.808			

3. DISCUSSION AND CONCLUSION

The findings of this study showed that learning to read as the most important skill in education, can attract the researchers' attention in various forms, among them using animation and converting printed books to the animated books in teaching this skill. In this research, three factors of reading skill, namely, fast-reading, correct-reading and fluent-reading were studied and analyzed, and the impact of animation made by the researcher on this skill was evaluated. The obtained results indicated that all three skills of fast-reading, correct-reading and fluent-reading were under the influence of animation and enhanced the student's ability to read.

Among the reasons of effectiveness of this method is that animation has always been fascinating and attractive for children, since it uses all the factors that can visualize the child's images and portray it. The child can easily accept the characters and allow them to enter his/her fantasy world. As animation directly influences the child's mind and speech, it can be used to improve reading skill. The child is encouraged to learn by observing the lesson as an animated film as it has already been changed from its formal and textual form to a situation with live characters.

Over the years, the different methods have been introduced for teaching of all educational courses and today hundreds of educational programs have been designed based on different theories. However, a significant point in such programs is the lack of attention to Persian language and reading skill in this language which is the essential part of forms of education. Unfortunately, in our country, Iran, this issue has almost been ignored and only nonprofit schools that are independently budgeted that have tried to use this new technology in teaching courses. An important point noticed in many different studies, though no special act is done to handle it is that inability to properly read seems to be accounted as one factor in creating social disorders such as unemployment, dropout, offence and even crime. Therefore, reading skill is one of the most essential skills in education, and it is recommended to improve its quality through new technology.

Considering the ever-increasing speed of technological progress in the world and its entrance to education domain, it feels a need to learn and use it in educational course. Since the elementary school is the start of the official training in our education system, the best is to enter such period with modern approaches so the children can meet it from the very first steps of education.

This study was proposed and designed by researcher for the first time by which three components of reading skill (fast-reading, correct-reading and fluent-reading) were analyzed. The obtained results represent this important point that using animation in Persian lessons influence fast-reading, correct-reading and fluent-reading and promotes them.

Perhaps the most important reason for such an efficacy is that making an entirely live and animated situation for learning involving audio-visual faculties of the students can well upgrade their reading skill level. This way, the student comes out of a repetitive and boring situation of traditional education and into an interactive and animated one and touches the lessons. S/he gets excited by the motion of pictures and their being alive and records them in her/his mind unconsciously. This issue has frequently been expressed in assessing the impact of cartoons and animated films on children and improving the level of their learning.

Student viewing the live and animated lessons may make herself / himself closer to it due to her / his high imagination as a result of animism with it. So she/he enjoys any moment of it and keeps it in her/his mind. So this process facilitates learning, reading skill and teacher's teaching. The very course of action makes the learning process and reading skill much easier both for students and their teachers.

In this study it was also revealed that after finishing the presentation of the lesson in the form of animation the students start to interact with their teachers and between themselves and frequently ask the teacher some questions about the animation. It also enhances participation in class and their learning. As this method is designed in such a way that would be available for all students, it can have the role of a tutor and give the student self-confidence. S/he knows, if s/he did not understand a thing during the class period, s/he can review it at home and would not slow down the other students present at class. It also gives the parents who are worried about their children's education and are not able to help and support them due to their low level of literacy or their business engagement some calmness.

There was no other similar research to the present one to be compared with. However, according to other computer tools evaluated in educational settings, the results of this study were consistent to them. The results showed the effectiveness of the animation on promoting the level of reading skill in 1st grade elementary school students. Although in teaching the other courses the various computer tools were used in other studies, in case of Persian language and animation tools the lack of investigation are prominent.

In addition to the important points mentioned in reading skill, time is also one of the important factors in learning through this method of teaching it can be well saved. If the student happens to be absent in class session, there is no need for the student to be stressful or concern and for the teacher to bear extra burden due to the absence of some of the students, so eliminating the source of stress and concern for the teacher. This way, having such a live text book can compensate the time lost on the student's leisure time. We hope we may change the teacher-centered approaches in teaching into the learner-centered ones, and lead the classrooms from a static into a dynamic learning environment with the help of modern technology facilities. Then, we will observe the improvement in all learning skills specifically in public schools whose students are more vulnerable.

4. CONCLUSION

The present study aimed to determine the extent of the animation effect on upgrading the reading skill level compared to the traditional and routine methods of training. The findings showed that training with the help of animation, compared to the common traditional method had influenced on the performance of the students on reading skill among the first grade elementary students based on three factors of fast-reading, correct-reading and fluent-reading. Therefore, training with help of animation, which can be used in populous classes and rural schools, where teachers have fewer opportunities for individual training of weaker students, can also effectively help to promote fast-reading, correct-reading and fluent- reading of bilingual students.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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