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The advantages of using smartboards to teach geometry lesson of 10. grade students

ABSTRACT

The aim of this essay is to analyse the results of using smartboard in geometry lessons of 10. grade students. By looking at the results of experiment I will explain the advantages and disadvantages of using smartboards.

To investigate the advantages of using smartboards in geometry lessons I made an 8 week experiment in Almaty Kazakh Turkish High School for Girls. In the experiment there were two homogenous groups of students. In one of the classes, which was my experimental group, I used smartboard and teach Vectors unit, in the second group, that was control group, there were no smartboard, by using only blackboard I explained the Vectors. Both of the groups wrote a pre-test at the beginning of the unit. At the end of experiment both of the groups wrote a post-test. Also I used sample t-test to determine whether there was a significant difference between the means. In the experiment there were 40 students that were similar in age, knowledge, performance and ability.

As a result of the experiment there were a significant difference between the means of exams of the groups. Experimental group made a better average from the post-test and other small exams. After 1 month I made a permanence test and check the results. The results show that the students in experimental group remember the topics more than the students in control group. That shows the advantage of using smartboard.

Key Words: Mathematics Education, Smartboards, Using Smartboard in Geometry Lessons.

INTRODUCTION

For 6000 years after the invention of writing, technology is developed from sand pools and wood shells to books, computers and internet. For a long time teachers and books were main parts of the education. And now we come to a point of technology which is including visual and auditorial materials. [1, p13]

In the education the main goal is to teach the topic to the student. In traditional education system the teacher is active but the students are passive. That make the teacher learn more but student may not learn so much. Also maintenance of given information is a matter. How can we solve this problem? By using the modern education technology we can make the student more active than the teacher. In developed countries they made experiments about the advantages of using the new educational technologies. "The main target of the education is to educate the person and increase his/her mental development. The education can be in schools and other education places. It is obvious that if we use the new technologies in the schools the education will be more effective and permanent." [2, p15]

By looking at this we can say that it must be forced to use the technology in education system by the governments. "The effects of using the new technologies in educational corporations are different. In the new education technologies the teaching methods, the teaching materials and the contents are changed. These changes effects the programs of education faculties in universities too. In lots of states of the USA it is compulsory to know using the new technologies to get permission to be a teacher." [3, p11]

We can easily say that it is important to use new technologies in education to obtain a better education and for the maintenance of the given information. So we must know the content of these new technologies. One of the newest technologies in education is the smartboards. "In 1991

SMART technologies introduced their first smartboards. Starting from that date for 20 years smartboards are used in many different areas including education, business, advertisement and televisions.” [4, p15]

How can we use the smartboards in education or is it useful to have a smartboard in the classroom? Pedagogues say that : ‘For a new technology device it is not easy to guess if it will be useful or not. Also there is no criteria for inventing a product for students which is very useful. For this reason the only way to prove that a device is useful in education technology is to use it in classroom.’ [5, p16]

That means without using the smartboards in the classrooms we cannot decide whether it is useful or not, for an effective education. For this reason some padagogues from different countries made experiments to analyse the advantages of using smartboards. Some of these experiments were: Smith, Higgins, Wall & Miller 2005; Kennewell & Beauchamp 2007; Lewin, Somekh & Steadman 2008 and Wood & Ashfield 2008.

In the last years some researchers have suggested that the interactive whiteboard has great potential to facilitate the teaching of very different concepts which have a strong dynamic visual component [6, p20]. Some of the other researchers have praised it for incorporating multiple representations [7, p146], creating dynamic learning environments for students [8, p63], and improvement in mathematical thinking skills [9, p9].

The results of the experiments show that using smartboards have more advantages than using only blackboards. We can quickly say that smartboard is a type of blackboard and we can do everything that we can do on a blackboard by using the smartboards. In addition to this a smartboard has more properties than a blackboard that make the smartboards more useful than the blackboards. What are these properties?

1. A smartboard is a computer screen and we can do everything that we can by using a computer.
2. We can save, move, rearrange, reopen, cut, copy and paste files, books, pictures, presentations, movies, sounds, etc... on the screen of the smartboard.
3. We can use color palettes or highlighters to use different colors on the board and by this way we can do our writings more attractive for the students.
4. By using the properties of the smartboard we can draw excellent geometric figures. By this way the students will understand the drawings better than on blackboards.
5. By using writing options we can write on the smartboard with computer’s basic fonts. So our writings will be more comprehensible.

We can find a lot of more advantages of using smartboards. These are just some basic advantages of it. A well-educated teacher may develop his/her skills on using the smartboards and they can find more advantages.

METHODOLOGY

The aim of this experiment was to investigate the advantages or disadvantages of using smartboard in 10. grade students geometry lesson. In this experiment I tried to answer the following questions also:

1. Is it an advantage or not to use smartboard in 10. Grade geometry lesson?
2. Is there any difference between the achievements of the students who get lesson by using the smartboard and the students who get lesson by using only blackboard?
3. Is there any difference between the attitudes of the students of the classes which has used smartboard and which has used blackboards, towards the mathematics?
4. What are the disadvantages of using smartboards?
5. Is there any difference between the maintenance of the learned data by smartboard and by blackboard?

To answer these questions firstly I select 10. Grade students in Almaty Kazakh Turkish High School for Girls. There were two classes which has students similar in age, gender, knowledge, ability and achievement. Firstly, I made a pre-test to all students of both of the classes and compare the results. The average of the exam for both of the classes were almost the same. So,

I realize that the classes are homogeneous. After that I taught “Vectors Unit” to both of the classes. 10-A class was my experimental group. So I used smartboard in this class to teach the topic. 10-B was control group, so I used only blackboard and explain the lesson. The experiment took 8 weeks and 16 hours lessons. Both qualitative and quantitative data were gathered during the research. The data was acquired by means of “Vectors Achievement Test”, “Attitude Measure as Regards Geometry” and “Attitude Measure as regards the Smartboard in Geometry Lesson”.

After the topics finished I prepare a post-test for both of the classes. Then I compare and analyse the results of the exams and other obtained data. One month later I prepare a maintenance test and then analyse the results of all tests.

It was understood from the data gathered from the research and test results that the use of smartboard make a ‘small’ difference between the geometric achievements of the experimental and control group students in terms of “Vectors unit”. Experimental group has a better average but it is not very significant difference. It was understood that there is a significant difference in attitudes of the experimental group towards the geometry lesson comparing by the control group. It was determined that the attitude of the students towards the smartboard in geometry lesson was in a very good level.

CONCLUSIONS

By looking at the result of the experiment we can conclude that:

1. Usage of smartboard increase the achievement of the students in geometry lesson. It may not be very significant for some students, especially for the students who has a bad achievement in the previous geometry topics, but will be a significant difference for lots of the other students. In any case there will be an increase in the achievements of the students in geometry lesson.
2. Using the smartboard increase the maintenance of learned information in geometry lesson. People understand and remember more for the visual objects and by using smartboard we can show more visual objects in the lesson. By this way we can increase the maintenance of the learned topic.
3. Using the smartboards make the students more motivated in the geometry lesson.
4. Using smartboard take more attention of the students in geometry lesson. Smartboard has a surface which is more lighter than any other object in the classroom. So it will be more attractive for the students and they will be more concentrated in the lesson.
5. Using smartboards make the students more active in the lesson. Smartboard seem like a toy for the students. So they want to write more on the board. For this and similar reasons students are more active in the classes.
6. As a disadvantage, smartboard cannot be used by more than one student at a time. To overcome this problem we may use a blackboard and a smartboard at the same time.
7. As another disadvantage we can say that the smartboards use computers and also electricity. So there may be some technical problems like adjusting the smartboard, setting up it and interruption of electricity. If the teachers take technical support courses they can overcome this problem too.

As a result, we can say that the usage of smartboards will increase the achievement of the students, attitude of the students towards to geometry lesson and maintenance of the information given by the teachers.

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Резюме

Целью данного анализа является анализ результатов использования «SmartBoard» в геометрии уроки 10 классов. Глядя на результаты эксперимента я объясню преимущества и недостатки использования smartboards.

Resume

The aim of this assay is to analyse the results of using smartboard in geometry lessons of 10. grade students. By looking at the results of experiment I will explain the advantages and disadvantages of using smartboards.

Özet

Bu testin amacı, 10 geometri derslerinde «smartboard» kullanmanın sonuçlarını analiz etmektir. sınıf öğrencileri. Deney sonuçlarına bakarak ben avantaj ve dezavantajlarını kullanarak «smartboards» açıklayacağız.