

THE OPPORTUNITIES OF TEACHING ASTRONOMY BASED ON MEDIA EDUCATION AT A SECONDARY SCHOOL

Narbaev Azamat Bakhramovich
Basic doctoral candidate of Termez State University

ABSTRACT

This article is about the efficiency of teaching astronomy based on media. Here, opportunities of media education in teaching astronomy are shown in respective ways by comparing them with usual ways of teaching. Teaching the subject of astronomy, which is helpful in improving the imagination of students and in positive influence on learning the subject, is enlightened by some experiments.

Keywords: Secondary school, media education, information technology, the Internet, astronomy, electronic textbook, didactic principals, control groups.

INTRODUCTION, LITERATURE REVIEW AND DISCUSSION

It's impossible to see area the where the information technology is not implemented. The information science is used efficiently also in the education system. Astronomy is considered to be a natural subject which is why it is very particular to develop the student's talent of imagining.

One of the founders of pedagogy Y.Komenski, who was from Czech Republic, thought that the didactic principle was the principle of harmony with the nature. He had other basic principles too. But A.V.Disterveg, a German pedagogist, pointed out that the didactic principles must be conditioned by special requirements. K.D.Ushinski, a Russian pedagogist, entered the following four didactic principles into the science:

- a) mind - principle of activeness;
- б) indicative principle;
- в) the principle of sequence;
- г) the principle of solidness of the knowledge.

Today, didactic principles have been widely learned and the following is elaborated:

- the principle of consciousness and activeness;
- the indicative principle;
- the principle of system and sequence;
- the principle of solidity;
- the principle of reliability;
- the principle of scientific nature;
- the principle of connection between theory and practice;
- the historical principle;
- the principle of details;
- the humanitarian principle;

Media education is based on the indicative principle which is given among the above mentioned didactic principles.

And in the real life a human keeps the event for a longer time in his memory which he learned than the one he heard. According to the psychological information, a human receives 85% of the things by seeing them, and 11% by hearing them.

It is required to be more imaginative to learn astronomy as it is a natural science. Consequently, the visual perception plays the main role in exploration of sciences. Formation of skills and experience by seeing is thought to be one of the most important tasks of media education. The efficiency of media education can be described as in following way:

- indication;
- time saving;
- protecting the students' minds from negative impact of the information on the Internet;
- increase the the students' interest in the subject;
- efficient usage of time (electronic books, games which are meant to learn the subject and etc.)
- teach the students to study independently.

As it is obvious from the above mentioned, proper organization of media education help to have more details about the subject and get more knowledge. We will also give you some recommendations on teaching astronomy at secondary schools by using media education.

As it is known, there may be some obstacles in teaching the chapter of astronomy so called "Spheric and applied astronomy" which involves a lot of imagination. The reason is that not all of the students have the same talent of imagination, and a certain process may not be imagined properly by seeing with eyes. If we want to explain by the observations at night, we may face a range of difficulties. They are given as in following:

- in the city schools, the stars cannot be seen because of the lights at nights. Therefore it is necessary to take the students to the places which are situated in the outskirts of town and conduct the observation there. Conducting these kinds of observation several times may create some inconveniences;
- the astronomic observations involve more time. For example, if we want to watch how the stars move, it may take at least 1 (one) or 2 (two) hours Because of slow movement of the Erath the observation of stars is respectively done slowly. This may bring some problems in imagination which are also thought to be particular inconveniences;
- to explain and form the annual movement of the sun by observations it takes too much time. Very short movement of the sun in a day may also create a few difficulties in defining it;

Taking into account these inconveniences, we do not think that the idea of less conduction of the observations is correct. However it is possible to form full imagination about the sky objects for a short time in students by the curriculum means of media education. A computer, a projector, and other necessary means are needed to organize the lesson on this subject.

Following this method, we elaborated the programme which is based on teaching astronomy using the means of media education (picture 1).



Picture 1: *electronic textbook made for the 11th grade students at secondary schools*

We conducted experiments on how to teach astronomy by using the means of media at the schools situated in Sherobod, Jarkugon and Kumkorgon Districts/ Surkhandarya Region.

The experiment was conducted among the students of two 11th grade groups at each school. Totally 100 students from selected groups and 100 students from control groups took part in it. The experiment has been conducted mainly in the third and fourth terms of the study year.

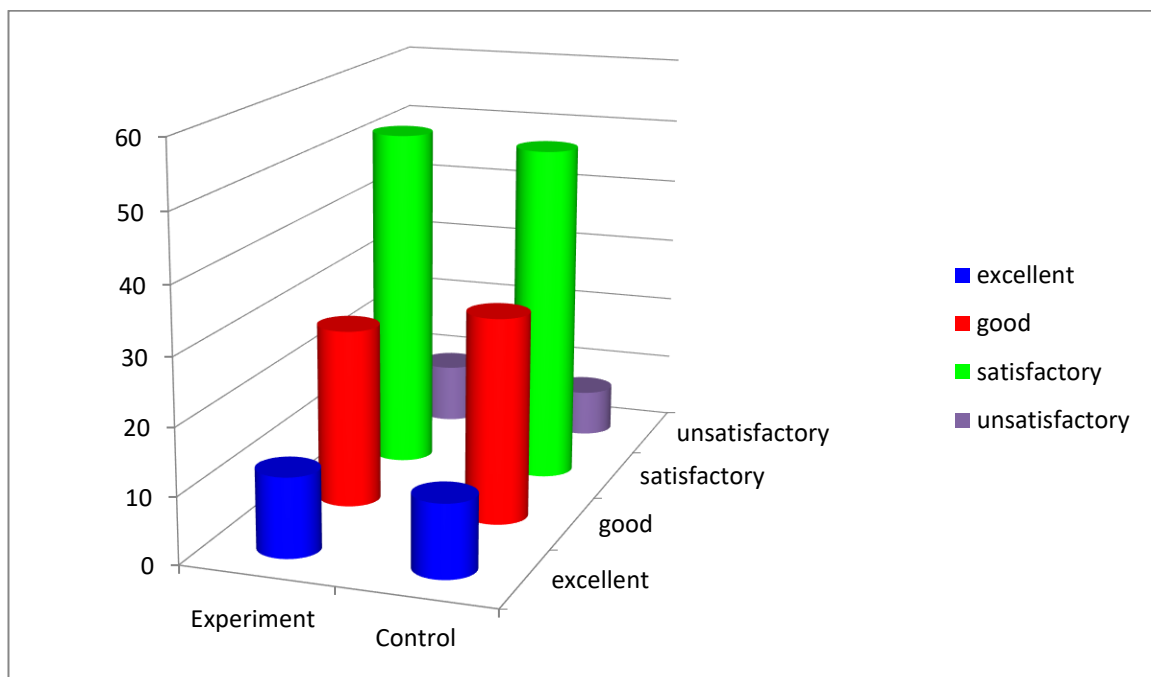
The classes have been organized for the experiment groups according to curriculum made up for the subject of astronomy based on media education. And the classes for control groups have been organized in an ordinary way.

The students' knowledge on the themes, which was explained before the experiment, has been assessed by giving them 20 tests on these themes. The results have shown the following: out of 100 students of the experimental groups 12 students got "5" mark, 27 got "4", 52 got "3", and 9 got unsatisfactory marks. Out of 100 students of control groups 11 students got "5" mark, 31 got "4", 51 got "3", and 7 got unsatisfactory mark. The table #1 contains these results.

Table #1

Number of students	Experimental groups				Control groups			
	Mark				Mark			
	Excellent	Good	Satisfactory	Unsatisfactory	Excellent	Good	Satisfactory	Unsatisfactory
100	12	27	52	9	11	31	51	7

These numbers are given in diagram as in the picture #2.



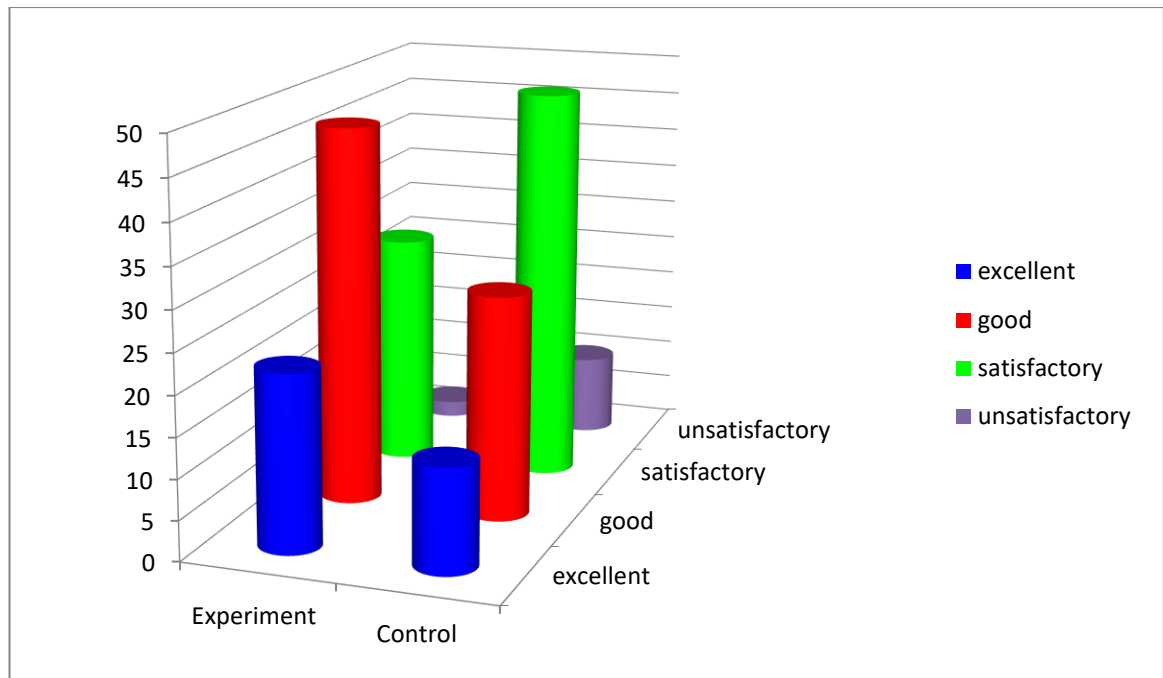
picture #2: the analytical chart of the knowledge on astronomy of the experimental and control groups before the experiment was conducted.

In order to assess the students’ knowledge of the lesson explained them, they were given 20 tests as soon as the classes, which were prepared in accordance with the media education textbook, ended. The results have shown the following: out of 100 students of the experimental groups 22 students got “5” mark, 47 got “4”, 29 got “3”, and 2 got unsatisfactory mark. Out of 100 students of the control groups (the classes were held in an ordinary way) 13 students got “5” mark, 28 got “4”, 49 got “3”, and 10 of them got unsatisfactory marks. The results are shown in the table #2.

Table#2

Number of students	Experimental classes				Control classes			
	Mark				Mark			
	Excellent	Good	Satisfactory	Unsatisfactory	Excellent	Good	Satisfactory	Unsatisfactory
100	22	47	29	2	13	28	49	10

The numbers can be seen in a diagram in picture #3.



picture #3: *the analytical chart of the knowledge of the experimental and control groups after conducting the experiment on the subject of astronomy.*

In conclusion, we can say that not only does the method of media education improve the students' knowledge but it has also the following advantages:

- presentability and forming the imagination;
- saving the time;
- protecting the students' minds from harmful information on the Internet;
- increase the students' interest in the subject;
- effective usage of the students' free time (electronic books, games which are meant to learn the subject etc)
- teaching the students to work independently.

REFERENCES

1. M.Mamadazimov, A.B.Narbayev. Electronic Textbook for the 11th grade students and the students of secondary-special professional institutions. Tashkent 2018
2. M.Djorayev, B. Sattarova. The theory and methodology of teaching physics and astronomy. - T.: «Fan va texnologiya» (Science and technology), 2015
3. Sattarova B. Information technology in teaching astronomy. Textbook. –T.: 2013.
4. Mamadazimov M. Teaching astronomy at school -T.: O'qituvchi (Teacher), 1994.
5. Narbayev A.B., Using the mediatechnology as the main means of improvement in teaching astronomy. The magazine of the news of Uzbek National University #1/5, 2018. Tashkent.
6. The opportunity of using electronic materials on teaching astronomy in the 11th grade groups at a secondary school. #1, 2018. Tashkent