

THE PLANNING OF MICROTEACHING ON THE SUBJECT OF FRICTION FORCE IN THE SCIENTIFIC LITERACY OF SECOND CHANCE SCHOOLS IN ADULT EDUCATION

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ABSTRACT:

This paper concerns the planning of a twenty minute micro teaching which is integrated in the frame of Scientific Literacy taught in the schools of Second Chance and belongs to the thematic field of the mechanics of the material point. The unit refers to the adult students of the first Circle of the schools of second chance with a primary degree. The purpose of the schools of the Second Chance is the integration of young sub students in the labor world who are socially excluded or they are in the danger of social exclusion.(Vergidis 2003).It is about a mixed-ability team where the students are of different ages from 18 to 50 years old with a different learning level too. For the materialization of the unit different educational techniques are used such as, proposition, brainstorming, individual work, team work and the discussion whereas different educational means are used.

KEYWORDS:- *Scientific Literacy, Adult Education, Microteaching, Second Chance Schools, Friction Force.*

INTRODUCTION

The microteaching is the epitome of the teaching for the teachers. The microteaching is an educational technique which gives teachers the possibility to acquire and perfect their educational techniques. Also the teachers can simplify the complicated procedure of the normal teaching and focus on the acquisition of specific skills in a safe and “laboratory” environment with the help of other colleagues (A. Perlberg, 1991).

The microteaching as a method of teachers education was developed in the University of Stanford in USA in 1960s by Allen & Ryan (1968) whereas in the 1970s it was developed and implemented in different centers of teachers education and in programs of teachers education in United States of America, in Australia and in Europe especially in England. In Greece the microteaching has been implemented since 1973, initially in School of Pedagogical and Technological Education (ASPETE, ex SELETE) and then in the Pedagogical Department of Primary school of Aristotle University in 1987.

PLANNING OF THE UNIT

1.1 Education program and group – goal of the program

The unit which follows is integrated in the frame of Scientific Literacy taught in the schools of Second Chance and belongs to the thematic field of the mechanics of the material point.

The unit refers to the adult students of the schools of second chance. More particularly it refers to the adult students of the first Circle of the schools of second chance with a primary degree. It is about a mixed-ability team where the students are of different ages from 18 to 50 years of different religions and different learning level.

1.2 Title of the unit and acts for its planning

The planning of the unit has become according to the analytical schedule of studies of the Scientific Literacy of Second Chance Schools and the needs of the students. The title of the unit is the

mechanics of the material point and its duration is in 25 hours. The characteristics of the students who will participate in the program, such as knowledge relevant to the object of the studies which aim at the degree of understanding of the unit, gender and age were taken into account. The purpose is the participation and the development of the already existent knowledge of the students, the formation of the context of the partial goals of the unit and the choice of the appropriate educational techniques. At the end the duration of the program played an important role.

1.3 Partial Subunits

Themes – Units	Duration of the themes (in hours)	Basic educational techniques	Basic supervisory means
1. First meeting	1	Enriched proposition	Use of the computer and the projector
2. Movement of the material point	5	Proposition, Brainstorming, Discussion	Board
3. Forces and the kinds of forces	3	Brainstorming, Discussion, Demonstration	Paper board, Paper sheet
4. Force of the friction	2	Proposition, Brainstorming, Individual and team work, Discussion	Board, Paper sheet
5. Weight force	2	Self directed learning	Use of the computer and the projector
6. Newton Laws	5	Proposition, individual and team work	Board, Paper sheet
7. Action and energy	5	Brief proposition Questions -answers	Board
8. Recapitulation and assessment of the program	2	Proposition	Board

1.4 Educational goals

Knowledge:

The students:

- 1) to recognize the movement of the objects around them
- 2) to correlate the concept of the force with the energy and the movement of the material point.
- 3) to classify the forces in groups for a better study.
- 4) to compare the forces each other.
- 5) to recognize the correlation of forces with their results.
- 6) to distinct the forms of the energy in the nature.

Skills:

The students:

- 1) to calculate the time of the movement relating to the distance and the speed of the material point.
- 2) to calculate the result of the force.
- 3) to interpret the movement of a vehicle relating to the force.
- 4) to confirm the results of the force.
- 5) to use the force for the movement of an object correctly.

Attitudes:

The students:

- 1) to acquire knowledge for many daily phenomena.
- 2) to cooperate with each other in the group.
- 3) to cope with their fears concerning physics.
- 4) to adopt new perspectives about the world through physics.
- 5) to participate actively in discussions about the mechanics of the objects.

1.5 Educational techniques and the choice criteria of the specific educational techniques.

The educational techniques which will be used are:

- Proposition
- Brainstorming
- Demonstration
- Individual and team work
- Discussions and Questions - Answers

At the beginning, we start with the proposition which is very effective for the introduction of a theme and the presentation of the goals. We use the board to write down the goals and the key words.

We move on with the educational technique of brainstorming to motivate the students to participate and get involved in the procedure of learning whereas the students recall ideas coherently which they already have for a theme. At the same time we write down their ideas on the board for more conclusions.

An important technique is the demonstration where the students with simple and daily experiments know and understand the connection of the theory with daily life.

Then we separate the students in groups and at the beginning they work individually but then they work in groups. This technique gives the students the possibility to develop their critical thinking and they cooperate with each other.

The next educational technique is the discussion during which clarifications are given and some themes are given for more processing and thinking. The technique of questions and answers is used in the same way.

We complete with proposition by doing a short recapitulation and we end up in conclusions based on what it was discussed.

THE PLANNING OF THE MICROTEACHING

2.1 The title of the microteaching: Friction Force

The microteaching refers to the 4th subunit of the unit and concerns the beginning of a teaching hour of the program.

2.2 Educational goals of the microteaching

Knowledge:

The students:

- 1) to recognize the effect of the friction around them.
- 2) to correlate the concept of the force of the friction with the movement of a material point.
- 3) to classify in groups phenomena according to the utility or not of the friction.
- 4) to distinct the forms of the friction.

Skills:

The students:

- 1) to use the force of the friction correctly in daily activities.
- 2) to verify the results of the friction
- 3) to be able to interpret phenomena where the friction takes place

Attitudes:

The students:

- 1) to acquire knowledge for many daily phenomena.
- 2) to adopt new perspectives for the phenomena around them.
- 3) to cope with their fears concerning physics.

2.4 Planning of a twenty-minute microteaching

Themes (Subunits)	Duration (minutes)	Educational techniques	Supervisory means
1. Connection with the previous taught knowledge – Goals of the microteaching	2'	Enriched proposition	Computer and projector
2. Introduction	4'	Brainstorming	Board
3. Cases where the friction is useful and cases where friction works as an obstacle	6'	Group work	Paper sheet
4. Presentation of the groups – Synthesis and conclusions	6'	Discussion	Board
5. Recapitulation – Connection with the next taught knowledge	2'	Proposition	Board

2.3 Justification of the choice of the educational techniques

At the first subunit of the microteaching, we start with the proposition which is very effective for the introduction of a theme and the presentation of the goals. (Rogers A., 1999) We use the board to write down the goals and the key words.

With the use of the board we focus the students' attention on the goals which the teacher sets. We use a means which is familiar and known to everyone and it is used for the analysis and the further processing of their ideas.

We move on with the educational technique of brainstorming to motivate the students to participate and get involved in the procedure of learning whereas the students recall ideas coherently which they already have for a theme. At the same time we write down their ideas on the board for more conclusions. (Courau S., 2000).

Then we separate the students in groups and then they work in groups whereas we give them paper sheets to complete. This technique gives the students the possibility to develop their critical thinking and they cooperate with each other. The results of the group work are presented by a member of the team to the whole students and they are written down by the teacher. With the use of the paper sheet the students can write down and correct their own answers and the other members of the group.

The next educational technique is the discussion during which clarifications are given and some themes are given for more processing and thinking .Useful information arise which are written down on the board for drawing conclusions.

We complete with proposition by doing a short recapitulation and we end up in conclusions based on what it was discussed and we connect the conclusions with the next subunit that follows. At the last unit we use the board again for the drawing and the writing of the conclusions of the unit and the connection with the next subunit.

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Answer sheet

Second Chance School (1st circle)

Scientific Literacy

Laboratory -instructions: FRICTION IN DAILY LIFE

GOALS:

- Promotion of the active participation
- Development of the existent knowledge

PAPER WORK:

1. On the board cases of friction have been written from our daily life. Based on this writing and completing some other cases of friction you can think of, classify these cases in the following table according to if:

- A. the friction force (only this no other force which can exist)is desired and we want to increase it or
- B.the friction force (only this) is an obstacle for the use of the object, in other words if it is desired, and we are trying to decrease it by using some means and ways.

Cases where the friction is <u>DESIRED</u> and we want it.	Cases where the friction is <u>NOT DESIRED</u> and we are trying to delete it.

2. Compare and discuss your answers with the other members of your group. Are there different ideas for some of these phenomena?

3. After this discussion end up in an answer as a group and define a member of the group to present the results to the whole students.

Materials: Paper A4, Pen

Duration 6’