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THE GENERAL METHOD OF USING THE HISTORY FOR THE FORMATION OF LEARNERS' INTEREST IN PHYSICS

Introduction

Physics is a basis for scientific and technical progress. But every year fewer graduates in Ukraine want to become by physicists [1]. Learners do not like to study physics because this science is complex for them. In this way, the tasks of the teacher are to make physics teaching more accessible, understandable, and interesting. According to this approach, we proved that the appropriate forms of historical material increase the level of learners' interest in physic [2].

Method

Moshchanskyi and Savelova [3] have identified the forms of the historical material in physics teaching:

(1) presentation of the material in historical sequence;
(2) introductory historical views (study of new knowledge);
(3) final historical views (systematization and generalization of knowledge);
(4) descriptions of experiments;
(5) biographies of scientists;
(6) tasks with historical content;
(7) demonstrations of models of historical devices.

Given the above, we offer the forms of historical material for the formation of learners' interest in physics (Figure).

Historical views. Storytelling is an important part of science teaching, and

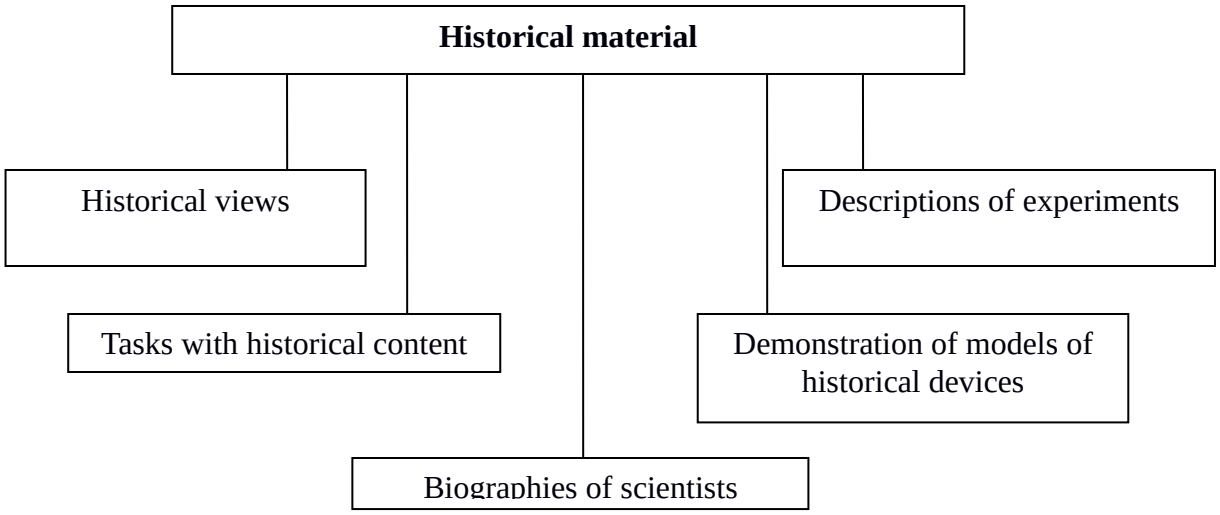

Figure. Forms of historical material for the formation of learners' interest in physics.

should not be overlooked by any practitioner [4, p. 121]. According to Erten, Kiray and Sen-Gumus, scientific stories are usually stories about scientists' real lives and scientific phenomena and events. Scientific phenomena and events that students have difficulty understanding may become easier to understand when given with in a story [5].

Descriptions of experiments. Various forms of historical material can be used for the creation of problematic situations [6, p. 14]. Learners face with facts which contradict to their experience. The problem exists objectively and independently from subject who exploring it. This problem must be understood for learner and also has to get the personal assessment by learner (the problem must become important for the learner). Therefore, teacher should formulate not only the problems of lesson, but cause learners' cognitive interest to them [7, p. 122].

Tasks with historical content. The historical facts about physical inventions, discoveries of physical laws and historical physical experiments are used in conditions of tasks with historical content. These tasks have informative and educational value. They acquaint learners with historical facts and research methods. **Demonstration of models of historical devices.** The production of models of historical devices contributes to the formation of learners' interest in physics [8]. Learners reproduced the various physical experiments and felt themselves by "discoverers". This increased the self-esteem of learners.

We formulated the basic principles for models:

(1) abidance of safety rules;
(2) compliance with educational material;
(3) visibility;
(4) ease of production.

Biographies of scientists. Study of biographic materials can be of two types: first, detailed biographies of individual scientists [9, 10] and, secondly, fragmentary biographical information about individual scientists [11]. But often this information is intended for specialists and historians of science. This material is complex for learners. In this way, the question about criteria for the selection of educational material arises. Therefore, we have proposed the components of "scientist's image": biographical data, scientific achievements and character traits [12].

Conclusions

The general method of using the historical material for the formation of learners' interest in physics has been developed. Forms of the historical material in physics teaching have been defined. These are historical views, descriptions of experiments, tasks with historical content, demonstration of models of historical devices, biographies of scientists. Every science has its own history. Therefore, this general method can be used in the teaching of other sciences.

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