

FACTORS FOR THE DEVELOPMENT OF INDEPENDENT STUDY SKILLS OF ELECTROMAGNETISM STUDENTS OF GENERAL EDUCATION SCHOOLS

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Abstract. *This article provides the information on the methodology of developing the independent learning skills of students of general schools in the field of electromagnetism.*

Key words: *electromagnetism, independent education, physical quantities, interactive teaching tool, electronic educational tools, scientific and technical information.*

ФАКТОРЫ РАЗВИТИЯ НАВЫКОВ САМОСТОЯТЕЛЬНОГО ИЗУЧЕНИЯ ЭЛЕКТРОМАГНИТИЗМА У УЧАЩИХСЯ ОБЩЕОБРАЗОВАТЕЛЬНЫХ ШКОЛ

Аннотация: *В данной статье представлена информация о методике формирования навыков самостоятельного обучения учащихся общеобразовательных школ в области электромагнетизма.*

Ключевые слова: *электромагнетизм, самостоятельное обучение, физические величины, интерактивное средство обучения, электронные средства обучения, научно-техническая информация.*

INTRODUCTION

The task of independent research and learning of knowledge according to the requirements of the state educational standard is one of the most pressing problems today. Therefore, the role of independent education in mastering the theoretical foundations of sciences at the level of practical skills is incomparable. Students are given methodical recommendations by subject teachers for independent education. Depending on the nature of the subject, independent education types - colorful and various electronic forms - are developed by the subject teacher.

RESEARCH MATERIALS AND METHODOLOGY

The educational process in general education schools is fundamentally different from this process in the system of secondary special and higher education. In general education schools, in contrast to secondary special and higher education systems, students' interest in the same subject is not fully formed. Taking this into account, the formation of independent education requires high qualifications and pedagogical skills from the teacher.

Secondly, no matter how high the training in the auditorium is, the quality of students' knowledge directly depends on their independent work. Independent work is determined by the teacher and appropriate instructions are given and its implementation is monitored.

The purpose of students' independent work on the electromagnetism department: training to work on practical projects related to this department with a synopsis, textbook, additional literature, expanding and deepening their knowledge, acquiring skills and abilities for independent learning. consists of development.

It is necessary to teach students of general education schools to receive independent education related to this department, starting from the day of teaching physics. Because the student's independent work and their quality are regularly monitored by the physics teacher.

On the last day of each week, the student should make a conclusion about the work done during the week and check the implementation of the plan he made. When making such a

conclusion, if the student approaches his work truthfully, it will be easy to eliminate the mistakes made.

The student needs to believe only in his own strength when doing independent work. He should prepare himself to overcome them, not forgetting that many difficulties await him.

RESEARCH RESULTS

As part of our research, in order to improve the work in this direction, questionnaires were conducted among students and pedagogical conditions necessary for the development of competencies related to electromagnetism through independent education were studied. Studies have shown that the implementation of independent education among students requires an individual approach (because of different cognitive abilities, different speed of learning, different learning styles, etc.). Teachers do not always take these into account.

Also, it is appropriate to provide the programs taking into account the characteristics of the department in the preparation of the student's independent education. It was noted that these forms are repeated in a number of other disciplines:

- ✓ study subjects and subjects of textbooks and manuals;
- ✓ mastering the part of lectures on handouts;
- ✓ work with automated training and control systems;
- ✓ work on the departments or topics of special literature;
- ✓ learning new techniques, equipment, processes and technologies;
- ✓ in-depth study of subjects and topics related to the student's educational-scientific-research work;
- ✓ educational sessions using active and problem-based teaching methods;
- ✓ distance (distance) education.

The formation of generalized methods in students leads, firstly, to saving the time spent on the educational process, secondly, to a higher level of knowledge, and thirdly, to faster completion of tasks, that is, to an increase in the efficiency of mental work. For example, since the main place in the independent improvement of students' knowledge is occupied by educational literature, it is appropriate to develop the following methods for effective work with them:

- ✓ logically analyze the educational material and distinguish its main points;
- ✓ independent knowledge of mathematically deriving formulas representing the interconnection of physical quantities that indicate the properties of phenomena and bodies;
- ✓ understand the read text, graphs and tables;
- ✓ tell what they have read in their own words;
- ✓ supplementing the material given in the textbook with what they have read from other books;
- ✓ know how to work with a catalog and create a bibliography;
- ✓ know how to summarize what you have read, write a lecture thesis and make a presentation plan;
- ✓ it is necessary to know how to work with several literatures, analyze different views on the same issue, summarize the material and draw a conclusion.

It is necessary to start with the knowledge of finding the main structural elements of scientific knowledge, drawing up a generalized plan of working with educational literature in students.

DISCUSSION

It is important to familiarize students with some social elements of the culture of working with textbooks and manuals. Therefore, we present the following recommendations, which are very necessary for students:

To properly work with the book, it is necessary not to spend too much energy and time. Proper use of time and workplace is important in the process of work. It is well known that the morning is the most effective time to remember the material you have read, that is, when the human brain is not tired. If students study in the morning shift, they will be more productive if they work with the book 1.5 hours after the end of the session. The main factor for the productivity of mental work is the conditions that ensure the comfort of the workplace.

Students should always keep their books, writing papers, drawing and writing instruments clean and careful. There should be enough light from the left side of the workplace.

Before starting to read the book, it is necessary to do the following: it is advisable to get acquainted with the brief description of the book, to find out the author's surname, first and last name, name, publishing house, city and year of publication, and how many times it was published. This information is important, it gives a general understanding of the book; indicates what book, new or old, he is reading; it lets you know who it's written for.

After that, you can get acquainted with its plan and content from the first pages of the book. Acquaintance with the introductory part of the book allows you to get an idea of its content and how the materials divided into chapters, sections, paragraphs, and topics are organized. Knowing this information makes it easier for the reader to get a full picture of the book and to learn by reading it. It is useful to familiarize yourself with the book in advance, that is, to look at the pictures, diagrams and tables.

Before starting to read the book chapter by chapter, it is necessary to consider the chapter that needs to be studied. As a result, its general content, the degree to which the material is presented, and its visuality are revealed. This review takes 10-15 minutes.

Working with paragraphs requires a special methodology. Because each paragraph contains full-fledged questions that are logically connected with each other. Some paragraphs of the physics course may be devoted to physical phenomena and quantities, laws, formulas, theories, and technical processes that express the connection between them.

In order for a creative approach to work with the text of the book to be effective, it is not appropriate to read it mechanically. Careful development of the text, the student's effort to systematically and reliably tell and explain it in his own words, gives a good result.

CONCLUSION

1. To improve the efficiency of the development of established competences by processing instructions for improving work on independent education, placing electronic copies of rare and non-existent literature in the library in the electronic resource center, introducing a system for exchanging electronic versions of new literature for independent work was found to allow.
2. The possibility of independent education in the development of students' practical competencies related to the "Electromagnetism" department was determined.

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