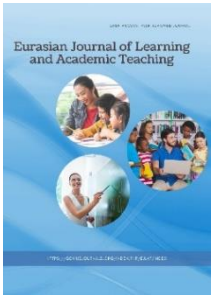

Pedagogical Efficiency Of Educational Materials Developed On The Basis Of Advanced Experiments And Technologies From Specialty Subjects In Higher Educational Institutions

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Abstract

In this article, educational methodical support of specialized subjects was developed. The general and additional requirements for the educational literature of specialized subjects were studied, the main requirements for their structure and content were developed; based on the analysis of the existing educational literature of specialized subjects and the experiences of their development, the additional functions performed by their new generation were determined and the essence of each was clarified.

Keywords: educational materials, experiment, assessment, questionnaire survey, results, testing

The preparation of educational materials from specialty subjects in higher educational institutions is a difficult and responsible work and requires a high level of skill from an educator. Therefore, it is necessary to carry out experimental test work to assess the quality of each created new educational material and determine its pedagogical effectiveness. In our opinion, it is of great importance to consider the following important aspects in order to assess the quality of educational material from specialty subjects. First, the effectiveness determined in the practical application of the educational material is the main criterion. Secondly, the level of abstraction and complexity of educational material should be assessed in such a way that it should take into account the development of knowledge, abilities and skills of students. Thirdly, until the widespread use of educational material, it should be given a complete, objective assessment.

At the moment, educational materials based on advanced foreign experiments and digital technologies from specialty disciplines are being developed and introduced in practice. It is necessary to pay attention to the quality of the educational material created from specialty subjects, its effective future application, the formation of professional skills and qualifications in students, independent study and methodical guidance to the teacher, the aspects of which it gives lectures.

For our part, questionnaire surveys were conducted in several higher educational institutions to assess the quality of educational literature in special disciplines. At the same time, the knowledge and skills of their students in independent work with educational materials on specialized subjects were tested.

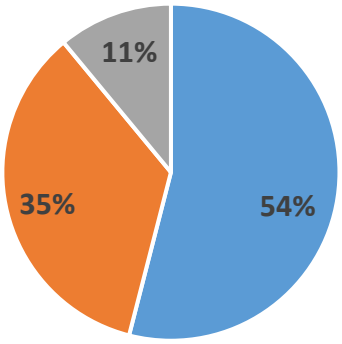
In the course of the questionnaire survey conducted by teachers of specialty subjects, the educational materials in the existing textbooks and teaching aids were studied.

In order to further clarify the results of the questionnaire survey, an interview was conducted with teachers of specialty science.

In the evaluation of the teaching material, the following are the assessments of the teachers of the specialty depicted in paintings.

We list the results below:

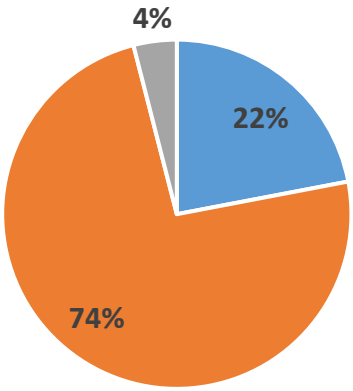
1. Specialization is the suitability of educational material to the programs of Science, the use of the latest achievements of Science, Technology and technology in its content.



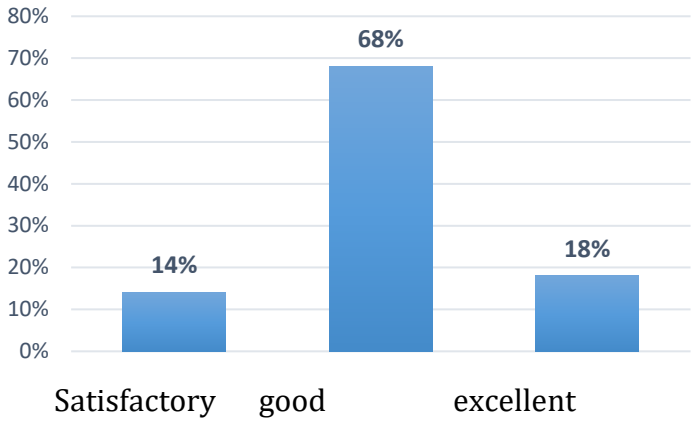
satisfactory
good
excellent

2. Readability, comprehension of texts in educational material.

satisfactory
good
excellent



3. The content of the educational material covers the methods of activity in the profession (implementation of technological processes, rules, structure of objects and the principle of operation).



4. Illustration of the quality of materials and the fact that the interconnections between their texts are provided.

satisfactory
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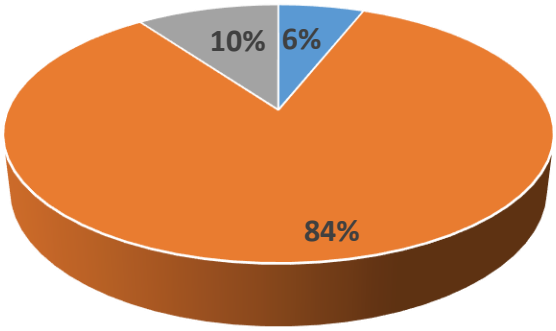
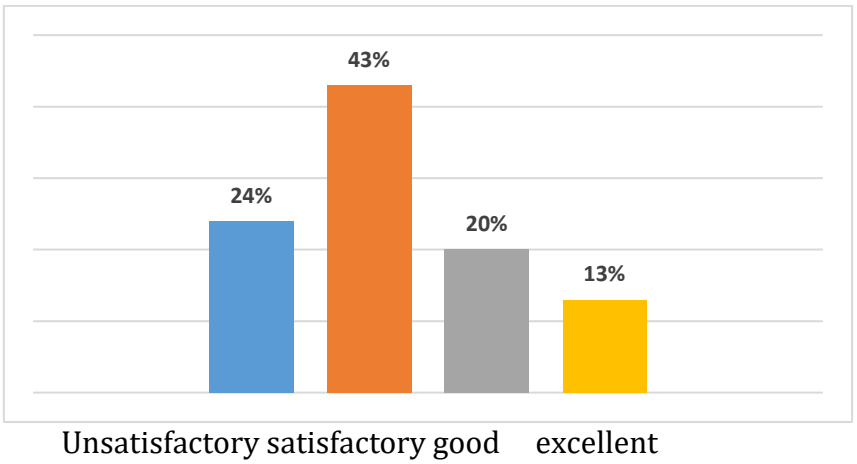
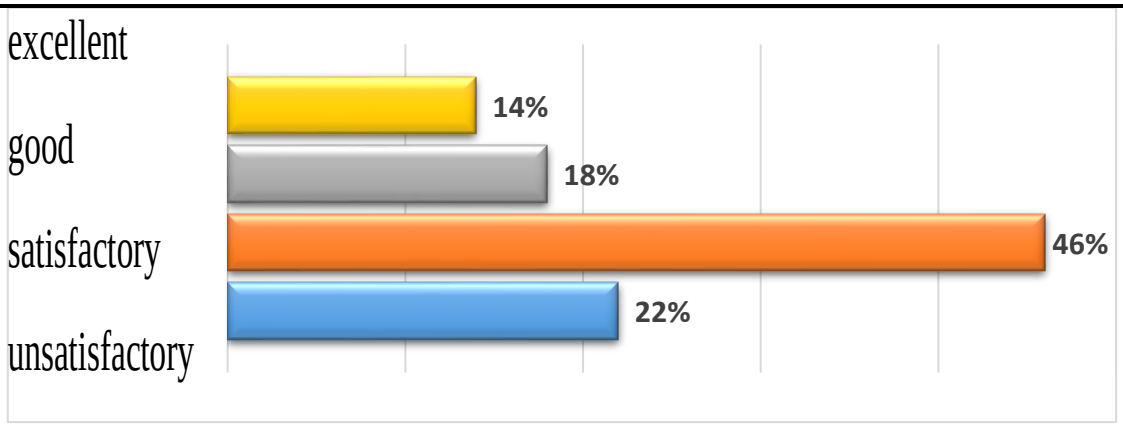


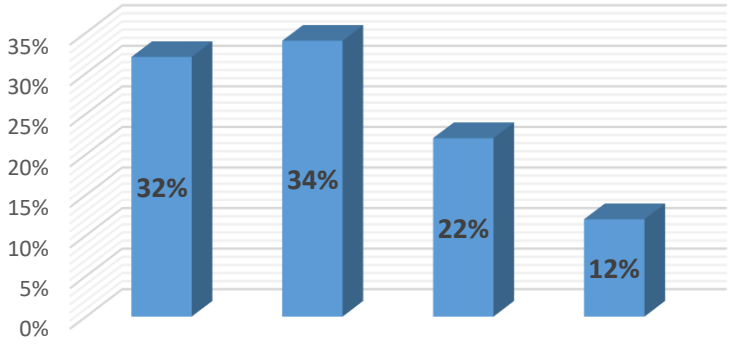
5. The orientation of the educational material on the independent study of Science, the development of students ' thinking and creative abilities.



6. The focus on the application of theoretical knowledge to practice in educational material.

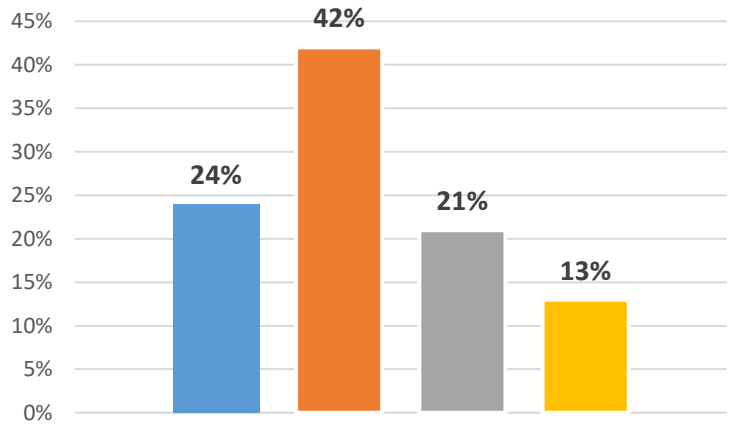


7. The presence of exercises, assignments, keys, questions that motivate students to work independently.



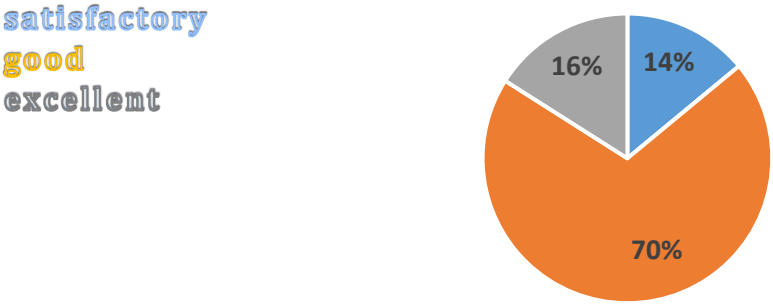
8. Availability of self-assessment materials to students.

9. The presence of educational materials based on digital technologies in the subject of specialization.



Unsatisfactory satisfactory good excellent

10. The consideration of national characteristics in educational materials.



The results of the survey showed that the educational material used in the subject "sewing items technology" is aimed at independent study of science, development of students ' thinking and creative abilities, and application of theoretical knowledge to practice at a low level, exercises, assignments, case studies, a lack of questions, educational materials based on digital technologies are insufficient.

Therefore, when developing educational materials from specialty subjects, it is necessary to focus on independent work of students, the search for knowledge and the development of their creative abilities.

As a result of our research, taking into account the above, experimental tests were conducted to determine the pedagogical effectiveness of educational materials based on modular curricula, case study and digital technologies developed on the basis of foreign experiments on the subject of "sewing technology".

Pedagogical experience testing is the stage of organizing the educational process on a scientific basis, which focuses on the practical examination of technology, methodology or methods developed on the basis of research.

The test of pedagogical experience is characterized by knowledge of various aspects of the student's personality development, achieved with the help of various pedagogical methods and means [1].

According to the theorists of pedagogy, pedagogical experiment is a pre-planned pedagogical activity established with the aim of practically checking and substantiating the theoretical hypothesis developed in specially created conditions [2,3,4,5, 6].

Pedagogical experimental and test work consists of areas of research theory such as practical testing, practical introduction, generalization, examination of the result of research in several options, mathematical statistical analysis and evaluation.

The main purpose of the experimental and test work is to organize training using modular, syllabus, case study and digital technology-based educational materials developed on the basis of foreign experiments from specialty disciplines and to study the main hypotheses related to educational

effectiveness, to determine the results obtained in the experimental and test work and the validity of the scientific hypothesis.

In the process of performing experimental test work, the following tasks were set:

1. Determination of the degree of assimilation of educational material developed by students of the experimental test group based on foreign experiments;
2. To determine whether teaching on the basis of syllabus, case technology, modular and digital technology based teaching materials is more effective in teaching the subject "sewing items technology".
3. Mathematical-statistical processing and analysis of experimental test results.

The experiment was conducted in three stages in the period from 2020 to 2023 academic year: defining, forming and control. Below is a general description of the stages of the pilot work (see Table 3.1).

At the first stage, within the framework of the study, work was carried out to conduct a theoretical study, identify the problem and determine the most effective ways to solve it..

At the second stage, a model of the educational process was created that defines the requirements for the development of educational materials based on foreign experience in specialty subjects for higher educational institutions.

At the third stage, modular, case-stadium and syllabus training materials were developed and tested, as well as digital educational resources on the subject of "Sewing technology". The conclusions were made by mathematical and statistical processing of the results of the testing experiment.

At the initial stage of pedagogical experimental and approbation, work carried out in the educational direction "Technologies and equipment of light industry" in selected higher educational institutions, the following works were carried out:

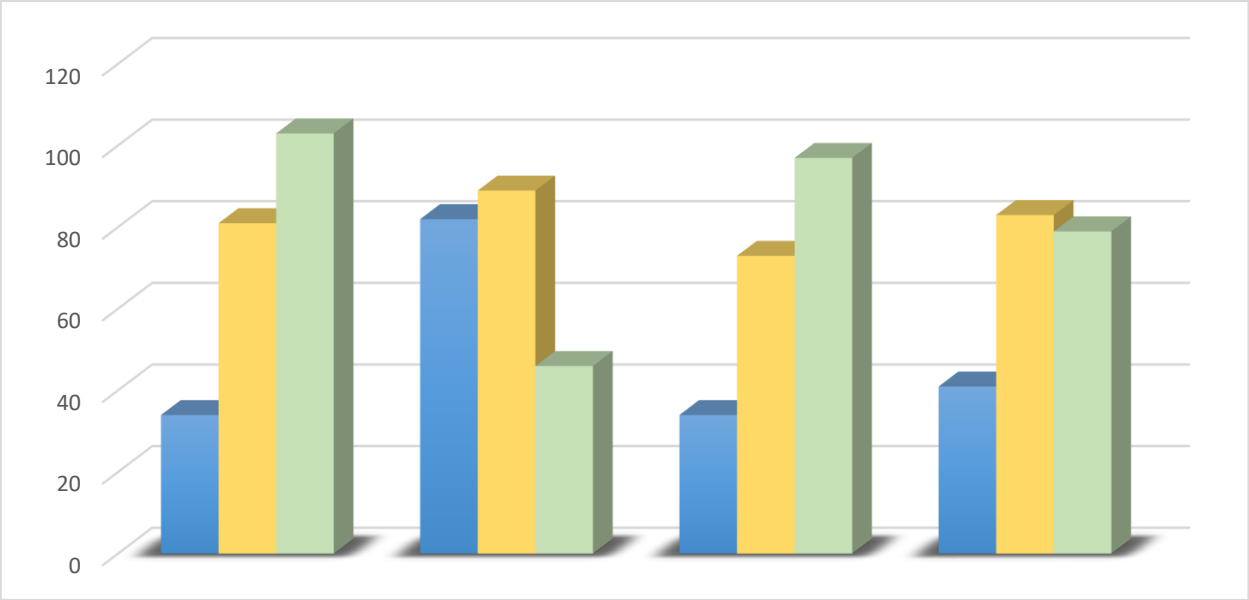
- during the selection of experimental and control groups, experienced teachers of natural sciences were provided with a curriculum developed by us on the subject of "sewing technology" and educational materials based on modular, training programs, case study and digital technologies;
- methodological recommendations on the organization of training are given;
- students' skills in working with modular programs, curricula, case study and educational materials based on digital technologies were determined;
- as part of the experimental testing work on teaching the subject "Technology of sewing products" using modular curricula, case stages and digital technologies, basic lecture materials, tasks for determining the tests of students' knowledge assessment and practical techniques for mastering science were developed;

In the course of conducting confirmatory experimental work on testing in selected higher educational institutions, it was found that in the process of conducting theoretical and practical classes on the science of “Sewing machine technology” and performing tasks for independent work, students' learning activity and independent work skills are also at a low level.

Based on the tasks set at the initial substantiating stage of pedagogical flight test work, in the 2021-2022 academic year we continued flight test work and moved on to the formative stage. In this case, a work was organized that divided the trainees into experimental and control groups.

While the educational process in the control groups was carried out using the existing traditional curriculum and educational literature, the experimental groups used the curriculum and educational materials proposed by us based on modular programs, syllabus, case study and digital technologies. Our goal of conducting a pedagogical testing experiment is to determine, first of all, the effectiveness of educational materials in the educational process developed on the basis of advanced foreign experiments, and secondly, it consisted in determining that, do students show an increased interest in studying the science of the specialty and are they aimed at its independent development, thirdly, the possibilities of

educational material based on digital technologies, and, fourth, the time and duration of teaching the science of "Sewing technology" in both groups.



The general scheme of indicators of assimilation at the beginning and end of experience in experimental and control groups of higher educational institutions

1) at the beginning of the experiment at the end of the experiment the experimental group
2) at the beginning of the experiment at the end of the experiment control group

When using special subjects, opportunities such as modular programs, syllabus, case study and educational materials based on digital technologies are created, which allows you to save time and organize training more efficiently, encourage students to work independently, perform a large number of tasks, use the capabilities of digital tools, self-assessment. The use of these teaching materials allows students to perform independent work assignments and apply an individual approach to teaching. The student is aware of his ability to complete tasks and strives for success. Such specialization increases motivation in relation to the study of subjects and improves the quality of education.

The result of the experimental and test work proved that the educational effect could be increased by 11% when using educational materials based on modular, training programs, case study and digital technologies in the educational process on the subject of "Sewing technology".

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