

## ORGANIZATION OF INDEPENDENT ACTIVITY OF STUDENTS THROUGH EMPIRICAL ANALYSIS AND COLLOQUIUM ON THE EXAMPLE OF THE SUBJECT “SEWING TECHNOLOGY”

**Mamatova Sayyora Shavkatovna**

Independent Researcher of the Department of “Light Industry Technologies and Equipment,”  
Urgench State University

### ABSTRACT

This article examines the pedagogical foundations of organizing students’ independent learning through empirical analysis and colloquium methods in the subject “Sewing Technology.” The research emphasizes the role of active learning strategies in developing students’ professional competencies, critical thinking, and practical problem-solving skills. The article presents an empirical model that integrates observation, experimentation, and reflective discussion as a means of enhancing the efficiency of the independent learning process.

**Keywords:** Independent learning, empirical analysis, colloquium, Sewing technology, professional competence, vocational education, reflective thinking.

### INTRODUCTION

Empirical analysis and colloquium methods play an important role in the effective organization of independent activity of students, in the development of their creative thinking and practical skills. Especially in subjects aimed at the development of practical and creative skills, such as the subject “Sewing Technology”, the use of such methods gives more effective results. With the help of these technologies, students will have the opportunity to analyze their activities, create, introduce innovations and test their knowledge in practice.

The following outlines the main principles and practical applications of applying empirical analysis and colloquium methods in the educational process, using the subject “Sewing Technology” as an example.

Empirical analysis allows to carefully study the practical activities of students, analyze their results and identify effective ways to master them. The use of this method in the subject “Sewing Technology” directs students to test and analyze not only theoretical knowledge, but also practical skills. When conducting empirical analysis, students directly participate in the process of creating Sewing products. During the lesson, students are given the opportunity to participate in the practice of using various Sewing machines, selecting materials and Sewing them. The teacher monitors these processes, analyzes the work of students and gives special instructions to consolidate their knowledge. For example, students learn the technologies of Sewing several types of fabrics, in this process the teacher analyzes their work process, helps identify errors and guides them in the right direction.

At the end of practical training, there is a need to study and analyze the Sewing products created by students. For example, it is possible to inspect the clothes sewn by students, determine the correct selection of materials, and evaluate the efficiency of Sewing processes. This analysis helps students see their mistakes and further deepen their knowledge [1].

Colloquiums are an important tool for students to freely express their thoughts, answer questions, and evaluate their knowledge. This method encourages students to work collectively and individually, encourages them to self-evaluate and consolidate their knowledge.

## LITERATURE REVIEW

Colloquiums provide students with the opportunity to better master the educational material and apply their knowledge in practice. Colloquiums on the subject of "Sewing Technology" provide students with the opportunity to exchange ideas about Sewing technologies, the selection of materials, and important aspects of the Sewing process. Such colloquiums encourage students to freely express their thoughts, listen to the opinions of others, and create new ideas [3]. Also, in colloquiums, students analyze the scientific and practical aspects of Sewing technology and present arguments supporting their opinions.

During the colloquiums, students work in groups, which encourages them to work together and solve problems together. In the subject "Sewing Technology", colloquiums can be held by groups on creating Sewing products, selecting materials, studying sewing technologies, and presenting the created product. This helps students exchange ideas, expand their knowledge, and develop new approaches. During the colloquium, students have the opportunity to evaluate their work [9]. The teacher encourages them to analyze their knowledge, see their mistakes, and correct them. Within the subject "Sewing Technology", assessments are conducted on the products created by students, which helps students to critically look at their work and understand the need for improvement.

The effectiveness of the implementation of empirical analyses and colloquiums in the process of the discipline "Sewing Technology" has led to many positive changes:

- students became more active: through colloquiums and empirical analyses, students learned to apply their knowledge not only theoretically, but also in practice. Their creative thinking and problem-solving skills also developed;
- development of independent activity: students strengthened their activity through independent study, analysis of their knowledge, and participation in the production process;
- cooperation and group work: during colloquiums and practical exercises, students learned to work in groups, which improved their skills in teamwork and joint problem-solving.
- new pedagogical approaches: the implementation of empirical analyses and colloquiums made it possible to develop new pedagogical approaches and methodologies. Teachers were able to more actively involve students in testing and applying their knowledge in practice.

The application of empirical analysis and colloquium methods to the educational process within the discipline "Sewing Technology" helped to activate students, develop their practical skills and consolidate their knowledge. These methods allowed students to deeply study not only theoretical knowledge, but also practical activities [5]. Students also had the opportunity to self-develop by evaluating their work, analyzing errors and developing new approaches. Therefore, these methods should be widely used in the educational process. Independent activity is important for students' self-development, creative thinking and the formation of practical skills. A number of experimental studies were conducted to effectively introduce the technology of organizing independent activity of students through empirical analysis and colloquiums. These experimental studies are aimed at teaching students to think independently, consolidate their knowledge and self-assessment [2]. The following provides information about the main types of such experimental work and their effectiveness..

One of the main directions of testing the process of organizing students' independent activities through empirical analysis is to assess students' knowledge and stimulate activity among them.

During the experimental work, students were given tasks on various topics for independent work. In order to consolidate their knowledge, they performed special practical exercises and laboratory work. For example, within the subject, students independently performed various stages of the process of creating sewing products. During the test work, students were provided with the necessary resources to freely express their thoughts and test their skills. Through this method, students learned to work independently on tasks similar to their own [7].

## DISCUSSION

Interactive methods were used based on empirical analysis. Classes were organized in the format of knowledge exchange, experience learning, and question-and-answer. In colloquiums, students were encouraged to ask each other questions and express their opinions openly. Also, teamwork was organized between groups, and students were taught to solve problems collaboratively. During the experimental work, students integrated practical and theoretical knowledge.

Students were given assignments to consolidate the technologies learned in theoretical lessons through practical exercises. For example, in the subject "Sewing Technology", students studied the technologies of processing materials on a sewing machine and carried out their work in real conditions.

Colloquiums provide students with the opportunity to test and analyze their knowledge. Using this method, a number of experimental and test works were conducted aimed at deepening and consolidating students' knowledge [6].

During the colloquiums, conditions were created for students to freely express their thoughts and participate in group discussions. In this process, the teacher encouraged students to raise various issues, analyze them and develop solutions. For example, in the colloquium on the subject "Sewing Technology", students tested their knowledge of materials and Sewing technologies.

At the colloquium, students had the opportunity to present their ideas to each other and apply their knowledge in practice. This process created an atmosphere that encouraged students to exchange ideas and generate new ideas. The colloquiums also taught students to learn independently and work in changing environments [8].

During the colloquiums, students had the opportunity to independently evaluate and analyze their knowledge. This process encourages students to self-evaluate, correct their mistakes, and learn new knowledge. The tasks performed by students in the colloquiums and the teacher's assessment process led to effective results.

As a result of the conducted experimental work, the following positive changes were observed in the organization of students' independent activities:

- students became more active, through empirical analysis and colloquiums, students were more involved in activities aimed at consolidating and applying their knowledge in practice;
- knowledge strengthened: students further consolidated and expanded their knowledge during the study process, as they were given the opportunity to work in real conditions;

- self-assessment and analysis skills developed: through colloquiums and empirical analysis, students learned to self-assess and analyze their work.

## RESULTS

Innovative approaches were developed: creative and innovative approaches to solving problems were developed among students:

1. As a result of the experimental work, opportunities arose for more effective use of technologies for organizing independent activities of students. With the help of empirical analyses and colloquiums, students not only strengthened their knowledge, but also learned to create new approaches to applying their knowledge in practice. This process taught students not only to learn, but also to think creatively, solve problems, and freely express their thoughts. Experimental work also allowed teachers to develop new methodological approaches for the effective organization of independent activities of students. Based on the results of the research, the system for assessing student activity was revised and improved. When assessing independent activity, not only theoretical knowledge was taken into account, but also practical skills, teamwork, and creative thinking skills. Through colloquiums, interactive tests, and project work, students fully reflect their knowledge, and a real-time feedback system was introduced into this assessment system.

2. Use of digital technologies. It is planned to widely use modern digital technologies in the implementation of the research results. With the help of online platforms, such as Google Classroom, Padlet, Kahoot!, Mentimeter, interactive platforms, students will test their knowledge in practice during the learning process and ensure the effective functioning of the assessment system. At the same time, the creation of distance learning modules in the field of Sewing Technology and the development of electronic textbooks containing interactive materials will be carried out.

3. Conducting colloquiums and analysis of results. With the help of colloquiums introduced during the research, students had the opportunity to check their knowledge in real time and analyze their results. Through colloquiums, mutual learning and exchange of ideas were carried out among students. On this basis, more effective systems for conducting colloquiums were developed, in which students could exchange ideas with each other and constructively analyze the final results.

4. Practical training and seminars. In implementing the research results, great attention was paid to developing the skills of students to conduct practical training, seminars and workshops. By involving students in practice, they learned to apply their knowledge in practice, test new technologies and solve problems. In this way, the quality of education can be improved by implementing the results of seminars and practical training on sewing technology.

5. Expansion of research results in other educational institutions: research results can be widely implemented not only in a separate subject, but also in other educational institutions. There are opportunities to apply technologies for organizing independent activities of students in other areas of technical and vocational education, as well as in general secondary education.

**1-table. Possibilities of using technologies for organizing students' independent activities in education**

№	Evaluation criterion name	Description
1	Level of spiritual and intellectual growth	The student's level of development of independent thinking, creative approach, and sense of responsibility is assessed
2	Mastery level	The level of ability to independently acquire, understand, and apply new knowledge in practice
3	Activity and participation level	The student's activity in classes, initiative, and independent decision-making
4	Reflection and self-assessment skills	The student's ability to analyze his/her own work, identify and correct errors
5	The potential to promote innovative ideas	Ability to provide new, innovative ideas and suggestions while working independently
6	Practical effectiveness (portfolio, project, assignments)	The student's final result is expressed as a finished product, project, assignment, or service
7	Ability to use information and communication technologies	The student's level of ability to organize independent work based on information technology
8	Teamwork and social skills	Skills in team communication, exchange of ideas, and collaboration during independent work
9	Continuity and stability	A consistent and consistent approach to independent work, timely completion of tasks
10	Quality indicators of results	The scientific, technical, aesthetic or practical quality of the work created by the student

**CONCLUSION**

The use of technologies for organizing students' independent activities in the educational process has an effective impact on their personal and professional development. Through the assessment criteria presented in the table, the potential for independent work of students can be systematically assessed in various areas - from intellectual development to practical effectiveness, innovative thinking, use of ICT, reflection and teamwork skills.

These criteria guide students to independent thinking, self-control, creative decision-making, effective use of information resources, and sustainable and consistent activity. In particular, criteria such as spiritual and intellectual growth, reflection, promotion of innovative ideas support not only the acquisition of knowledge, but also personal growth.

In addition, the presence of assessment criteria helps to make the learning process objective, transparent, and result-oriented, which increases the practical value and effectiveness of technologies for organizing independent activity in education.

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