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Research Article

EFFECTIVENESS OF USING " STEP BY STEP" PROGRAM IN PRACTICAL LESSONS IN CHEMISTRY

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ABSTRACT

In the "Step by step" program, the use of chemistry education in the process of training is based on effective results. The program allows students to develop the necessary ideas in a changing world. Chemistry due to students' creative efforts organizes, directs and evaluates the study of topics suitable for the practical strengthening of chemical theories from science, the study of the sequence of topics.

KEYWORDS

"Step by step" program, (ECTS) credit-module system, independent education, competence, cases, cases, practical games, c hainword method, AutoPlay Media Studio program, Filmora program, Hot Potatoes program, easyQuizzy test program, Physiss Edusation Teshnology platform, Srosodile Chemistry software, ShemOffice software, Hypershem software, Gaussian software.

INTRODUCTION

This article is based on the following instructive words of the famous encyclopedist Abu Rayhan Beruni: "Each scientist should be based on practice in his discussion, be precise in his research, work tirelessly, search for and correct his mistakes, avoid all kinds of fabrications for the sake of truth, superficiality in science. it is necessary to fight against it. Today's in the day in education democracy to teach tool has been many innovative technologies and methods there is. the world of pedagogy all advanced traditions in itself incarnate reached mother so innovative from technologies one is "Step by step " program

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technology). Students personal development provide and them education to the process attraction do, of the program to himself feature it is education in the process democratic principles to apply own into takes, this in students variable in the world necessary ideas development enable gives In this student the subject choose freedom, equality, decision acceptance in doing activity, citizenship, humanitarianism feelings reflection carry on factors develops. Confucius said: " If you want to change the world, start with yourself. " he said.

METHODS

"The concept of development of the higher education system of the Republic of Uzbekistan until 2030", approved by the decree of the President of the Republic of Uzbekistan No. PF-5847 of October 8, 2019, is of particular importance, and this Concept is transparent at the international level of the educational process. It is aimed at the ideas of achieving the goal, ensuring the compatibility of the national education system with other educational systems of the world, and taking a place in the ranks of the world's leading universities. It is planned that 85 percent of higher education institutions in our country will gradually transition to the credit-module system by 2030. European Credit Transfer System is mainly used in these higher education institutions (ECTS) introduction of the credit-module system is planned [1].

The importance of developing a culture of independent thinking in determining the development of the country and its socio-economic, national-cultural position and prospects in the development of world education is incomparable. Competence of independent learning serves to develop students' independent self and increase the efficiency of professional activity [2].

Independent education in classroom classes is carried out under the instruction and control of the teacher, but without his direct support. The types of independent education carried out under the supervision of the teacher in the auditorium classes mainly consist of the following forms: cases, solving cases, completing tasks, collective practical games related to the topic, etc., the use of such technologies gives effective results [3].

Lesson training process from the " Step by step " program use education quality to increase service does The methodology offered by this program envisages the development of individual abilities of each student, giving him the freedom to choose one or another activity in the audience. At the same time, aspects of mutual respect and support manifestation will be As a result, qualities such as independence, critical thinking, team work, understanding and awareness of one's own actions are formed in students, habits of owning and defending one's opinion are formed [4.5]. The program is based on the theories of famous psychologists Jean Piaget, Erik Erikson, Lev Vygotsky and others. Currently, 28 countries of the world are working within d astur, including The "Step-by-step" international education program was first implemented in Kazakhstan in 1996. The authors of the program prioritized the development of a new educational model, in which students should be able to receive information and connect it with today, so that they can participate in an interconnected society and world. allows you to understand how they live. According to the new model of education, every student is given the opportunity to express his opinion [5].

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sets 4 goals for teachers: 1. Develop a lifelong learner. 2. To create a learning environment based on mutual respect. 3. To ensure the continuity of learning and the connection of learning with practice. 4. To ensure that all students have academic artistic, aesthetic and practical skills for successful participation in a democratic society [6].

To achieve these goals, it is important to develop the following skills in students: the ability to listen, concentrate, listen actively with desire; the ability to convey information, to form one 's own thoughts; ability to make decisions and take responsibility; being able to accept comrades as partners; to be able to care for each other.

The society we live in is constantly developing and changing. The educational space of the modern world is constantly being filled with new knowledge content and new skills. New fields of relations, new specialties forming new disciplines are emerging. The world higher education system is being reformed. This led to the search for new forms and technologies of education. Harmonization of higher education with the requirements and standards of the world space, its development is carried out on the basis of certain principles. This is, first of all, the priority introduction of innovative achievements in education and science. It is known that the innovative way of development of society can ensure the formation of a generation of people who think and work in a new way. As a result, the main attention is focused on the development of the individual, cultural and communicative preparation, independent acquisition and development of knowledge, formation of information and social skills [7].

Oxford University in the UK, Cambridge University, The Australian National University in Australia, Tsinghua University in the PRC, etc.) is determined by the development of the competence of independent activity in the trained personnel. Competence of independent learning serves to develop students' independent self and increase the efficiency of professional activity.

Teaching of inorganic chemistry, development of effective technologies for the development of independent cognitive activity of students in pedagogical higher educational institutions of our republic is gaining urgent importance. In the higher education system of the developed countries of the world, a number of scientific researches related to the development of educational technologies for the formation of students' motivation for independent learning, the development of analytical and critical thinking skills are being conducted.

The use of educational technologies, interactive methods and computer programs related to chemistry serve to increase the quality of chemistry education.

In step 1. In the teaching of inorganic chemistry, it is preferable to use the "Zinama-zina" technology to learn about the properties of metals and non-metals, as an example of the topic of the periodic system of chemical elements.

This method allows students to think and remember individually and in small groups on the topic that has been passed or to be passed, to remember the acquired knowledge, to be able to summarize the collected thoughts and to express them in writing, pictures, drawings. teaches to express in the form

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[7.8]. This method is written and presented with students individually or in groups.

The purpose of the method: to enable students to think freely, independently and logically, to work as a team, to search, to collect ideas and form a theoretical and practical understanding from them, to be able to influence the team with their opinion, to approve it, as well as the basis of the topic teaching to apply the acquired knowledge in explaining concepts.

Application of the method: it can be used in lectures (if there are opportunities and conditions), seminars, practical and laboratory sessions individually or in small groups, and in supervision classes.

Tools used in the training: handouts prepared on A-3, A-4 format papers (corresponding to the number of sub-topics allocated to the topic) with sub-topics written on the left side, felt-tip pens (or colored pencils).

Training procedure:

- the teacher divides the students into small groups of 3-5 people depending on the number of topics.

- students are introduced to the purpose of the training and the procedure for its implementation. Sheets with a small topic note on the left side of the paper are distributed to each group;

- the teacher instructs the members to familiarize themselves with the small topics written in the handout and to write down what they know based on this topic with a felt-tip pen in the blank space on the paper together with the team and sets a time;

- group members together express the sub-topic given in the handout in writing (or drawing, or reading). In this members small topic according to possibility as long as in full information to give need will be

- distribution materials When filled, the group from the members one person presentation does Presentation in time groups by Prepared material, of course, the audience to the board logically tagma -tag zina in the form of hangs; teacher groups by prepared to materials comment giving them evaluates and training completes.

2nd stage. The c hainword method was used to determine students' knowledge and understanding skills of inorganic chemistry concepts, terms, definitions and laws. This method a method of solving crossword puzzles that involves the use of a combination of logic and knowledge in students. It was named after its creator, Arthur Chainworth.

The purpose of the Chainword method: encourages students to work freely, independently and as a team, gather ideas, and find the necessary conclusion and clear answer in a short time.

The task of the chainword method is to sharpen the mind by correctly finding the answers to a series of questions, starting from the last letter of the answer to the first question and the first letter of the second question and continuing in this sequence.

Training procedure: The teacher divides students into small groups depending on the number of students. Introduces students to the purpose and procedure of the training. The questions are given to the groups in the form of a handout, and within a certain time the

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groups write the answers to the questions and the correctness of the answers is checked and evaluated.

In step 3. To teach inorganic and organic chemistry based on computer and information technologies iSpring suite program, AutoPlay Media Studio program, Filmora program, Hot Potatoes program, easyQuizzy test program and students' work in Physiss Edusation Teshnology, Srosodile Chemistry, ShemOffice, Hypershem and Gaussian programs to determine the nikma [9.10.11]. It describes the educational, educational and developmental functions of teaching chemistry, and consists in forming the skills of understanding chemistry and chemical processes through information technologies and computer programs, as well as the skills of practical application and implementation. To improve the effectiveness of teaching chemistry, traditional and modern new generation electronic educational literature: multimedia electronic textbooks, study guides, lecture texts, electronic programs, digests, data banks, chemical programs the use of modern computer software tools in teaching chemistry creates a basis for increasing students' interest in chemistry, imparting knowledge and strengthening knowledge [12.13]. Chemical computer software tools are used in the calculation of complex chemical equations and operations, the structure of chemical substances, their identification, and the study of programs designed to display the parameters of various substances takes a special place [14.15.16]. The ability of these programs allows you to safely and easily model experiments and reactions, create a simulated chemical laboratory, combine substances, chemical equipment and glassware and combine them as you like, choose amounts and concentrations, mix chemicals and analyze data from experiments with accurate modeling of reactions. to do

RESULTS AND DISCUSSION

In this research work, Gulistan State Pedagogical Institute, 46 respondents from chemistry education students, Uzbekistan-Finland pedagogy Institute, 89 respondents from students of chemistry education and 80 respondents from students of chemistry education of Navoi State Pedagogical Institute, total of 215 students participated in control and experimental groups.

A number of steps were carried out for processing and mathematical-statistical analysis of the research results. Research at the beginning of students knowledge level and abilities about information get enable gave Then students experience and control groups allocated, this of methodology efficiency comparison for necessary basis created Also pedagogical of experience formative stage participation reached students of activity level identified (Table 1).

Groups	In the group students the number	Work performing students the number	Work result				Academic efficiency, %	Quality, %
			5	4	3	2		
Ng	107	107	28	38	30	11	84	61

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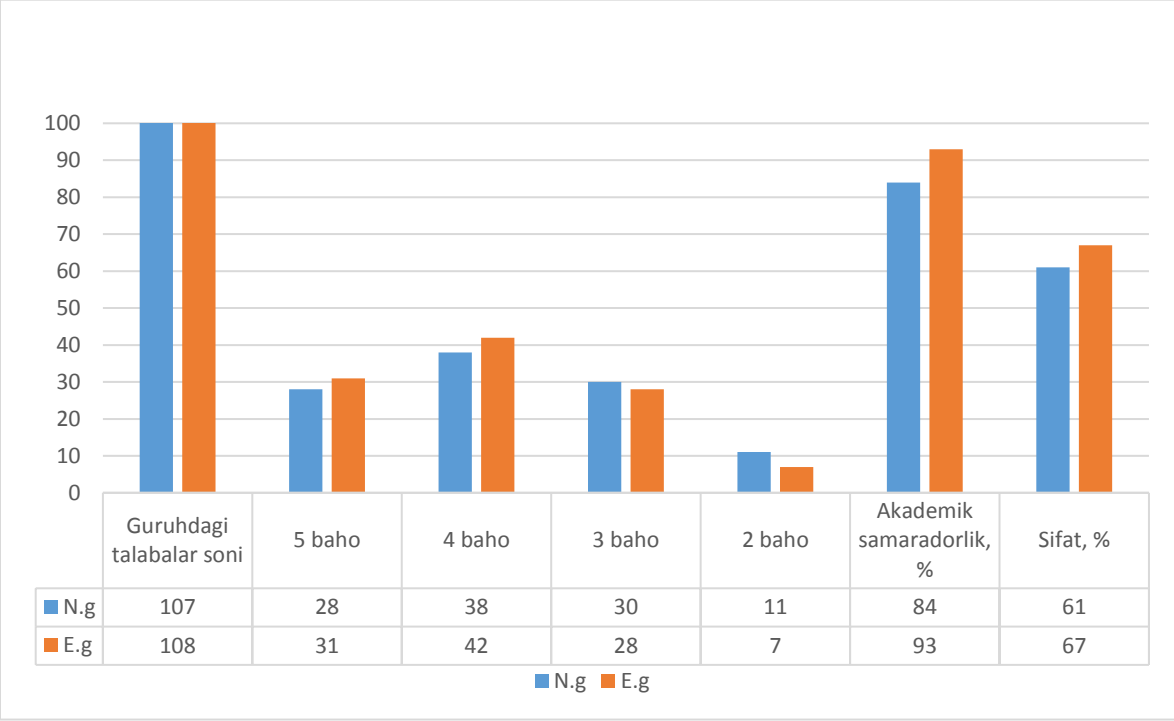
Eg	108	108	31	42	28	7	93	67

Histograms representing the average indicators of students' success in the general context made it possible to analyze the changes in the students' knowledge level during the experiment. A histogram (see Figure 7) shows these changes and provides a visual representation of how our experiment affects the average success rates at different institutions. (Figure 1).



	Guruhdagi talabalar soni	5 baho	4 baho	3 baho	2 baho	Akademik samaradorlik, %	Sifat, %
N.g	107	28	38	30	11	84	61
E.g	108	31	42	28	7	93	67

Figure 1. Research a histogram comparing the overall results of

Presenting the data in the form of a histogram makes it possible to easily compare the distribution of mean scores between groups and to distinguish clear trends or differences that are important for further analysis and decision-making. It also helped to identify possible factors affecting student learning in each university and to develop recommendations for improving the quality of the methodology we offer in these educational institutions.

CONCLUSION

information technologies, technical means of teaching and innovative pedagogical technologies to the chemistry education system will improve the quality of the education system and bring positive changes in the form and content of lessons in the teaching of chemistry. The introduction of innovative technologies and information technologies in education leads to the solution of a set of problems related to the

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development of the content of appropriate software and electronic resources used in the field of education. Research conducted over the past several years has become the basis for the development and application of such educational tools.

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