

Methodik zur kompetenzbildung von studierenden zum thema "informatik und informationstechnologien"

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Abstrakt: Der Artikel beschreibt ein Modell zur Kompetenzbildung von Schülern der 8. Klasse im Bereich "Informatik und Informationstechnologien" sowie Anregungen und Empfehlungen zu seiner Anwendung.

Schlüsselwörter: Informatik und Informationstechnologie, Kompetenz, elektronische Lernmittel, Lehrtechnologien.

Methodology for forming the competence of students' on the subject "informatics and information technologies"

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Abstract: The article describes a model of the formation of the competencies of 8th grade pupils in the field of "Informatics and Information Technologies", as well as suggestions and recommendations for its use.

Keywords: informatics and information technology, competence, electronic learning resource, teaching technologies.

The purpose of the study is to develop the competencies of 8th grade students in the field of "Informatics and Information Technologies" in secondary schools.

Material and research methods. In the comparative-critical study and analysis of scientific, methodological, electronic sources on the subject, methods of

mathematical and statistical analysis of the results of state pedagogical standards and qualification requirements of secondary schools are used, as well as educational, design, experimental work of advanced educational institutions. pedagogical practices used in the educational process.

Results. According to the methodology developed in the study, the competence of 8th grade pupils in the field of "Informatics and Information Technology" increased by 9.6%.

Introduction. Nowadays, the teaching of all subjects of general secondary schools using information and communication technologies has been introduced [1]. Consequently, in the era of informatization, it is important to improve the skills of schoolchildren to work with information and communication technologies [2-5]. Because one of the most pressing issues is the formation of the necessary competencies of today's young generation to work with modern computer technology and its software [6].

In this regard, scientific researches were carried out by such scientists as A.Abdukodirov, M.M.Aripov, N. I.Taylakov, U.Sh.Begimkulov, M.H.Lutfillaev, O.E.Belova, T.G.Vezirov, T.T.Galiev, E.A.Ganin, N.A.Goncharova, V.V. Gura, A.V.Danilkevich, J.J.Karbozova, V.A.Kuklev, E.S.Matosov worked on the theory and methodology of introduction of information technology in education, methods of application of information and communication technologies in the educational process, the problems of distance learning in the system of continuing education in our country and the CIS.

Under the analysis of the research revealed that the pedagogical research work in the field of information technology in our country is mainly carried out in higher education institutions and professional colleges to improve the teaching methods of computer science, the formation and development of scientific competence of students. Despite the adoption of Resolutions and Decrees of the country on improving the introduction of information and communication technologies (ICT) in

the educational process of secondary schools, the research on the formation of students' competencies in "Informatics and Information Technology" has not been sufficiently studied.

Materials and research methods. In the schools of today's developed countries, it is impossible to imagine without mobile devices and computer technology for students [7, 8]. In this regard, the teacher is forced to be aware of the latest information and communication technologies, the emergence of modern software products that are produced and improved, constantly changing the methods of working with them [9, 10].

In pedagogy, a special (scientific) and general (educational and organizational, educational and informational, educational and intellectual, educational and communicative) division of educational skills and competencies is formed. At the same time, general competencies are interpreted as skills and competencies that are formed in the process of teaching many disciplines and correspond to the operations of performing actions used in everyday life.

Initially, it should be noted that students' activity is realized through their activities. If the teacher has direct control over the activities of students in the lessons of "Informatics and Information Technology", students can use the computer and its applications on their own. Students who do not want to use it will try to use simple programs or game programs throughout the lesson. Therefore, it is necessary to develop an approach aimed at increasing the motivation, interest, creativity and creative thinking of students of general secondary education in the subject "Computer Science and Information Technology" in classroom and extracurricular activities. This, in turn, requires the formation of students' scientific competencies on the basis of a competent approach to the subject "Computer Science and Information Technology".

According to N.Sh.Turdiyev, Yu.M.Asadov, S.N.Akbarova, D.Sh.Temirov, "a competent approach requires strengthening the practical nature of the whole school

education. As well as, the position of the teacher changes. It is not a source of “objective knowledge” that should be given to the student along with the textbook, but its main task is to teach students to learn independently, to take initiative, to make decisions, to take responsibility for their actions, to study in a team, to live and so on. forms skills such as” [11].

Therefore, within the framework of the study, a model was developed for the formation of students' competencies in the subject "Informatics and Information Technologies" (see Figure 1.1).

The model presented in Figure 1 is aimed at developing the competencies of 8th grade students in the subject "Computer Science and Information Technology". This model proposes to organize the learning activities of students in the classroom and outside it on the basis of a competence-based approach, which leads to:

- Forms and develops skills related to distance learning;
- Forms and develops practical skills in working with applications and shells;
- Helps develop practical and critical thinking in students.

Research results. The success of the pedagogical experiment carried out in the process of conducting experimental work on the formation of competencies of 8th grade students in the field of "Computer Science and Information Technology" shows the need to take into account its organizational and pedagogical aspects. Therefore, special attention was paid to these aspects. Experimental work was carried out in 2021 among students of secondary schools in Navoi region. 61 students were involved in the experimental group and 63 students in the control group.

The results of the students involved in this experimental work were analyzed mathematically and statistically based on the Student-Fisher criterion. Using this criterion, the appropriate average values for the samples $\bar{X} = \frac{1}{n} \sum_{i=1}^4 n_i X_i$,

$$\bar{Y} = \frac{1}{m} \sum_{j=1}^4 m_j X_j, \text{ the coefficients of dispersion } D_n = \sum_{i=1}^4 \frac{n_i (x_i - \bar{X})^2}{n-1}, D_m = \sum_{j=1}^4 \frac{m_j (y_j - \bar{Y})^2}{m-1},$$

and the formulas $A \% = \frac{\bar{X}}{3} \cdot 100\% - \frac{\bar{Y}}{3} \cdot 100\%$ were used to determine the mastering indicators. According to the calculation, the average level of assimilation of the experimental group was higher than that of the control group, i.e. increased by 9.6%.

Conclusions.

1. We recommend using this model in the formation of students' competencies in the direction of "Computer Science and Information Technology". This model will increase the motivation and creativity of students, creative thinking and practical skills in the field of "Computer Science and Information Technology". As a result, students develop the necessary scientific competencies.

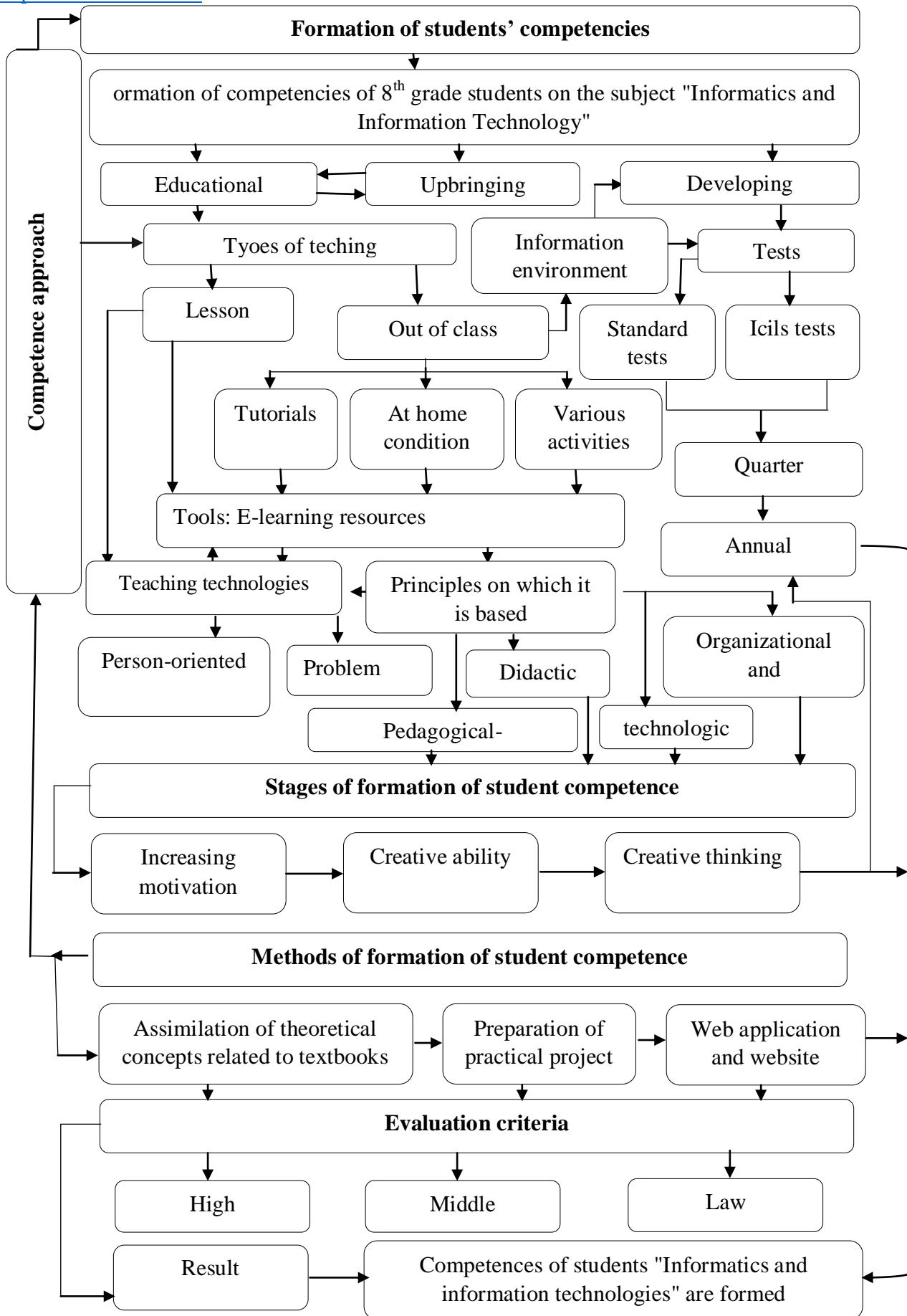


Figure 1. Model of the formation of students' competencies in the subject "Informatics and Information Technologies".

2. When forming the competencies of students of secondary schools on the subject "Informatics and Information Technology", it is advisable to organize classes based on the integration of student-centered and problem learning technologies and modern e-learning resources.

3. When developing the competencies of 8th grade students in the field of "Informatics and Information Technologies", it is necessary to strengthen the didactic support for organizing their independent educational activities.

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