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A NEW APPROACH BY APPLICATION E.O.OMAROV'S AUTOMATION FOR DESCRIBING OF EDUCATIONAL PROCESS IN THE SCHOOL WITH USING CALS TECHNOLOGIES

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Abstract. In this paper are first given the objectives and principles of CALS technologies and described some technological processes with application E.O.Omarov's Automation. CALS-technology (Continuous Acquisition and Life cycle Support) is a technology of continuous information support of the product life cycle. The purpose of using CALS technologies is to increase the efficiency of the participants in the creation, production and use of the product.

Keywords: Omarov's automation, CALS-technology, functional literacy, educational process, system of quality control.

Now a global information technologies called by CALS technologies (Continuous Acquisition and Life-cycle Support) were widely adopted is a continuous information support of all life cycle (LC) of production which is based on standardization of methods of data presentation at each stage of life cycle of a product (in our case the pupil) and on paperless

By definition and formation of functional literacy at students we will mark out following aspects and approaches:
1) Problems at the level of philosophy of education have been considered in [1].
2) As aspect of continuous education in [2].
3) In the context of competent approach are accurately stated in [3].
4) In the context of technology of formation of functional literacy are considered in [4].

5) Development formation of functional literacy of technological type are presented in [5].

6) The functional literacy is considered within strategic approach to training.

7) Multiplicity of definitions and interpretations of functional literacy depending on the chosen consideration focuses.

It should be noted that are known a cycle of works in [6-8], which study application of CALS technologies for increase in literacy of students for technical specialties.

The monograph [9] reveals the scientific basis for the formation of the professionalism of the teacher's engineer in the system of university training.

Therefore, it should be concluded that the use of CALS technology for the teaching process in secondary school is still poorly developed. Therefore, in this paper, a new direction of research on the use of automatic machines of E.O. Omarov for describing the educational process in secondary schools from the point of view of automation theory is considered, which will clearly allow us to further apply the elements of CALS technologies in high school.

For future researches we will be defined that under functional literacy, we understand the education level which is a necessary component of modern professional education. In addition to everything, the functional literacy represents set subject, between subject, integrative knowledge, abilities, skills and ways of the solution of the functional problems applied by trainees in the course of the activity connected with process of perception, transformation of information, solution of standard educational and professional tasks and also problems of interaction with society. As the main unit of content of functional literacy the task is accepted. Consider technological educational processes for any class of any secondary school of the Republic of Kazakhstan, which can be by following steps:
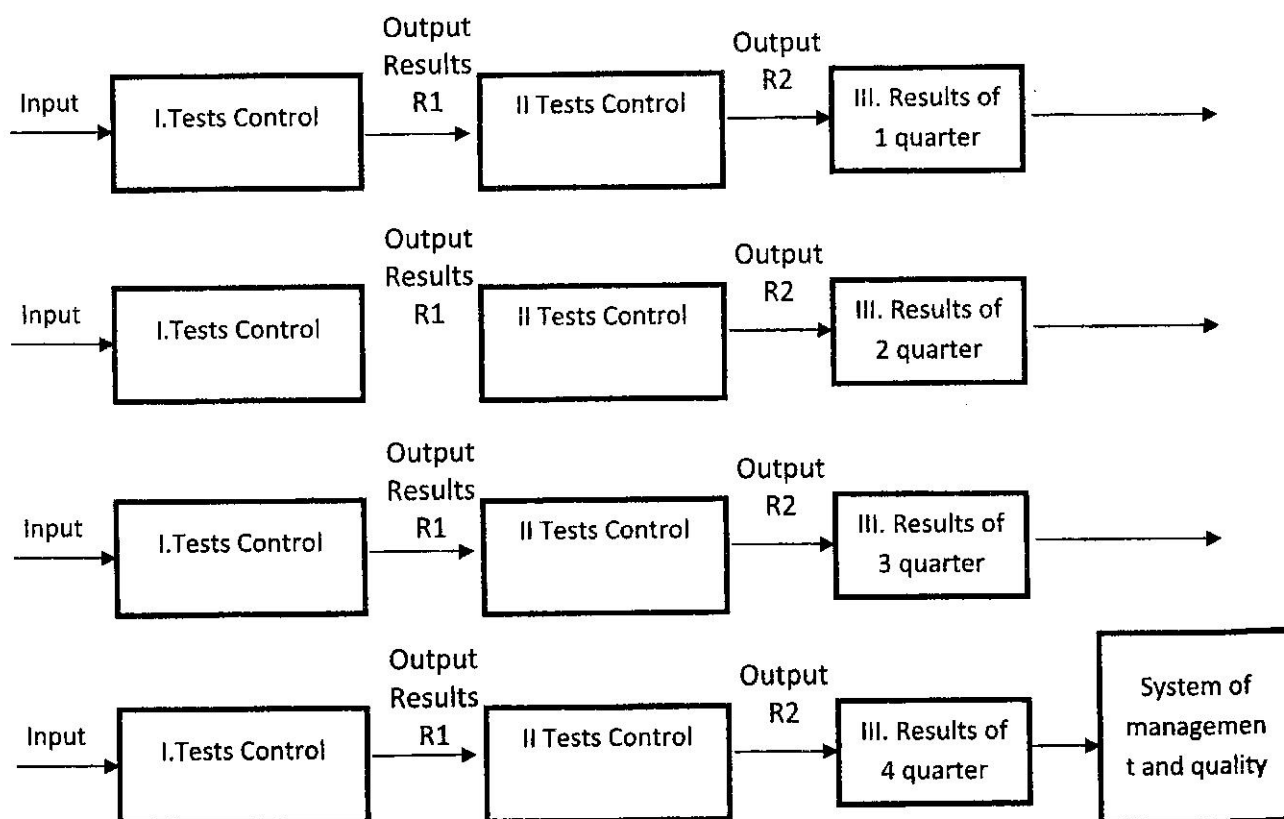
Test control is carried out according to the directive documents of the Ministry of Education and Science of the Republic of Kazakhstan. System of Quality Control (SQC) allows to control the knowledge of students after every quarter and year.

What does all the same affect to get a steady technological process in the first year? These components will be:

1. A_1 – a set of students in the classroom

$A_1 = U_{i=1}^n A_{1i}$, where i – number indicating the year of study (1).

2. T_1 – set of teachers

$$T_1 = \bigcup_{j=1}^3 T_{1j}, \tag{2}$$

where
i =1 – the highest qualification;
i =2 – secondary qualifications;
i =3 – initial qualifications.

3. Classes Found

$$D_1 = \bigcup_{k=1}^3 D_k, \tag{3}$$

where
i =1 – lectures;
i =2 – laboratory works;
i =3 – practical works.

4. Training and methodology complex

$$U_1 = U_{11} \cup U_{12} \cup U_{13} \cup U_{14} \cup U_{15}, \tag{4}$$

where U_{11} – lectures:

U_{12} – Laboratory works;

U_{13} – Practical works;

U_{14} – Complex olimpic tasks;

U_{15} – Control works.

5. Library

$$L_1 = \bigcup_{i=1}^n L_e = L_1 \cup L_2 \cup L_3, \tag{5}$$

where i =1 – lectures;
i =2 – laboratory works;
i =3 – practical works.

6. Classroom management

$$K_1 = \bigcup_{i=1}^n K_{1m}, \tag{6}$$

where i =number of class.

8. Intellectual games

$$G_1 = G_1 \cup G_2,, \tag{8}$$

where G_1 – for school in the courses of computer science, mathematics, etc.;

G_2 – for the school on writing projects in the courses of computer science, mathematics, etc.

Therefore, the state of the educational process in the first year, we can describe in the form of a chain of Omarov:

$$\{A_1 + T_1 + D_1 + U_1 + L_1 + Z_1 + K_1 + G_1\} \tag{9}$$

In some ways this chain is not constant and it is constantly changing. In what sense of the word? At the very beginning, a general scheme for controlling school performance was given.

Therefore, for the representation (9), we distinguish the following states of the educational process:

q_0 – initial state;

q_1 – state after the 1st boundary control;

q_2 – state after the 2nd boundary control;

q_3 – state after quarter,

which are determined by Omarov's chains [10]: $\{A_1^{(i)} + T_1^{(i)} + D_1^{(i)} + U_1^{(i)} + L_1^{(i)} + Z_1^{(i)} + K_1^{(i)} + G_1^{(i)}\}$

where, i = 0,1,2,3.

In our opinion, the main law of accumulating knowledge among students will be:

$$T_1^{(i)} \rightarrow E_1^{(i)}, \tag{11}$$

where $E_1^{(i)}$ – assessment of knowledge. Then the formal grammar is described as

$$F_1^{(i)} = \{A_1^{(i)}, U_1^{(i)}, P_1^{(i)}\} \tag{12}$$

where, $A_1^{(i)}$ – input alphabet,

$$A_1^{(i)} = \{A_1^{(i)}, T_1^{(i)}, D_1^{(i)}, U_1^{(i)}, L_1^{(i)}, Z_1^{(i)}, K_1^{(i)}, G_1^{(i)}\} \tag{13}$$

$$V_1^{(i)} = \{A_1^{(i)}, E_1^{(i)}, D_1^{(i)}, U_1^{(i)}, L_1^{(i)}, Z_1^{(i)}, K_1^{(i)}, G_1^{(i)}\} \tag{14}$$

$$P_1^{(i)} : T_1^{(i)} \rightarrow E_1^{(i)} \tag{15}$$

Then we can construct the whole cascade of automatic machines of Omarov in the following form:

$$\{A_1^{(i)}, T_1^{(i)}, D_1^{(i)}, U_1^{(i)}, L_1^{(i)}, Z_1^{(i)}, K_1^{(i)}, G_1^{(i)}\} = \{A_1^{(i)}, E_1^{(i)}, D_1^{(i)}, U_1^{(i)}, L_1^{(i)}, Z_1^{(i)}, K_1^{(i)}, G_1^{(i)}\} \tag{16}$$

We note the technological conditions for the formation of functional literacy as the basis for the development of educational and cognitive competence, aimed at providing the technological component of the formation of functional literacy, suggesting the use of modern pedagogical technologies in the process by the teachers of independent work of students initiating independence in determining the goal, planning and understanding their actions project training, technology development critical thinking).

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