Computerization and Informatization of Primary Education

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Abstract: Computers and other information technology naturally free us from routines, typos, paper, etc., save our time, and make our work more enjoyable. But technology disrupts our direct physical and mental connection with nature and other people, alienating our thinking from the meaning of natural objects, phenomena, and processes.

Key words: computer, information, introducing, education, computer technology, humanity, computer based, primary education.

Informatization and computerization of education is a fact of time, a fact that must be reckoned with and recognized whether we like it or not. After all, when railroads appeared, there were also different opinions, but no one denied the fact that rail transport is a part of humanity's life. Informatization and computerization of education did not appear out of nowhere. Back in the 50s and 60s of the 20th century. The so-called "programmed learning" was popular as early as the 50s and 60s of the 20th century. Our task is to soberly see the pros and cons of informatization and computerization of education, not to fall into "hatchet job", on the one hand, and naked skepticism, on the other, and remembering the sense of proportion in any matter.

First of all, about terms

Informatization of education will be understood as the implementation of a set of measures aimed at ensuring full and timely use of reliable knowledge in the educational process and satisfying the demand for information products and services by the participants in this process.

By computerization of education we will understand the process of introducing computer products and services into the educational process, increasing the general educational level of students in the use of computers.

Since knowledge, in addition to our natural memory, is stored in an artificial computer memory and on removable computer media, and information products and services are implemented mainly through computer technology, we will not distinguish clearly between informatization and computerization of education. We will consider them together.

Pros:

1. the speed and memory of a functioning computer provides almost instantaneous (from a human perspective) access to significant amounts of information (knowledge). Access is individualized according to the needs (interests) of the user (learner) and, if necessary, is under the unobtrusive control of the teacher. Control is via a computer (stand-alone or via a computer network). Unlike humans, a functioning computer does not tire.

2. The computer can be entrusted with all the routine part of the educational and part of the extracurricular work of the teacher and the student. Test and control automated courses (AC), covering all stages of initial, intermediate and final control, term and partly diploma design at

university, issuing with the help of "task generator" variants of initial data for all tasks, storage in memory of correct results of calculations for final control of tasks and projects, course - consultant, course - laboratory work in any subject, memorization, storage and issuing of training, reporting and planning information with its processing according to set indicators, literature search "Machine must work, man must think" (IBM principle). The implementation of this principle requires the comprehensive informatization and computerization of education, when everything that is reasonable to do on the computer, should be assigned to it. Human beings must retain their creative function.

3. informatization and computerization of education make it possible to implement fundamentally new methods of teaching, which are inaccessible or require an unreasonably long time with traditional methods of teaching.

It is, above all, a dialogical form of learning, and the activity and content of the dialogue with the computer are not limited by anything other than the structure of the automated course. It is the periodic dialogue of teacher and student that has been at all times the most intensive and profound form of learning - more profound than self-learning by book or by passive listening to lectures. It was dialogues (combined) with action as a method of learning that underlay most of the ancient Greek schools, the physics schools of Rutherford, Bohr, Kapitsa, and Landau. It is the dialogic form of learning that keeps tutoring flourishing.

With automated learning is successfully implemented adaptation of AK to the trainees, both in the rate of information delivery (regulated by the learner), and its content [regulated by the learner and / or automatically by the course itself by the results of the analysis of the trainee's answers to the control questions (tasks)].

Dialogue and adaptation combined with the speed and memory of the computer make it possible to fully implement the principle of individual active learning process in the conditions of mass education.

Computer-based mathematical modeling, business games, computational experiments in virtual laboratories can be used to realize the problem-based, business-like principle of education, to bring training closer to modern working methods of a creative engineer, scientist and production manager, to teach students the skills of independent work in education, science and production.

Completely new sense can be acquired by correspondence and additional distance learning (distance learning, Internet-education), which will, in our opinion, raise the level of these forms of training to the level of stationary (full-time training) and attract a wider contingent of production specialists to educational institutions, both for training and teaching. Off-line distance learning does not require a schedule of classes, which determines the place and time of their conduct. Each participant of distance learning (tutor-teacher or trainee) can work at a convenient time and place equipped with a computer. This is especially important for people with disabilities (disabled, sick).

The best pedagogical and scientific staff can be involved in the development of automated courses. When recorded on computer (network) media (in databases, knowledge bases, individual files), these courses can be replicated in all interested educational institutions. This makes it possible to convey advanced knowledge in a particular discipline to every student, regardless of the institution that teaches the subject. This is how the principle of fundamentalization of education is implemented (not in full, of course, but to a certain extent). Fundamentalism in education has always been an advantageous feature of Russian education (compared to the applied orientation of the Bologna system, which is based on Western models).

Computers as a technical means (tool) of education are characterized by versatility and flexibility. One and the same machines (workplaces) in one and the same classroom local network can be used to teach virtually all the subjects taught, which are programmed in the form of automated courses. This creates the prerequisites for fast payback of automated learning systems (AOS), provided they are widely used in the educational process.

Minuses:

1. The introduction of AOS is possible only with the appropriate technical equipment of educational institutions. This, as the national practice shows, leads to differentiation of the educational institutions into "rich and poor", "metropolitan and peripheral", "privileged and secondary", when in some institutions there are no problems with computers, and in other institutions there is a struggle for every workplace and for machine time. A staff of engineers, programmers, system administrators, and operators (for the AK set) is also required.

2. Training on the basis of AOS does not teach independent expression of thoughts aloud, directs the learner to electronic cheat sheet (including via the Internet), dulls his creative thinking, does not allow to identify talented people ("trained", "clever" - yes, talented - no).

3. The effectiveness of AOS is in direct dependence on its technical characteristics (power supply, reliability and noise resistance of hardware and software). It is not uncommon for classes to be disrupted due to power failure, "virus attack" on the file system of computers or network, malfunction of computers and programs.

4. excessive automation depersonalizes the educational process, alienates its participants from each other. No "hard" and "soft" can replace real communication of a teacher and a student, real

communication of students themselves. The educational function of education - education of thinking - is being emasculated.

The fact is that in today's education the main thing is to "light the torch" of thinking, rather than "fill the vessel" of memory. To do this, we need to instill primary skills:

➢ the ability to learn (i.e. to assimilate knowledge, making optimal use of one's psychophysiological capabilities - attention, memory, thinking, intuition);

➢ ability to communicate;

➢ the ability to choose values.

Informatization and computerization are not aimed at developing these skills. Maybe artificial intelligence will turn around to face them - one can only hope with a sense of restrained optimism.

5. Informatization and computerization of education in their current form accustom students to the formulaic, routine skills of technologies and interfaces. No special scholarship, much less higher education, is needed to teach such skills, high school level knowledge is sufficient. Such standardization "saves" thinking, making it subordinate to action. But it is thinking that must precede any rational action. Action ahead of thought is already a degradation of homo sapiens.

Computers and other information technology, of course, free us from routine, typing errors, paper, etc., saving us time and making work more comfortable. But technology interrupts direct physical and spiritual connection with nature, other people, alienates thought from the meaning of natural objects, phenomena, processes. And this meaning is hidden, and technology helps to explain it at best, but not to understand it. The physical external information of explanation beats in our ears and clatters in our eyes, but it is only a rough copy of the subtle, non-sensory internal information of understanding the world we are questioning.

The information explosion of recent decades is an avalanche-like increase in the quantity of external information of explanation, but not in the quality of internal information of understanding. Before the "explosion," we had to think more often; with it, we stopped thinking. And what will happen afterwards? "Our way is the way of thought" (M. Heidegger).

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