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Characteristics of Schoolteachers' Adaptation to the Values of Computerization

The computerization of Russian society is a dynamic, complex, goal-directed, innovative process of the creation, dissemination, and use of information and communication technologies [ICT]. This process entails a transition to a qualitatively new and different state of society, the emergence of new group communities and a revision of traditional or obsolete premises and norms. Among groups of people who take part in a process of innovation it is reasonable to single out main groups (those that are directly or regularly involved in the process) and peripheral groups (rare consumers or users of the results of the adoption of innovations). The schoolteacher intelligentsia of Russia (people who teach in general education schools) represents one of the main groups involved in computerization.

The process of the computerization of the secondary general education schools in Russia has all the earmarks of "alternation" (P. Berger's and T. Luckman's term) of a radical revolutionary transformation [1]. It is a characteristic of present-day alternation—the computerization of the schools—that its main components are the following goal-directed organizing actions: legitimization, institutionalization (emergence, regularization), and objectivization (generalization)—first and foremost on the macro (state) level. This means that it can be viewed as a process that is exogenic, subject to external stimuli. The development of computerization in secondary education today is at the stage of provision of computers and technical program support. The emphasis is on the sectors that are lagging, first and foremost the rural schools. For the most part the administrative-command resource is used for the purpose of adopting ICTs. Up-to-date computers are being installed and computer classes are being established in institutions of general secondary education; work is under way to set up education portals, electronic libraries, and resource centers, and to connect educational institutions to the Internet.

The schoolteacher intelligentsia is one of the most important conduits of alternations if it reproduces socially oriented actions in regard to the computerization of education. These actions include reasonable individual expectations, a reasonable goal, and their subjective actions. It is this group that should serve, for many children, as "guides in the new reality" (Berger's and Luckman's term). The schoolteacher intelligentsia's efforts should serve to create the conditions necessary for the realization of children's interests and needs in regard to self-expression, self-assertion, and self-determination in keeping with the values of the information society.

Our survey of the pedagogical community in 2003 and 2004 [2] shows that modernization got under way with the economic component rather than due to any change in the public's consciousness or the shaping of values. The computerization of the secondary schools in Russia can be assigned to "inorganic modernization," because it is being carried out in response to the challenge of external forces on the part of more developed countries. The computerization represents a means of "catch-up" development, and its main purpose is to overcome historical backwardness and avoid foreign dependency. During the first stages, the inorganic modernization was carried out by way of purchasing foreign equipment and patents, borrowing technologies, bringing in foreign specialists, and so on. The computerization of the schools was, and, to a large extent, still remains, a sphere of competition among world manufacturers of computer technology and software, for whom the Russian market represents considerable profits.

This is what accounts for their extensive philanthropy, including in the matter of the computerization of education. In 1991, for example, IBM Corporation delivered 13,000 personal computers to the schools of the Soviet Union, 20 percent free of charge. In 2003, Intel Corporation invested more than $4 million in the science and education system of the Commonwealth oflndependent States and helped train over 230,000 Russian schoolteachers and

students enrolled in higher pedagogical educational institutions. For the purpose of involving the younger generation in the computerization, two festivals were held: a digital technologies festival in Artek and a young journalists festival with the title "Intel Digital Pen." The corporation provides the participants in the program with specialized solutions and standardized marketing strategies. The corporation is actively pursuing regional expansion and plans to increase the number of its representatives from 35 to 100 in a year. This attention is accounted for by the rise in sales volume in Russia by 51 percent in 2003 compared to the preceding year: the corporation's management sees this country as one of its biggest markets [3].

Let us recall T. Parsons's statement that the most important direct channels of influence on a social system are found in cultural and personal systems [4]. This is why the computerization of the schools cannot be successful unless teachers achieve successful adaptation, unless they accept the values of the information society. What we mean by *the social adaptation of teachers to the values of the information society is the process by which individuals become actively involved in the many diverse forms of social interaction, as a result of which they are able to master information and communication technologies and reconcile the needs of the information environment and the values of the subjects of adaptation.*

In the process of adaptation to computerization, the teacher acts in the capacity of a social subject, an individual who has all of the qualities that have come to be formed at a given moment. *The complexity of the position of the schoolteacher intelligentsia in regard to ICTs is seen in the fact that this group is itself playing the role of a subject that is becoming adapted to and adopting the innovation of computerization, while teaching the students to "play it."* During their own childhood, in the process of their primary socialization, the majority of today's adults did not have the opportunity to become familiar with the characteristics of computerization and to master ICTs. To a large extent, the socializing influence of the information society is different from the socializing mechanisms previously common in the Russian tradition. For this reason, adults find themselves having to undergo a process of inculturation that is similar to adopting the culture of a different country. It is true, of course, that an adult has already mastered techniques of self-education, self-control, self-regulation, and self-socialization, and these help him find his way into the information culture. On the other hand, difficulties can arise, first and foremost regarding values, in which the norms, rules, and stereotypes of a different kind of activity make it difficult to master a new kind.

Today, the schoolteacher intelligentsia has to confront genuine sociocultural, intergenerational problems that come up owing to the differences between children and adults in mastering the information domain. According to the results of our survey, among adolescents the level of mastery of the Internet stands at 51 percent. According to data of the Public-Opinion Foundation, among eighteen- and twenty-four-year-olds the figure is 45 percent, while among those between forty-five and fifty-four (the average age of secondary-school teachers today) the figure is only 11 percent [5]. According to our findings, 36.7 percent of instructors who have been trained and have mastered ICTs are working in schools where there is not a single computer; another 7 percent are working in schools with just one computer. In schools that do have computers, only 30 percent have full access to the Internet, and in another 20 percent there is access to the Internet on at least one computer. Half of school classes lack access.

It is not just the intensiveness of the mastery of the PC and the Internet that differs in the different age groups but also the purposes for which it is used: the teachers make use of the Internet, for example, primarily in their work, while the children use it to explore and to find new, entertaining information, games, and interaction. Our survey of schoolteachers showed that they make use of the Internet primarily for the following purposes: the search for additional information on matters concerning their work—94.3 percent; interaction with their colleagues (forums, e-mail)—29.2 percent; entertainment, games, leisure, dealing with family problems—14.6 percent.

Children's "picture of the world" differs a great deal from that of older generations. The new generation sees the computer as a part of their natural environment and an ordinary feature

of their everyday lives. In many cases, the teachers who are supposed to serve as the guides in the new reality lag behind their students. Many of them do not accept the new values, while others work out certain *quasi-technologies of adaptation:*

—complete rejection (a typical argument: "It is not possible to teach my subject using ICTs; there is no need for them at all");

—specialization—the adoption of changes in a narrow sector of life, for example acquaintance with particular websites in a particular subject;

—the automatic replay of old standard applications that are disguised as revolutionary; for example, the use of electronic presentations instead of paper charts and tables, while the content of the material remains unchanged.

Our research has shown that many teachers in the schools of Russia continue to manifest the attitudes of authoritarian pedagogy; they are unprepared for the new realities of society and of ways to interact with children. In order to work using Internet technologies it is necessary for teachers to have special skills and qualities of personality, and not all of them do. Because so many items of knowledge are generally accessible thanks to ICTs, very often it does not make sense to demand that students memorize all kinds of information, data, and facts in a given subject. And because of this, the teacher himself encounters the problem of how to separate basic knowledge from specific, narrow items of knowledge. Many of them are frightened by *the change in the status of teacher, who is no longer the "guru" but more like an organizer of educational activity.* This kind of work requires the creation of a different kind of relations, of partnership, between teacher and students, rather than hierarchical relations.

There are many teachers who do not see the Internet as a source of useful information for children: in the schoolteacher community there is a certain amount of "moral panic" concerning the negative influence that ICTs can have on the younger generation (psychological dependency, information about sex, exposure to violence, and so on). As our surveys in past years have shown, the schools and teachers continue to be among the factors that cause anxiety for adolescents. A total of 21 percent of the youngsters are especially worried about their relations with teachers [6]. Fairly often, teachers violate the rights of their students, and that includes the sphere of information. One out of every three respondents reported being refused information in school concerning criteria for grading, victories in olympiads, and so on.

A number of school educators *see the values of computerization as the values of a different culture.* In examining this issue it is important to consider a term adopted by a number of sociologists, *innovation anomie*—a state in which the imposition of an innovative process, change, or renovation conflicts with the value orientations of the individuals whose job it is to implement that innovation. Instead of improving the situation in the schools, it tends to destabilize it. Some education workers see ICTs as something alien, something foreign brought in by force from outside. It is their opinion that the spread of the ideas of the new information space in the educational sphere leads to the suppression of Russia's experience in that field and the imposition of an alien ideology on Russian users, an ideology that is not in keeping with the traditions and national interests of Russia. It is our opinion that this represents a serious value conflict: the perception that information technologies and new methods of work as well as way of life stem from foreign influence. Many in the schoolteacher intelligentsia interpret the expansion of the market of information technologies as a sign of the westernization of the educational traditions and even the traditional culture of Russia.

In addition to the above difficulties, mention must be made of the *difficulties that some teachers have perceiving the value of change.* I.S. Vasilenko offered this classification of educators in regard to any process of innovation: innovators—6.6 percent; those in the lead—44.7 percent; moderates—17.7 percent; and it is noteworthy that over one-third of the respondents do not even accept the value of innovations [7].

An individual's ability to rate himself and others correctly represents an important indicator of behavior in the process of computerization. This is especially important because information products, technologies, and programs are constantly expanding and changing. It

turned out that the teachers themselves give a *rather negative assessment of their own success in the use of ICTs.* One out of every five does not make any use at all of computer technologies in pedagogical activity, and one-quarter do so less than once a month. More than 25 percent answered that they do not use any electronic resources at all. Only 15.6 percent make use of electronic textbooks and encyclopedias. Among the main obstacles they list, most important are external conditions that impede the process of computerization, especially conditions related specifically to the schools themselves. It is our opinion, however, that they are glossing over the personality factor, relating to the teachers' own inner potential.

The survey revealed that there is *no instrumental value associated with computerization in regard to the professional career of today's schoolteacher.* We found that the *main motives* for them to get involved in processes of computerization include: the social approval of the activity; the desire to improve their standard of living; and the realization of socially significant values. The teachers place a value on innovations that they can show to their colleagues and to parents. Very often, this can be used as a stimulus to get teachers enrolled in courses to learn ICTs. Judging from the survey findings, the training that teachers went through had serious personal consequences.

The teachers did not often note the item "the opportunity to enhance my social status in the collective" and "a boost to career, advancement in career." This indicates that the skills that are necessary to work with ICTs are not associated with social recognition in the schools of Russia. At the same time, according to the findings of M.F. Chernysh, "information workers" in the economic sphere note a number of positive consequences of the mastery of ICTs: higher pay, job promotions, additional social benefits, and attention and support from management [8]. No such consequences were found in the case of schoolteachers.

Looking over the survey results it is possible to state that the *main characteristics of teachers' adaptation* to the values of the information society are: the dichotomy of adapting to computerization while at the same time working to adapt children to computerization; sociocultural intergenerational problems of ICT mastery; the change in status from that of "guru" to "guide" in conjunction with instruction using ICTs; the perception of the values of computerization as the values of a different culture; rejection of the value of rapid innovation in life; the emergence of quasi-technologies of computerization of education; and the absence of a sense of any instrumental value of computerization for the professional career of the schoolteacher in today's Russia.

A. Toffler suggested experimenting with a broad spectrum of measures to regulate processes of innovation [9] in this way: "The only way to maintain any kind of balance in the course of a super-industrial revolution is to answer invention with invention: to create new personal and social mechanisms that regulate changes. Consequently, what we need is not blind acceptance or blind resistance but rather a whole set of creative strategies in order selectively to shape, deflect, speed up, or slow down change" [retranslated from the Russian—Ed.].

The computerization of society will require goal-directed, resocialized activity in adult society, and especially those in the education community. There are two possible ways to improve the effectiveness of teachers' adaptation to the values of the information society: goal-directed, planned social integration of everyone, or exclusion of routine plodders working with quasi-technologies. In connection with the problem that we have found—the habit of perceiving computerization as a westernized innovation—it will be necessary to conduct systematic rather than sporadic propaganda work to publicize the positive experience in Russia. It will be necessary to inform teachers continually about this experience, because the position they take will do a great deal to reduce the potential for protest against computerization. It is our opinion that when it comes to efforts to change the situation in the computerization of the schools, the priority has to be the *personal* factor (training, support, counseling, and so on) relating to the realization of the teacher's inner potential.

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