

# Is Ignoramus<sup>1</sup> Our Ideal? Or What Education Do We Really Need?

Yu. V. Novakovskaya

*Faculty of Chemistry, Lomonosov Moscow State University, Leninskie Gory, Moscow, 119991 Russia  
e-mail: jynovakovskaya@gmail.com*

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## INTRODUCTION

What is education? It is not a collection of facts that are stored in our heads in greater or lesser number and order and can be elicited sometime when we need them. Education is an ability to adequately use the available knowledge, thus, creating new knowledge. Children mechanically learn everything new only until they reach the age of eight, after which they start analyzing information and making conclusions, which are not limited to simple addition of the accumulated facts. However, much earlier, from the moment when children start uttering their first words and moving by themselves, their natural tendency to learn everything new and explore the world around them is already clearly manifested. And the task of teachers and tutors is to preserve and develop this tendency. It is easy to suppress or even destroy it and it is hard or almost impossible to revive it.

Therefore, speaking about education, it is necessary to understand that primary, secondary, special, or higher school are not just separate stages on the way of receiving education, but an integral chain, in which a break or injury of any link can have disastrous consequences. We cannot hope that, if a child's natural desire to comprehend the world has been killed in primary school, one can make up for it by forcing him or her to diligently study subjects in secondary school. Neither can we expect arousing that without interest in children or young people in studying various subjects in secondary school it is possible to provide them with

the minimum necessary knowledge later, filling in the gaps in their education at the level of vocational or higher education so that eventually they will become well-educated people.

In both cases people will probably remember or learn something; however, knowledge that people acquire by overcoming themselves will never become an integral system. In the best case such knowledge will always remain somewhere in the back of the brain as a heavy unwanted burden. In the worst and the most common case it will be thrown out of the head as soon as external circumstances (for example, completion of studies of a certain subject) allow it. Then, what is the result of studying the subject? Is it a formal grade in the certificate? But the objective of education is not to gather formal points, but to acquire knowledge, which people can use when necessary. And no one can predict what knowledge will be needed in a particular situation.

Under conditions of modern life, when the technical progress is constantly accelerating and even well-educated people with broad erudition are not always able to catch idea (at least in general terms) the operation of some technological innovation without additional study, it is impossible to determine what knowledge and in what area people will need about a decade. Therefore, it is necessary not to limit and narrow the curricula of disciplines studied in schools and higher educational institutions, but, on the contrary, to expand them, not forgetting to build bridges between different areas of knowledge. However, in no way does this expansion mean a straightforward increase in the volume of factual material, which has to be learnt by school children or students of higher educational institutions. In the

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<sup>1</sup> Here the author of the article refers to "The Minor" by D. Fonvizin and its main fictional character, Mitrofanushka (Translator's note).

presence of a well-thought and a logically organized curriculum (for each subject) new interesting facts (discoveries or technical innovations in the corresponding field) can be carefully woven into the existing plot, which will not complicate the study of the subject, but, on the contrary, will make it more exciting. School children will see that science is not some boring archaic set of dogmas, but a living area of knowledge, which is constantly changing and, what is even more important, that even in areas, in which everything seems to be already known, it is possible to find something that can significantly change our understanding of nature and our abilities. They have to realize that there are still many unknown and unexplored things awaiting to be discovered by them. Moreover, there is no more efficient way to make people interested and enthusiastic than to open a prospect of future achievements, which are to be theirs, to them. Even if such people themselves do nothing great, they will understand that their work is necessary, as all qualitative changes in our picture of the world and in our ideas about the ways of using what is given to us by nature take place only when sufficient information has been accumulated in the corresponding area. Therefore, any people, who extends knowledge, are not only developing themselves, but also help the entire mankind to develop.

It is a common objection that such is the fate of those few who dedicate their lives to science, whereas all the rest do not need it at all, that it is impossible to learn everything and, therefore, there is no need to in extending knowledge given to an “average” person. Small general minimum of knowledge, which will allow an individual to orient in the modern world, is enough. As for the area, in which a particular individual is planning to work, of course, in this sphere he or she should receive as much information as possible. However, first of all, there are no average people. All people have their own features. And thirst for knowledge, given in school, is useful for anyone. The more people know, the more rational way they can choose when solving any problem and, most importantly, the more adequate upbringing they give to their own children. Knowledge and skills of every next generation should be wider as compared to the previous one; this is what real progress is. In order to understand in which area their children’s inclinations can be put into practice in the best way, parents should have at least some general idea about all areas, as no one knows what genes will become dominant in the new generation.

Apart from that, breakthroughs in different natural sciences are as much interwoven and interrelated in the modern technological sphere that even to understand which innovations offered by the market can be useful and which can be harmful, it is necessary to have basic knowledge in a great number of subjects. Furthermore, it is necessary to be able to analyze the incoming information without relying on authoritative statements made by so-called experts. After all, very often such experts are just those, for whom it is profitable (for one reason or another) to convince us that a particular product is good or that a particular innovation in one or another sphere of our life is quite promising. We will almost never know whether these people actually are specialists in this area, and even if so, whether they are aware of some side effects of this product or innovation. This means that we have to be able to understand a lot of things ourselves.

An ability to summarize and analyze information and make rational conclusions is the main thing given by education. A person can know nothing about certain facts or even forget something (or many things) from what was learnt in school or in a higher educational institution, but this ability makes it possible to fill in the gaps, recall (using corresponding reading materials) what has been forgotten, and rationally recognize the offered product, law etc. After all, very often our health and well-being of our families depend on decisions we make.

### School Education Objectives

When listening to state officials responsible for education, there is a feeling that they have chosen Mitrofanushka and his parents, so vividly described by D. Fonvizin in “The Minor” as their ideal and role model. In fact, some twenty five or thirty years ago when reading this book Soviet school children sincerely laughed at Mitrofanushka’s skills and his mother’s statements. That time it seemed that all problems, so ironically presented by the author (at least, problems in the sphere of education and upbringing) had been left in that deep past. However, life once again confirms the correctness of the idea about cyclicity of development. At a new cycle, the society is suddenly again ready to accept Mrs. Prostakov’s<sup>2</sup> view of the world.

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<sup>2</sup> The surname of Mitrofanushka and his parents’ mother can be roughly translated as Simpleton (*Translator’s*

Some people are already ready to endorse the idea that children do not have to learn how to write orthographically, accurately, and legibly because modern computer equipment, which they will mainly use when writing or reading something, makes it possible to check the spelling of words, whereas an ability to use a pen is not needed at all. Moreover, it is possible to buy software programs voicing written texts so that received letters are read by the PC; furthermore, a time when computers will create texts dictated by people and send them is not far off. At the current cycle of development of civilization this situation almost exactly repeats the words said by Mrs. Prostakov, "I can receive letters, but I always order someone else to read them."

In an effort to protect children from overload when studying school subjects state officials responsible for education completely echo Mrs. Prostakov. A propos, it is absolutely unclear what overload is meant here. In the 1980s, when the author of this article was studying at school, which was a very ordinary (non-specialized) school, together with other school children, who were very ordinary for that time as well, no one was noticed to suffer from excessive learning loads due to studying too many disciplines in too large volumes. On the contrary, talented children even felt bored and wanted additional optional classes.

In this connection, another paragraph from "The Minor" comes to mind, in which Mrs. Prostakov says, "Believe me, master, that which Mitrofanushka don't know is, of course, nonsense." Mr. Starodum<sup>3</sup> answers reasonably, "Oh, of course, madam. It is very consoling for an ignorant man to consider everything he doesn't know nonsense." I would rather not think that today's reformers of the secondary education system, who are reasoning exactly like Mrs. Prostakov, do so due to their very narrow horizon and little knowledge. After all, absolutely everything can be reduced to a formula, voiced by the same Mrs. Prostakov, "But that's not a science fit for noblemen. A nobleman just says, "Take me there," and they'll take you wherever you wish." In this case there is no need to study anything!

More and more often the training process is also viewed through Mrs. Prostakov's eyes, "You can't say we don't try to educate Mitrofanushka. We pay good

money to three teachers. For reading and writing the sexton, Kuteikin, from Pokrov, comes to him. Rithmetic<sup>4</sup> is taught him, master, by a retired sergeant, Tsyfirkin<sup>5</sup>...The German, Adam Adamych Vral'man<sup>6</sup>, instructs him in French and all the sciences." The most important is to allocate funds; what and who will teach children is a question of secondary importance. I will remind those readers who have forgotten the plot of "The Minor" that Mr. Vral'man had been a coachman before he entered the service of Mr. and Mrs. Prostakov. As for Kuteikin<sup>7</sup>, when saying that he had studied in the local seminary, he clarified, "I got as far as rhetoric, but by God's will, I gave it up. I handed a request into the consistory in which I wrote, "Such-and-such seminarian, from a priestly family, taking fright of the abyss of wisdom, asks to be released from it." It was soon followed by a merciful resolution with the note, "Such-and-such seminarian is to be released from all studies, for it is written: cast not your pearls before swine, lest they trample them under their feet." And that is it!

Today no one cares anymore about the level of training of the teachers who come to work in schools. However, it is already highly necessary to train professionals with broader erudition. They have to be able to show school children how new ideas and technologies emerge at the interfaces of sciences that were initially so different and how tightly everything is interconnected and interwoven in nature.

Everyone and his uncle are developing textbooks; as a result, at present, there is no single approach to composing textbooks. Moreover, no uniform methodological approaches to teaching subjects, valid from a scientific point of view, have been elaborated. The main indicators of the level of modern schools are a renovated building, an Internet connection, an equipped computer classroom, and funding allocated in strict compliance with the number of school children. These are Mrs. Prostakov's principles put into practice!

A propos, speaking about the Internet and other achievements of the modern technical thought, it

<sup>3</sup> This surname can roughly be translated as Mr. Oldthinker (*Translator's Note*).

<sup>4</sup> Purposefully misspelt in the original (*Translator's Note*).

<sup>5</sup> This surname can be roughly translated as Mr. Cipher (*Translator's Note*).

<sup>6</sup> This surname can be roughly translated as Mr. Liar (*Translator's Note*).

<sup>7</sup> This surname can be roughly translated as Mr. Priestling (*Translator's Note*).

should be noted that the Internet really provides great opportunities in terms of looking for the needed information. In this phrase the two key words are “needed” and “information.” First of all, a person has to clearly understand what he or she needs, which in turn requires a lot of knowledge. Otherwise, it is very easy to take rubbish, filling the Internet, for something valuable and, vice versa, to miss something really significant as inconspicuous in this abundance of information. Apart from that, as a rule, a search for the needed information requires certain effort. It is necessary to be able to sort out the unnecessary, gradually approaching the most informative sources. Any search for information in the Internet is constant and inevitable switching from one site to another, from one source to another. When a person has enough knowledge, the required direction can clearly be identified. However, when a person is just studying and his or her knowledge base is not sufficiently developed, very soon this process ceases to progress to the intended goal. Moreover, such a way of work leads to scattering of attention. A child does not concentrate and analyze the incoming information. As a result, the volume of new useful knowledge in the child’s head will hardly increase, whereas general tiredness from sitting and looking at the monitor appears and can cause very serious health problems, both physical and mental. When children start learning something, they do not need a flickering computer display but a book, which disposes to calm, consistent, and thoughtful study of a subject.

Books are equally important for acquaintance with classical literature. If children start studying classical literature in short versions (edited by some modern “methodologists”), especially reading it from a computer monitor or a pocket e-book display, the results will be more than poor. Reading from a monitor or a display provokes skimming over texts, so-called “cross reading,” which does not provide the necessary feeling of the text figurativeness and fullness. In this case, there is no desire to get absorbed in the text and imagine everything the author describes. There is no desire to deeply go into the discussed psychological or philosophical problems. The only desire is to find out as soon as possible what is at the end of the book. In this case, nothing is left from the literary work apart from the plot outline. However, all immortal classics are immortal because they analyze perennial problems that face the mankind, whereas the plot is used only to assist the reader to immerse into the corresponding

world and to feel the acuteness of the problem. Of course, there are rather easy classics as well, such as adventure novels, which are so much loved by teenagers. But even in these books there is the same basic idea going as a subtext, although in a less philosophical version (without many psychological delicacies), teaching that without such eternal values as honor and conscience, friendship and loyalty, love and understanding, people are defective, capable of neither great deeds nor true feelings. Classical literature forms a character in an unobtrusive way, but it still does.

Moreover, it seems reasonable for the people, who choose a path of educating and training children or youth, acquainting them with the basic principles of different sciences, to take an oath similar to the Hippocratic Oath. They should be well and fully aware of what this oath says because in the process of training the requirement to do no harm is no less important than in healing. This oath should be based on at least three points of the Hippocratic Oath (in a somewhat updated version, modified in compliance with the discussed sphere of activity):

- (1) to train and educate people, forgetting about self-interest;
- (2) to direct people to their progress according to the teacher’s ability and judgment; and
- (3) to teach people for their benefit, refraining from causing any harm or injustice.

Thus, the task of schools is to provide the basics of good general education and to form a school child’s character as far as possible. Otherwise, the streets and the Internet will form their characters. It is not hard to imagine what it will lead to. Due to the Internet and modern mobile communication facilities the younger generation is already losing their ability to adequately express their thoughts. In this context, quite a remarkable interview was given by Nobuo Masataka, Professor at Primate Research Institute, Kyoto University, and Doctor of Philosophy, Osaka University, several years ago in connection with the publication of his work “Monkeys with Mobiles” (Keitai wo Motta Saru). In his opinion, mobile phones are ruining the Japanese nation. Moreover, the degradation has gone so far that the residents of the Land of the Rising Sun are turning into apes and because of their behavior young Japanese can be already confused with chimpanzees. (And such a thing happens in Japan, where the state does everything to stimulate everyone

to continue lifelong education, expanding their horizons and acquiring new skills!) Being a primate researcher and having noticed changes in the young people's behavior, Masataka decided to analyze it using the same methods that he applied in primate research.

"Mobile" boys and girls formed groups, which Masataka called *dearukizoku* (out and about tribe). These groups of young people can spend days hanging about on around in the streets, claiming certain districts their territory, which they leave very reluctantly. They get tired going to new places or meeting new people. If in the course of their meaningless walks they feel hungry, they go into the first store they meet on the way, buy something to eat and right there on the curb they sit down to eat it. Or they hang about fast-food kiosks, periodically chewing something, as if "grazing." The primate researcher explains that chimpanzees do almost the same, i.e. groups of apes hang about for a long time without going anywhere special, eat anywhere, relieve themselves in the same place, go to sleep where they start feeling sleepy etc. The professor is sure that this tendency to hang about on the streets without any purpose has appeared and is progressing only because of the rapid growth in the number of cell phones young people use. Parents believe that cell phones ensure indissoluble connection with their children and, therefore, do not think about where and what their children are doing. However, despite the unprecedented opportunities offered by cell phones, actual phone talks between parents and their children are rare. As a result, ties between family members and children who become uncared for are lost..

The professor summarizes, "If it goes on like that, people will gradually lose their ability to think. Maybe, information technologies have freed us from a large number of everyday problems, but now the same technologies are weakening and destroying us." He adds, "You can criticize me for comparing people with apes as much as you like. However, I have studied primates for such a long time that I can say with certainty that it is a fact."

Another problem, related to the use of cell phones and the Internet, is a gradual loss of the wealth of the Russian and other languages, created by generations and glorified by classical authors. A possibility to make a quick answer by writing a short message catastrophically increases illiteracy, as it is possible to

forget about spelling or punctuation. Finally, it is even becoming fashionable to distort word. And after a while people get so used to it that they cannot say how to spell a certain word correctly. It turns out that, in full compliance with Mitrofanushka's ideas, a door is an adjective when it is "adjected to its place," whereas a door "over there by the ladder" has not been hung and is, therefore, "still substantival." And once more I feel like quoting Mr. Starodum's words, "Then according to you the word "fool" is an adjective because it is applied to a stupid man?"

In this context we should recall what was said about the language by Karl Marx and Friedrich Engels, classical authors of materialism. (It is possible to argue some of their statements; however, they were absolutely right when speaking about the language.) In their "Critique of Modern German Philosophy According to Its Representatives Feuerbach, B. Bauer, and Stirner" they noted that "the language is as ancient as consciousness itself, language is consciousness that exists in practice for other people and therefore for myself." And, what is very important, for many centuries and millennia "the development of the brain and the attendant senses, the increasing clarity of consciousness, the power of abstraction and of conclusion made a reaction on labor and speech, giving an ever-renewed impulse to further development of both" (F. Engels, *Dialectics of Nature*).

Therefore, the development and the wealth of the language is a result of the development of the society, its science and culture, a result of the cognitive activity of its people. And the development of the brain is impossible under conditions of degradation of the ability to express feelings through speech! The richer the language is, the more figurative people's thoughts are and the more productive their work is. Is it not what the society needs, especially in our age of science and technology development? Then why do we not think that when we sit a child down near a computer or give him or her a cell phone, we are killing their ability to think?

Let us now return to the problem of teaching various subjects in school. Justifying a possibility of significant differentiation in teaching and division of subjects into major and minor disciplines, the authors of this concept believe that thirteen or fourteen year old young people are already fully formed individuals, who can choose their further way in a rational and

correct manner. And once again this approach exactly echoes Sofya's attitude to Mitrofanushka, "Though he is only sixteen, he has already achieved the final degree of his accomplishments and he will go no further." Only such a person as Mitrofanushka can stop developing at this age, whereas normal people study all life long, and the more they know and understand, the better they realize in which sphere of life they would like to apply their skills and abilities. Of course, some inclinations of a child can be seen at a relatively young age. However, a lot of things inside us are hidden even from ourselves and we can understand them only after a while. So, do we have the right to block schoolchildren's way to some areas, in which they will be able to eventually apply their natural abilities in the best possible way, by forcing them to make their final choice at a relatively young age and to never know a lot of things, which under other circumstances would allow them to later realize themselves? Formalization is harmful in general, whereas formalization with respect to children is an evil and a crime.

#### Knowledge Evaluation Criteria and USE System

There are an enormous number of papers and speeches made by respected scientists, higher school professors, and experienced teachers about the unacceptability of the USE (Unified State Examination) system. There is no point in repeating all their valid arguments. I would like to focus on one aspect of this problem, which is in my opinion the most important. Even the name of the Unified State Examination suggests unified knowledge evaluation criteria for all school children, which is possible only on a condition that any problem, offered to school children, has only one definite solution. And the question is not whether it is possible every year to develop new sets of meaningful tasks with only one solution, which should cover all main sections of the chemistry, physics, or biology curriculum. And the question is not even whether these problems, offered to school children, always really have only one solution. (The obvious answer to these two questions is no.) The problem is that a very important idea is put into the heads of school children, namely that all tasks always have only one solution. Moreover, all these solutions are already known. The only thing to do is to learn the solutions, which is what senior school children do at school.

That is the greatest crime committed against school children. As has been already said above, the most important thing schools should give to children is

specific knowledge and realization of the fact that there are a lot of things in the world that are still unknown, that are yet to be understood by the mankind. How is it possible to combine this idea with the postulate that all questions have only one known answer? The question about the color of Natasha Rostova's<sup>8</sup> evening dress really has only one answer; however do we need it in life? Is the color of the dress important at all? Or is it the author's philosophical thoughts about the meaning of life that are important? In this case, there is already no unambiguous interpretation because the basis of the author's thoughts was his own life experience, whereas readers interpret the book on the basis of their own knowledge and life collisions. It is possible that readers will have their own associations, which will be very far from the author's view. However, the most important is that people have such associations and ideas. They start thinking.

School children also have to think. They have to think and understand that there is nothing defined in science once and for all. Science reflects our rough ideas about the world around us. And as our knowledge about the world increases, many science provisions change accordingly. It is not knowledge that becomes obsolete (like some people erroneously think), but our model concepts summarizing our knowledge. The volume of knowledge increases and models are refined as a consequence. New models make it possible to make new predictions, which serve as a basis for further search etc. There are no dead, frozen, or unchanging sciences. Even languages dynamically develop if there are peoples who use them. Dead languages are only those that are not spoken by anyone anymore.

If we want to kill children's ability to think and doubt everything, then we should follow the USE path. However, in this case we will kill more than the young individual's mental activities. We will destroy the foundation of human cognition and, therefore, development. As a result, we will see degradation and transformation into ape-like creatures. And whereas more and more often people now express doubts about the evolutionary step from ape to man, we are quite able to make a backward step.

In this connection, I cannot but note that the most technologically leading countries, such as Japan or

<sup>8</sup> Natasha Rostova is a central character in Lev Tolstoy's novel "War and Peace." (*Translator's Note*).

South Korea, have never had any USE-like systems; moreover, the most rational Western states (Germany, Italy, Sweden, Finland etc.) have already abandoned such practice.

What does the USE ideology lead to (it is exactly ideology, as a very definite attitude to the cognition process is imposed on school children)? It leads not only to school children's strong belief that everything is already known and there is nothing for them to explore, but also to the fact that instead of analyzing the incoming information school children are busy learning it and storing it in their heads. Will they be able to rationally use this information in future? No, they will not. It is simply impossible. School children are not taught to build links between different blocks of this information. They are not taught to analyze it critically. And a habit to blankly memorize new material, which has been developed for a number of years, leads to the fact that school children absolutely lose their ability and, most importantly, their desire to think. They operate as machines or, in the best case, as computers. However, computers have one advantage, as all the incoming information is stored inside (unless there is some system failure) and can be processed using relevant software. However, the capacity of the human brain is limited. Moreover, people usually remember well only the things they actively use. It is clear that such an individual obviously cannot compete with a computer. Furthermore, no one can surpass a computer when we speak about simple memorizing and combination of information.

I think that many higher school teachers will agree with me that more and more often during examination sessions students look like Mitrofanushka, when he was given a math problem. It is possible to hear them muttering something like, "One times three is three. One times zero is zero. One times zero is zero," or "Zero plus zero is zero. One plus one... (Thinking)." The computer in the head has hesitated as it cannot find the required answer and it is already too late to try to think, because they are not used to thinking or were taught not to think while they were stuffed for the USE.

The most important thing in an individual is creative potential. It is creative potential which the educational system has to develop. And the USE is simply incompatible with this task. We have to understand this fact before it is too late.

### Training of Specialists

Any modernization of the country or innovative economy are out of the question as long as the lieutenant's allowance is twice or thrice as high as the university professor's salary. It does not at all mean that the state should not provide decent life for its military personnel. However, the national security is not ensured by the army alone. With the current state of affairs, in the best case in two decades or, maybe, much earlier well-educated and trained officers will be simply unneeded because they will have nothing at their disposal, except for obsolete equipment. There will be nothing to control. In order to have new types of weapons, someone has to develop them, which requires talented designers and competent engineers. To train a good engineer, who is able to work in an independent and productive manner, takes about a decade and a half, including several years of training in a higher educational institution. No one is born a talented designer as well. Of course, an individual has to possess some inborn gifts, which, however, require development. Such an individual needs corresponding education and an extensive work experience, which can be gained only under conditions of a well-established system of personnel training, whereas in our country this system has been almost completely lost for the last two decades. This means that even if tomorrow we allocate great funds for modernization programs and if relevant mechanisms controlling spending of these funds are put into operation and this money is managed by competent and highly honest people, in the best case these investments will give results in another ten or fifteen years. And this will happen only provided that there are still some old staff members who, despite the events of the recent years, have continued working and believing that their experience will be in demand and they will be able to transfer their knowledge to younger generations.

We do need our army and police. Without them too many people are too often tempted to take possession of something that is not theirs, whether it be the property of an individual or an entire country. However, no state, even if functioning only as a military machine, has ever destroyed science or technology. Each government understood that they needed highly qualified professionals. And a state that had its own talented scientists and engineers was always the most powerful. An exception was made by

the United States after World War II, which happened only because at first the country imported talented specialists from Germany and later (or, rather, simultaneously) created a financial system allowing it to attract foreign experts from almost every country without any problems. However, this system is already established. And, at present, Russia has no chance to change it in its favor. Neither is it very rational to count on a global economic collapse that will destroy this system. Then it is necessary to admit that Russia cannot attract many foreign specialists. We have to rely on our own strengths and resources. In principle, such is the way a country, claiming to play one of the leading roles in the world, should live. Moreover, to rely on its own resources and personnel is a condition that is necessary for independent development of any country. Russia, which is so rich in talented people, has such an opportunity. We simply have to train our own highly qualified professionals, which requires an integral and well-thought educational system.

Skolkovo with some individual experts invited to work there will give us nothing. One or even several scientists, who have achieved even outstanding results in a certain field, cannot teach hundreds. Moreover, it is not beneficial for them to do so, as in such a way they create competitors for themselves. They will just work in good conditions created for them. In this situation will they do anything for the country that has invited them? I doubt it. They will simply work on problems that are interesting for them. Will they create anything fundamentally new in the course of this work? Good knows. Maybe, yes and, maybe, no. However, we need fundamentally new technologies, a new level of training and work for a large number of specialists. How can we achieve this goal? There is another good example in recent history; post-war Japan reached an almost unattainable level of technological development within a short period of several decades, starting with purchasing patents for different developments in science and technology that were advanced for that time. Later, they trained their own specialists, who not only developed what was initially acquired, but multiply exceeded it. And the only thing required to achieve all this is the understanding of the necessity of following the chosen path, a desire to work, and availability of the corresponding funding. The latter is still in our country's possession. A desire to work is also great among graduates of our higher educational institutions specializing in natural sciences. The sole condition to

be met is the realization of the necessity to follow the chosen path by our governmental bodies!

This understanding is going hand in hand with understanding that ideology is what holds the people and the country together. At present, we do not have any. An ideology of success and prosperity is not a life ideology. All people cannot be equally successful when great wealth is considered a standard of success, because the resources available to people are limited. In this situation not as many people can be considered successful. We have already managed to understand how it affects the psychological climate in the society.

Children, who have grown up in families where parents are, in the children's opinion, not successful enough, feel deprived of what other children, whose parents are much richer, have. Such a situation results in either their isolation and bitter feelings or in a pathological desire to achieve everything their parents did not have or could not give to their children against all odds. If for some reason they fail to achieve the desired, they feel like losers and lose interest in life. Interest in life exists when every day brings something new, when people can (and really do) discover, understand, or learn something.

As for adult people, who due to the features of their character and upbringing cannot adapt, break the law, walk over people, or simply cheat and steal, they gradually become either aggressive or depressed. Such people make it impossible to build a rational society. It is simply doomed to degradation, both moral and physical. It is impossible to bring up new generations with the right attitude to life in the atmosphere of degradation. It is a dead end and the only way to come out of it is to formulate correct ideological guidelines and follow them in all spheres of activity of the society and the state.

These standards should be based not on commercial success or wealth, but on human morality and a much more perfect and just world order, which is to be built. Only in this case people will be able to overcome both difficulties on their way to receiving education and various life problems. Only in this case an individual has an opportunity to become Man and not "something that shall be overcome," in the words of Zarathustra.

People should not copy the thoughts and deeds of a primitive supply manager, which was so colorfully presented by R. Plyatt in the comedy "Spring." Let me remind you that, according to this character, it is very



easy to make a discovery: a person should sit down, think, and discover. And the most important thing that makes such discoveries possible is the supplies provided by the supply manager, such as flasks, instruments etc. However, it is not due to allocated funds or instruments and reagents, provided by supply managers, that discoveries are made (although, sometimes such things play an important role as well). There is a much more important condition, namely, the researcher's knowledge and interest in the performed work. Without broad erudition, extensive work experience, and a really great desire to understand how something is arranged in this world or how to obtain a certain product or result, nothing can be achieved. Erudition, knowledge, and experience do not come in a second. It takes years or sometimes decades. And the more has been already invented by people, the more difficult it is for next generations to work because they have to look everything through already known; understand (or feel) what has been overlooked by previous researchers and what other way should be taken in order to create something fundamentally new, interesting, and useful (not necessarily in terms of immediate application), something that would combine the best properties of the already available developments and some features that have not been used before.

Intuition based on broad knowledge becomes the main factor of development in modern science and technology. Knowledge should be accumulated gradually, starting from childhood. We can never know in advance at the interface of which modern disciplines new knowledge will emerge or a fundamentally new idea will arise and form the basis of a new technology, becoming a starting point for the next stage of scientific knowledge. Therefore, it is wronger than wrong to believe that people, who plan to specialize in chemistry, do not have to study physics or biology in a sufficiently large volume or that future biologists may need some chemistry, but definitely no physics. It is almost a crime against those we teach. In this way, we would train half-educated people and very narrow specialists, who in future will be unable to completely fill in the gaps in their basic education, arising through the fault of their short-sighted teachers. Thus, we would knowingly provide them with a fate of auxiliary cogs in the scientific and technological machine.

Recently a term "creative" has become very popular; however, this word only means creation of something

new. And the thing is that half-educated or narrowly educated people will never invent anything fundamentally new. They can become good specialists in their very narrow area. However, they will never make any fundamental breakthroughs (about which it is also now so fashionable to speak). Only well-educated people can not only invent something fundamentally new, but also understand to what extent this invention can be useful or, on the contrary, dangerous for the mankind. Only people, for whom morality is not just a word, after understanding the danger of a certain novelty, can refrain from advertising it in hope to earn as much money as possible even if the invention can cause harm to health or safety of other people, instead trying to do everything in such a way that no one else, accidentally coming across the same idea, could do harm to the mankind.

## CONCLUSIONS

Thus, the main objective of the educational system is to develop natural human cognition ability, i.e. to develop the brain. This objective is achieved by studying a wide range of subjects when school children are given basic knowledge in every sphere (without too much specific information), accompanied by examples demonstrating that there is no unchanging theory, formulated once and for all, and that everyone can become an active participant in the process of improving the system of knowledge, refining theories or finding new spheres for their practical application. It is on this foundation that a building of the individual's own knowledge should be built. And the broader and stronger this foundation is, the higher the final structure can be.

This global task can be solved provided the following conditions are met.

First of all, it is necessary to preserve the classical system of education. It is this education that, having become accessible and compulsory for the entire population of the country (rather than for some privileged layer), ensured Russia's transformation into a leading scientific and technical power in XX century.

In compliance with the requirements of the time it is necessary to modernize the curricula, developing unified methodological approaches to teaching different subjects, which should be correct from the scientific point of view, and unified textbooks for all schools, which have to meet three main criteria, namely, logic of presentation, examples of recent

discoveries and achievements, and illustrations of relationships between different areas of knowledge. New curricula and textbooks have to be developed not by bureaucrats from the Ministry of Education and Science or methodologists, but by talented teachers, scientists, and higher school professors.

Next, young people have to be taught to summarize and critically analyze information, instead of memorizing it mechanically. In particular, it is necessary to cancel the USE system, which is in absolute contradiction with this task.

And, finally, the basic condition, without which it is impossible to achieve the desired result, is to develop

the state ideology based on moral and ethical principles rather than on the cult of enrichment.

I would like to conclude this paper with an accurate and concise statement, which Fonvizin put into the mouth of Mr. Starodum from "The Minor," "A great sovereign is a most wise sovereign. His purpose is to show the people what their real welfare is. The glory of his great wisdom is to rule men, for no great wisdom is needed to rule statues. The stupidest peasant in the village is usually chosen to tend the flock because it does not require much sense to tend cattle. A sovereign who is worthy of the throne strives to elevate the souls of his subjects."