

Education of Engineers in Russia

Ural Branch of Engineering Science Academy

L.B. Khoroshavin

Ural State Mining University, Yekaterinburg

T.A. Bad'ina

The article discusses the need for education and training of specialists in our country in their harmonious unity, beginning from school and enhancing in engineering universities. The basic concept of educating creative individuals with high level of knowledge, intelligence and patriotism for strengthening the unity and progressive development of Russia is presented.

Key words: education, school, college, formula education.



L.B. Khoroshavin



T.A. Bad'ina

Training of engineers has to be started as soon as school days begin. Schoolchildren's motivation to become highly-educated Russian engineers and work for good and progressive advance of Russia is to be formed at school. It is conditioned by the fact that the processes of training and upbringing are overlapping in the education system. Therefore, the common golden formula of education and upbringing is as follows:

Advanced education and upbringing is a unified process intended for educating creative individuals with high level of knowledge, intelligence, and patriotism.

Education of individuals at school and engineering universities includes development of basic issues:

1. To develop the objective attitude to historical events in Russia without exaggeration, from the starting point to development of the great country.
2. To increase respect and love for Nature, to improve ecological condition.
3. To show the necessity of the technogenic world development in perfect harmony with nature by means of engineering and humanitarian knowledge.
4. To learn the heroic personalities' biographies of our country as examples

of Russian patriots.

5. To learn to live and work in harmony with Nature and society.

6. To foster love for work.

7. To cultivate justice, objectivity and good will in all aspects of life. Always help each other.

8. To make friends only with clever people, not negative persons.

9. To foster the love for the Motherland, devotion to the homeland, and people. Learn and live in our country.

Development of the basic principles of education and upbringing allows for formation of creative personalities in schools and engineering universities of the country.

The main peculiarity of the Russian engineering education is a combination of all-round fundamental training with wide professional competencies, i.e. education principle based on science [3].

An engineer is a specialist possessing high level of awareness, particularly in the sphere of natural sciences.

Engineering staff training starts from pre-school and school education. These are the stages when development of fundamental base for natural sciences takes place in terms of a person's age and psychological features.

Development of logical thinking has to be started from kindergarten through motor skills activities and creative thinking games. Development of imaginative thinking is a job of primary school. In the subsequent class logical thinking is to be methodically developed which is based on imagination and confidence of thinking, will. If the given features are formed in a proper way, math, physics, informatics will be mastered by school-children at a good level.

But, a number of problems raise that prevent from full actualization of the given abilities.

Firstly: hardly anybody observes the development of a child's mathematics gift, all the more, work on formation of logical and analytical thinking purposefully (hobby groups, elective courses, optional courses are not arranged, little time is spent for subject Olympiads). Therefore, modern generation of school-children is not able to perceive physical-mathematical tasks and then master exact sciences at a psycho-physiological level.

Secondly: professional qualification of a school teacher affects directly the development of necessary pupils' competencies and further students' comprehension of mathematical sciences at universities. Professional competency of exact sciences' teaching in secondary education is not enough (results of Uniform State Exam (USE) on math, physics are lower than average) [1].

Hence, we can observe that logical, cognitive thinking of young generation is getting worth, which is connected with the problems of school education and early development of logical abilities.

Thirdly: without decent basic school training in "exact" sciences there could not be any further engineering development at universities. Students solve algebraic, geometrical, and physical problems using patterns of methodical manual without deep understanding and comprehension. Could we speak about thinking creativity?

Fourthly: In many cities there are vocational schools that are focused

on pupils' preparation for university entrance and learning physical-engineering syllabus.

Prepared students lose their motivation for learning subjects in the first year of education, as they suppose that they know all (they are to study the same again and revise the school curriculum) and cannot realize their potential to the full extent. They neglect educational process and give up studies giving way to the students from ordinary schools.

Fifthly: It turns out that university system works for an average student discarding strong students! At «university» schools highly-qualified teachers capable to develop students' abilities and increase their scientific knowledge level are to be engaged. Student's training is a key problem of a university teacher, not a minor one.

Sixthly: half-educated bachelors and masters may do harm everywhere. The new educational standards and schedules lead to the only conclusion: first, teachers of special subjects disappear, as just the hours for majors are reduced (in some cases they are excluded) in the syllabus for future engineers' training. The bachelor will not have enough theoretical knowledge and practical training.

Seventhly: decay of education begins in the family. Many parents wish to give comfortable and happy life to their children, not keeping in mind that education requires hard work.

Eighthly: The engineer's image and respect for engineering jobs in the society should be considered the most important problems that hinder engineering education quality improvement. At present, it tends to be different in Russia: low wages of engineers, even in the key hi-tech branches of science and industry, absence of good artistic works, films about engineers, i.e. appropriate promotion [3].

Hence, profound education is in demand neither by society nor by the individual.

Engineers are the base for the country's modernization and its progressive development. The formula of advanced

education and upbringing in Russia is growing of creative individuals with high level of knowledge, intelligence, and patriotism. Students have to pass the way from the first year to work place with the necessary assistance of their first helper – software of artificial intellect.

Conclusions:

1. It is necessary to increase the quality of engineering education in Russia and take again one of the leading places in the world in this sphere.

2. To increase the level of education one should stop «European-style renovations in education» and start development and adoption of «Russian Education Law» including all positive achievements in our country and abroad.

Thus, advanced development of engineering education in Russia is based on graduating highly-educated engineers who possess both engineering and humanitarian knowledge and demonstrate the high level of intelligence. The essence of engineering activity is cognition of unknown and creation of uncreated on the basis of the intelligence paradigm – all for fostering unity and progressive development of Russia.

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Ask any Russian: «Would you like your children to obtain free education at all levels, the best in the world Russian education?». I guarantee a hundred-per-cent answer – YES. Then «Russian Education Law» should be adopted. This is the base of the truth.

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