On Evaluation Problem of the Quality of Educational Models

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Abstract The current approach to assessing the educational quality applicable to assessing objects and processes formed and realized in producing spheres is widely spread. However, as education is a much more complicated anthropological, social and cultural object in comparison to that of production, the above mentioned approach is least effective. In education both "strong" and "weak" models are used. There do not exist measurement instruments for accurate assessing mild results. Self control, expert assessing method and portfolio are being put forward.

In the past years, both in Russia and other European countries much attention has been paid to the study of the problem of the quality of both secondary and higher education. Different models and techniques of assessing the quality of teaching specialists are being elaborated; numerous bodies of its monitoring are being set up. Nonetheless, there are no evident results to judge the efficiency of the existing system due to, first and foremost, to the fact that a number of fundamental methodological questions have not been settled. Although the notion of “educational quality” is wildly used in cotemporary society neither its essence nor meaning has been described by scientists, practitioners, educationalists and educational authorities. Researchers of the problem do not demonstrate unanimous understanding of the fundamental terminology and basic concepts. Nevertheless, educational quality is under study and attempts to measure it are made by both educational authorities and researchers.

From the philosophical point of view the quality of objects or phenomena reveals itself as a combination of their characteristic features. Quality is part and parcel of the object and is connected with it as a whole. It cannot lose its quality without commencing to exist. As for education it means that from the philosophical point of view its quality is part and parcel of education, its essence, i.e., if there is education there its quality, otherwise there is no education whatsoever.

Most of contemporary researchers have rejected the philosophical definition of quality. Measure of educational quality is claimed first and foremost instead on the ground that the philosophical category of quality is not of estimating character which makes the question of measuring quality and differentiation between good and bad quality absurd. Taking this ground into consideration a number authors took another approach which is applicable to objects and processes realized in production spheres. This approach is most vividly presented in the concept of the Total Quality Management (TQM), International and Russian Standards of Quality (ISO 9000:2000, ISO 9000), according to which education is to meet the demands of the consumer that is the state, employers, students and their families, the society as a whole.

In the models and technologies worked out on this basis a well-known technocratic approach reveals itself. It is educational quality which is of primary importance in education rather than the quality estimation, which is of secondary importance. However, we sometimes observe a topsy-turvy picture, like the situation in Russia after the introduction of the USE when the importance of the examination for the quality assessment overcame its harm on the educational quality in the eyes of the authorities. We witness lack of understanding or will to understand that educational results can be of two types: those measured through controlling in quantities and those connected with the functions of education to bring up and develop, which is very difficult to undergo any analysis and measurement.

Educational results, especially those of the fundamnetal one, do not reveal themselves at once. This is why it is difficult enough to assess the students’ results objectively right after their graduation or a year later, because educational system is organized so that it follows the traditions of the society cultural development and tendencies rather than due to the necessity to meet the market demands. It is apparent that there exists a certain very important connection between the person’s professional success and his education, but the person’s individual career is influence by a number of other factor, which have nothing to do with education, (like person’s personality, connections and bonds, even his/her outward appearance). Thus neither the results fixed by the USE or through the Internet Test nor the fact that university graduates are given jobs after graduation can be reliable criteria of the quality of education. Ideally it is the level of applicants’ and graduates’ breeding and scholastic abilities which...
are to be measured and the goodness of the educational institution can be judged only if the students' cultural, moral and intellectual potential is growing.

Education as an object has complicated enough and quite sophisticated social and cultural connections and relationships, which makes the educational quality be defined from a principally different approach with the consideration of both the needs of various outer and inner educational processes, nature and essence of education.

The nature of the pedagogical system, its organization is reflected in the notion of educational model, which has been used by educationists for a long time and this notion appearance is logical as the system of education has become far more complicated. In science, including pedagogy, it has been assumed that there can be various models and schemes of the same system in accordance with different research concepts and paradigms.

All pedagogical models can be divided into two types: "strong" and "weak" models which were first described by prominent Russian mathematician V.I. Arnold in his articles and reports, where he convincingly showed the usefulness of weak (mild) economic, ecological and sociological models characterized by somewhat non-determined and variable ways of development and the danger of strong (tough) models for which the one and only way of development exists [1]. The importance of educational strong and weak models was spoken of in our work [3]. The model reflects the nature of the way educational system is organized which is done first and foremost due to its goals. In the strong model the goals are concrete and are to be gained by the definite way, while in the weak model the goals are of a more general character and one can gain the goals by different ways, which are not determined and never reach them. That is why unlike in the weak models educational progress in the strong model is easily checked when compared with the targeted ones.

From the times of Renatus Cartesius and Isaac Newton strict predetermination of construction has been dominated in science. First it started in natural sciences and mathematics, then, this outlook penetrated into humanitarian spheres. Predetermination penetrated into pedagogies in with Y.A. Komensky, the result of which was an attempt to make education an ideally functioning tool. According to the then dominating theory in order to educate a person (child) it is enough to learn how to run such a tool, i.e., to turn education (learning-teaching process) into kind of an industrial and technical process. Thus, technological approach was started to be applied to the learning-teaching process and reproductive activity of students started to be predominant. The most important contemporary achievement of the technological approach in teaching is said to be setting up concrete diagnostic aims to be reached in a definite school period. So the greater part of technologies, made in the years, can be considered as examples of tough educational model.

A question if this toughness is useful arises. The system of teaching goals elaborated by B. Blum has been considered most popular in recent years. But his teaching targets have been transformed into learning activity, which determines the levels of the learning progress and his system parameters are mainly oriented to knowledge and not to the students’ development.

Strong technology supposes concord of the result and the aim. On the contrary, creative activity presupposes discord of the aims and the results. If the teaching goals are set for a long period of time (say a school year or a number of years), then definite strong targets can appear either impossible to achieve or even harmful; they will have to be changeable or they are to be of more general character. Tough model is a way to erroneous prognostication. Moreover, under definite circumstances striving to plan and optimize a few years ahead can lead to a catastrophe. The strong educational model supposes that students and the teacher are forced to achieve the defined goals. But compulsion is always non-efficient and ruinous.

When constructing pedagogical models including those of education quality, it is necessary to take into account the social and economic state of affairs, which are changing very fast, principal uncertainty, variability of challenging life situations, demanding from the students to learn to live and study in the conditions of choice.

In the past decades changes in the whole system of mentality have emerged on the basis of discoveries in natural sciences (I. Prigozhin, G. Khaken and others): a transfer from the images of chaos has occurred, science is no longer associated with determination, there developed ideas of non-determination, non-predictability of the evolution ways of complicated systems. There appeared new sections (theory of catastrophe, fractal geometry, theory of uncertain sets, polysemantic logics etc.) in mathematics. These are the basis of mathematical theory of weak
models, the usefulness of which was found quite recently, that is why few researchers take the new ideas as a clear-cut theory, and striving for determined constructions and making strong models still predominate.

Far too few educationalists understand the usefulness and necessity of educational weak models, although as far back as the 1980s Russian researcher and educationalist E.N. Gusinsky formulated the principle of uncertainty for humanitarian educational systems according to which the results of joint actions and development can not be predicted in all details [2]. Thus in the learning-teaching process there are always small changes, fluctuations of different pedagogical systems (both individuals, groups of students and knowledge system), which are not planned. This is why at the basis of the present day educational models there is to be a principle of uncertainty of a number of teaching and governing parameters.

Due to this factor a feedback, estimation of the state of affairs is necessary for making decisions depending on the real state of affairs and not only plans. Thus educational goals are to be changing continuously or they have to be of non-rigid character, so that there could be various ways to achieve these goals. The point of ramification of the ways in science is called the point of bifurcation, the existence of which is a characteristic feature of systems capable of self-organizing. In the past decades science of self-organizing systems – synergetics – has been developing. Like many other modern theories synergetics caused a great number of both scientific and pseudo-scientific publications. Nonetheless, thanks to profound answers to simple questions a chain of remarkable impressions compelled to take synergetic approach seriously. It is synergetics that weak models emerged.

The development of synergetic ideas could not but tell on the development on pedagogies. In the past 15 – 20 years the interest to the theory self-organization in pedagogical spheres has been growing. Unfortunately, only a few enthusiasts are making attempts to put theory into practice.

Educationalist who stick to strong models do not understand, that in school and university there is to occur some chaos, that the micro-level fluctuations play a very important part in revealing tendencies and teaching aims for the nearest future.

The conclusion synergetic arrives is the following: governing and management of the self-organizing system can only exist in case that it has stepped on its own way of development, rather than through rigid plans and schedules, which are part and parcel of strong models. This is what makes the essence of the educational weak model approach as well as in checking educational quality, based on the search for inner tendencies of educational systems their self-development, self-organization without being imposed from aside by alien ways of development.

Weak models are the wisdom of flexible conduct of the learning-teaching process through advice and recommendations, which in fact makes this way of conducting the process self-governing. The best way to monitor the quality is self-monitoring and the best control is self-control. It is the ways students learn the necessary knowledge, search for the necessary information, ways of self-education rather than the ways the teacher and lecturer teach, that makes the essence of education. One of the forms of weak models in learning-teaching process is heuristic. Heuristic, enlightening way of thinking is an example of non-linear mentality, the result of which is that it is impossible to plan and measure precisely.

Both tough and mild educational models have long existed in education history. E.g., Socrates’ system of teaching is an example of a mild model. Among our contemporaries there are bright examples of systems: that of M. Montasorry and Russian educationalist and innovator M.P. Stchetinin. During hundreds of years rivaled and added to one another. Contemporary educationalists with linear way of thinking strive to present the learning-teaching system as a whole quality control system to constructing tough models with measurable results, which is supposed to be ruinous.

The unified approach to define the educational quality imposed on our schools and higher educational institutions can be very harmful. In order to provide systematic, full fledged character of the educational quality one has to use a complex of methods. For weak models beside self-control such methods as expert assessment, method of portfolio etc. are used. Special attention is to be paid to collective expert assessment of final educational quality (kind of pedagogical council). Only this approach can help to assess the real results of education and are held in real time.