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The didactic standard as a meta-technology of modern education

The didactic standard, being an original meta-technology of education, is fixing its attention on the general, that is inherent in the content of various courses. On the one hand, the didactic standard synthesises those general requirements which are shown for the present by state educational standards in force to the content of definite subjects. In our case these are standards of the first generation. On the other hand, the didactic standard is also beyond standards of the first generation which are becoming invalid, it considers new social, economic and political conditions in the country and is the forerunner of new state standards, those are standards of the second generation. It is possible to say, that the didactic standard is like a bridge between the first and the second generations of standards.

Keywords: didactic technology, meta-technologies, the educational standard, the didactic standard, state standard, criteria of quality assessment of the quality of educational process.

Processes of globalization of various spheres of life in the world “globalize” (condense, integrate) both technological component of human societies and thinking of people which reflects it. So, the culture can be defined as a general technology of activity, and activity is a human life unit, and life is a sequence of activities. Education is even more often referred to scale, total technologies of management, along with some other segments of human life activities. Taking into consideration that the named technologies are tremendously large-scaled, and can be placed “over” the less high technologies, and «meta» means “over” and meanings related to it are “above”, “through” [2], then similar technologies are fair to qualify as *meta-technologies*.

Undoubtedly, the state educational standards come nearer to meta-technologies. Why do they only “come nearer”? Because our general domestic education, which will be further discussed in detail, is subjective, and its technological potential is limited and subject-centered. Why are the standards which are still being developed, come nearer to meta-technologies all the same? Because in each course they seize “the core” of the content with its conceptual knowledge and multiple-purpose educational actions. The base in each course, according to the standard, is adequate to it, and remains uniform. Educational programs of schools can diversify it in the way they want, as particularly given standard is embodied in the developed text in a given course.



Nevertheless, the state educational standards really only come nearer to education meta-technologies, focusing on the discrete as a whole, and giving local construction of educational process. *The didactic standard* being an original meta-technology of education is fixing attention on the general that is inherent in the content of various subjects. On the one hand, the didactic standard synthesises those general requirements which are shown for the present by state educational standards which are in force to the content of the definite subjects, in our case these are the standards of the first generation. On the other hand, the didactic standard is beyond standards of the first generation which is invalid, and it considers new social, economic and political conditions in the country and is the forerunner of new state standards, namely standards of the second generation. It is possible to say, that in a certain sense, the didactic standard is like a bridge between the first and the second generations of standards.

It is abundantly clear, that the didactic standard can be correlated to state standards, but it is not actually state, since it originates from state standards in force, then goes further from the science presented, in particular, by psychology, pedagogics (first of all, didactics), logic, aesthetics, ethics, axiology and as it has been mentioned above, it is influenced by new general conditions.

The didactic standard, beside what has been said above, is a meta-technological phenomenon, in the situations whether the headmaster deals with it, either the teacher or the methodologist, carries out an orienting function of a high level of generalisation, which the supreme indicator of abstracting ability of the person, as it is known to didacts and to psychologists. Only in the light of the general is it possible to comprehend this or that definite fact of the reality, – as the knowledge theory says, – and the didactic standard possesses it by all means. We will understand it as the didactic standard of the content of education, because it carries out the organizing function, to the largest extent, in relation to the content.

The didactic standard provides a number of large-scale characteristic features of the content, which are analysed below:

1. *Presence of special, dense enough, subject or material layer of the content in the structure of educational process.* According to psychology (though not the advanced one), activity of pupils can be academic (with sign systems), imitating (the game) and subject (assuming actions with real subjects and relations). According to the same psychology, initial, primary activity is subject activity, performed by actions with texts (art or scientific), with real language, equipment, devices, a herbarium, original live plants, computers, tables, basic signals. There might be formed a material layer of the content concerning which realisation of subject activity is quite possible. In didactics it corresponds to «a subject plan of action». In relation to it, we can see two problems. One of them is enrichment of the general content by the given layer. In real experience of schools it is obviously insufficient. The prevailing part of the content, despite success of computerisation, there is its verbally-conceptual form whereas, objectively, the information can be encoded quite differently. The data of psychology and di-



dactics testify, that quality of educational activity of pupils, including their development, more often is proportional to “thickness” of a considered layer of the content. The other problem is that under conditions of education it is necessary to turn to the person more and more in order to “humanise” a considered layer of the content as well. This plan can be realised with the known position consisting not in the subject plan of action as the initial beginning of training (about what has been said above), but in the vital world of a child which naturally includes a subjective plan. Taking into consideration, that control of educational process assumes, in particular, didactic and any other support, it is necessary to recognise the stated characteristic feature of the content of educational process and its position in the didactic standard. It is important as a control phenomenon in the educational process. We will remember also that the necessity of provision of pedagogical process at modern level, including its information aspect, is pointed out in the corresponding state documents.

2. *Activity character of the content.* According to psychology, activity is the basic content and a condition of development of a person, meanwhile as in classical didactics and especially in practical experience of teachers the attention is mostly fixed on knowledge as a result of activity, but not on the very activity. The didactic standard proved by our theory establishes some kind of balance between knowledge and activity methods as structural units of the content. In our opinion, even in the state educational standards the stress is legally shifted towards activity methods. In some standards we can see long columns of such methods, such as attention to supervision, experiment, the spectral analysis in the standard on physics, work with historical documents in the standard on history, text analysis method in the standard on literature, etc. The content of educational process appears to be a uniform sphere of action of pupils, and this is, undoubtedly, a step to content updating. In connection with activity component of the content, we will pay attention to the following moments. Knowledge is a «flat» activity, and in this sense it represents activity potential and does not contradict the activity approach in such a model of training which sets “liberation” of activity from knowledge as a purpose. Another point of a considered sign of the content proves that activity in our case also includes multiple-purpose educational actions which are recorded in projects of new standards and in standards for elementary school. In other words, it is a question of intellectual technologies of pupils, or, it can be expressed in the terms of rational receptions of educational work. At last, an important point of activity component of the didactic standard is the tendency to the updated understanding of the activity appearing in concepts of «consciousness activity», «semantic activity», «experience activity», «spiritual activity». From the position of educational process management, it is desirable to consider that, while designing educational activity of the pupils, it is important to recognise that in the present period of time the person during all their life studies and upgrades their knowledge and skills. Hence, in the periods of active training of pupils to which, undoubtedly, the school can be referred to (especially future, “new” as it is now characterised), it is necessary for school not to miss formation of the specified competence of the pupils,



assuming – on what we pay special attention to in connection with requirements to a new school – work with the information, work with the text as a data carrier, mastering methods of reading of texts, and hypertexts.

3. *A conceptual component of the content.* It forms «a fundamental core» contents. The operating content is too empirical, oversaturated with actual, event-triggering, and statistical material. Being taken as a principle educational process, such content has a status to form pupils' orienting basis of actions of a low level of generalisation. Really, what development can be carried out, for example, on a material representing dozens and hundreds of formulas in a course of chemistry, dozens and hundreds of names of a live organism in a biology course? The modern didactics rests on the positions of the conceptual content assuming formation pupils' foundation basis of actions of high level of generalisations. Experiments testify, that transference of the content from the empirical level to the conceptual one to a greater extent increases chances of intellectual development of pupils. It is possible to see it on the following example. In a traditional course of the Russian language punctuation and comma placement is considered in the course of studying of the homogeneous clauses, the homogeneous subjects, homogeneous predicates, so to say, of the same "homogeneous" word-combinations, structures, simple and subordinate clauses, etc. Commas are studied within the frames of a narrower subject and various grammatical rules, whereas comma statement in all specified cases is subordinated to the uniform law of uniformity, hence, it should be taken as a principle comma studying. Experiment has shown doubtless efficiency of the second, conceptual approach to studying of punctuation marks. In this case the pupil shows a higher type of orientation, a larger «thinking radius». In such context the idea of didactics and psychologists about «in educational process to follow the way of mastering by leading, organizing ideas and concepts» acquires the special importance (D. Bruner). In the given sign of the content there are two obviously actual positions hidden. The didactic standard prefers meta-knowledge (over-subject, inter-subject) as extremely conceptual. Other position states that a similar sort of knowledge as the content component is after all an activity method. Accustoming, they carry out this very function in relation to the other content.

4. *Problem character of the content.* It is known, that training courses are constructed on a thematic basis. This is the reason why training has the "stretched", "extended" sequence. Formed in this case, speaking the language used in didactics, "radius" of thinking of pupils is equal to the "radius" of educational subject, a rather small structural unit of the content. Our criterion assumes revealing not educational subjects in a training course, but problems and their consecutive arrangement in the time, according to their complexity and to other signs. The training course, thus, is under construction not on thematic, but also on a problem basis. Another pedagogical strategy is set essentially for this purpose. The operating system of training presupposes, for example, studying of creativity of S. Yesenin's and N. Rubtsova's creativity in different subjects and at various times, the problem construction of a course almost certainly will connect the poets in one process. Let us assume, that if the problem of the



small motherland is isolated to study, the “radius” of thinking of pupils will appear to be equal to the radius of a larger and more capacious unit of the content, namely the problem. There is a base to assert, that problem training is understood scanty, at macro-situational level. The considered criterion focuses our attention on the basic substantial-problem level of training and educational process as a whole. It is impossible to say, that this criterion of the new content is considerably incarnate in the state educational standards of the first and the second generations, though problematical character is felt in some cases, but in our opinion, they are not a special obstacle to shape the problems of the contents. It is necessary to underline, that a problem layer of the content is the precondition of creative development of pupils. The new knowledge and new images stem from it, and pupils can become their co-authors. Speaking about prospect of the considered problem content, we can note that the didactic standard orders the reference of educational process not so much to the academic or simulated problems (game of problems), than to their real, vital variants.

5. Integrative content organisation. It is a rather important part of the didactic standard. The integration urgency is defined, on the one hand, by necessity of perception by pupils of a complete picture of the real world, on the other hand, it has even more necessity of complete development of the personality of the child, his understanding of his place in the world. Under these conditions there is a necessity for restriction in detail-centred constructions of educational process as modern education mismatching its purposes. There is an important problem of integration of the content. Not by accident there were not separate subjects in «the Basic curriculum» in due time, but blocks of subjects, naming educational areas. We have acquired interesting experience of working out of the integrated courses (from the content of the subjects belonging to the same block, but on the basis of mainly one of them. For example, mathematics course on a geometrical basis; from the content of the mutually-removed subjects, i.e. belonging to various blocks, such as a foreign language course on a rhythmic basis, a literature course on a musical-graphic basis, etc.). Process of integration of the contents cannot be focused only on creation of the integrated courses, it is wider. Methods of activity of pupils, intellectual technologies, emotionally-shaped component, the ecological content, etc. can be integrating factors. The probes of didactic bases of integration, which have been organised in Rostov-on-Don, urged to reveal its definite forms and kinds, to define character and typology of the connections participating in integrated processes, integration levels etc. It is also important to add, that mathematization processes happening in the domestic education, as well as information, ecologization, humanisation processes are the phenomena of integrative order, and integration prospect actually appears unlimited. The organisation of integrative activity of pupils is interfaced to formation of polycultural educational space of school as a whole. The competence of heads of schools as managing strategy includes a problem of formation and development of the specified space, and it is clear that this circumstance, as well as in the previous case, removes the didactic standard beyond didactic frameworks.



6. *Variative organisation of the content of educational process.* Variability is usually connected with didactic methods, a remedial part of training. Attention to the personality of the child in educational process, a view on education as on formation of the images of "I", "egos" cause necessity of the variative approach and to the content. The didactic standard, according to state standards, breaks the content on invariant (basic) and variative parts. The invariant part of the content which has directly been reflected in the state educational standards, is a reflexion on the social order of the society, a variative part is a reflexion to the person's order [3]. The variative part is known to be presented by special courses and open classrooms (additional courses). Already there is an interesting experience of working out and functioning of special courses and open classrooms («History of the Chinese poetry», «History of Russian church», etc.). Special courses and open classrooms represent that sphere of educational process, where comprehensive school and higher school are most closely pulled together. The contents of such courses and open classrooms are beyond those that are defined by the state educational standards, for they have deeper, or more original content and can be realised only by the experts of very high qualification, which can be found, as a rule, in higher schools. However, it is necessary for schools to have staff, whose qualification skills are of the same level with specialists of higher schools. It brings attention to the question of preparation of a new generation of teachers by pedagogical higher schools, and on their retraining in the system of improvement of professional skills. It is easy to trace the connection of variative organisation of educational processes with diversification, differentiation and even with individualization as an extreme case of differentiation. Moreover, the asynchronous training which is starting with individual trajectories of development of pupils and based on an individual choice of the content of education corresponds with it. It is desirable for head of a new school to own the similar thesaurus, to see both the general, that unites the named concepts, and their terminological shades.

7. *Compliance of the content of education to the level of scientific and technical progress.* It is one of the most important features of that content of educational process to which a new school should aspire. However, it has not found sufficient reflexion in the state educational standards. We focus our attention to necessities of realisation of three directions, in particular. First of all, it is the content information as a whole, not limited to a computer science course. We have already got a small, experience of training of the information coding by means of mathematical signs in the course of mathematics, the same can be said about chemical signs in the course of chemistry, metaphors and other art means in the literature course etc. The purpose of the similar content consists in pupils' perception of the world as a uniform information field, that is, naturally, not quite the same, that pupils' perception of a complete picture of the world. Not less important and promising direction of updating of the content is general mathematization. In the given relation there is some practical experience, for example, application of mathematical methods in linguistics. The special course «Mathematics and painting» is approved, a special course «Mathematics and a sound



wave» is being designed at the moment. A well-known physicist Landau expressed a very precise idea, in our opinion: the physicist is not obliged to know physics, he is obliged to know mathematics. In this paradoxical statement the thought on the mathematics as a general language of science is stated, and mathematization contents should really accept the general character with consequences following from here (a professional training etc.). At last, underlining necessity of conformity of the content to level of scientific and technical progress, it is necessary to say about expediency of inclusion in the new content of elements of theories of systems, structures, processes, games, texts. All these theories are a fruit of scientific and technical progress and, undoubtedly, should find reflexion in training courses of a new school, it is impossible to forget for headmasters.

8. *Compliance of the content of education of socially-democratic strategy of the society.* It is easy to see correlation of this criterion and the previous one. It means, first of all, a turning movement of the content towards universal values. This turning movement is shown, first of all, in the humanitarization of contents, including natural-scientific disciplines. We know about the experience of working out of the textbook of humanitarian physics, for example. The considered criterion assumes also economization of contents. The urgency of economization is defined by society movement in the market economy, and it should be, on the one hand, prevailing, and on the other hand, it should be general. Now in one of the economic lycées they conduct an experimental working off of models of economic education for pupils of primary classes. It is known, that children like games, for example, in shop, reading fairy tales of economic content, and the similar facts can be and should be used in the program of economic education of pupils. At last, the criterion marked by us assumes necessity of ecologization contents, and, as well as in the case with information, mathematization and economization, it cannot be realised only at the expense of special subjects. The problem should be tackled with all palette of the content, system of all training courses. It is important to underline, that ecologically focused content means also its value-focused character, if we take into consideration ecologically dangerous conditions in the country in particular.

9. *Personality-meaningful character of the content.* In due time a well-known psychologist A. Leontjev wrote that operating educational process is saturated with meanings and is not saturated with senses. So is modern educational process, and first of all, its content. In most cases it has an aloof character, detached from the pupils, the investigated phenomena, processes are not perceived by them as a certain social value, they do not see in it the sense «for themselves». In the state educational standards the attempt to deduce the content on personality-meaningful level means its correlation to sphere of desires of children, to their age characteristic features, their individual interests. The problem of motivation of the doctrine of schoolchildren, their positive relation to educational activity would have been resolved more successfully. Usually the development of pupils is considered to be the development of thinking, imagination and, in essence, impersonal characteristics of the person. It should be



interpreted much more widely – as the development of personality-meaningful, valuable sphere of pupils. In accordance to that it is necessary to update the content, fixing it finally on the person as the greatest value [2].

10. Reflexion of specificity of field-oriented training in the structure of the content of education. The didactic standard stems, first of all, from the general bases of the content of educational process. Specific and variative features of the content have been noted above. It makes sense, considering the question urgency, with a separate sign in the didactic standard to allocate perspective of the subject, and also the meta-subject content under the conditions of field-oriented training. Didactic perspective is triggered by various circumstances, in this case it is field-orienting. If the mathematics is taught on a mathematical field-orientation, it would be a mistake to speak about a didactic perspective. If we consider, supposedly, mathematics on a biological field here, we will obviously not be able to do without a “perspective”. The mathematics will bear the seal of the biological content, just as biology will bear the seal of the mathematical content. It would be no use to train the future biologists in mathematics if it “does not work” for biological preparation of pupils. The same can be said about other training courses, in particular, when it is a question of the mutual-removed content (humanitarian courses on the natural-mathematical field, the natural-mathematical content on humanitarian field). In the situation of a dialogue of cultures arising here, senses “are cut”: pupils at the similar organisation of educational process start to realise the real importance, sense of the material which directly has been not connected with the field. Clearly, that, not having mastered similar pedagogical strategy, it is difficult, if not actually impossible to design field-oriented preparation of pupils.

11. Presence of a forestalling component in the structure of the content. In operating educational process the content is presented in overwhelming majority of cases by the teaching material which is subject to studying at present moment of training, and which has also already been studied, and from “the past” has been integrated to the process happening now. It is useful for heads of educational process to pay attention of teachers and methodical services to reasonability of didactic designing, at which the training content joins the teaching material taken from the future. Training process gets in this case a forestalling character: the material is subject to development only in the long term, but it already integrates to the given lesson. Returning back and passing forward – such is the flexible, mobile logic of the content which, hopefully, will take a sufficient place at the new school. In science such kinds of didactic advancing, as a near, average, distant intersubject advancing, such signs, as its structure, levels are allocated and proved enough. Heads of schools should know, that inclusion in the content of training of a forestalling component methodologically is proved by the known theory of forestalling reflexion of the reality by a live organism. There are also some successful papers executed at the didactic level. It is desirable to take into consideration such a “hyperforestalling” fact. As the new school will be urged to prepare children for the future life, and positive realities in the pres-



ent life are often absent, the teacher can take them from the future not didactic life in the forestalling way, using a didactic arsenal of means available for this purpose (imitation, games).

12. Inclusion of personal experience of pupils in the content of educational process. Pupils get a significant amount of the information outside of educational process and school in general (TV, radio, cinema, popular science fiction, advertising, etc.) They have a disorder set of impressions, their personal experience is defined not only by pedagogical factors. Educational process, unfortunately, is indifferent to this experience in most cases, knowledge spontaneously acquired by children often appears out of sight of the teacher. The problem is how to integrate the personal experience of pupils in the general structure of the content, and to some extent to regulate its formation, and also to use as the factor of studying for program material. We have to admit, that such integration mechanism of a disorderly information being acquired by children from various sources has not been developed yet. It should be subject to scientific judgement and experimental research. At this stage it is possible to say, that a problem of "intervention" of the teacher in personal experience of pupils is complex. When a child watches a TV program at home, this "activity" can be qualified as free. The task of the teacher actually deprives the child of his specified freedom, and can decrease his interest to TV. As we see, the given problem is not only didactic, but also psychological, that, undoubtedly, strengthens its urgency. In the methodical and standard materials regulating educational process, it should undoubtedly take the appropriate place (for more details see the Application).

Here we will finish to describe the characteristic features of criteria of the content of the modern educational process, included into the didactic standard and partly, in the state educational standards. We have undertaken only the first attempt to describe the didactic standard of the content. It is possible, probably, to follow the way of other criteria, some criteria can be incorporated to a larger one, and some of them can be neglected. It is important, in our opinion, to research the very principle of allocation of the uniform didactic base of the state educational standards and the content as a whole, and also its treatment as a didactic standard.

In summary we recommend to headmasters, to their deputies on education, and methodical services of the didactic standard to conduct methodical seminars. The work with the didactic standard can be considered from two points of view. On the one hand, the headmaster, organizing educational process on the basis of the given standard, should represent his theoretical and technological bases, to master it as a concept. On the other hand, the basic subject of training, that is the teacher, who is aware of the activity of the authorities, and who, naturally, should be well informed about the didactic standard. The didactic standard is a uniform sphere of action of the one who realises it. In our opinion, it might be efficient to lead similar work on development of the didactic standard and to organise it with listeners: with headmasters, their deputies, methodologists, and with teachers. It is possible to organise mixed groups with the related organisation.

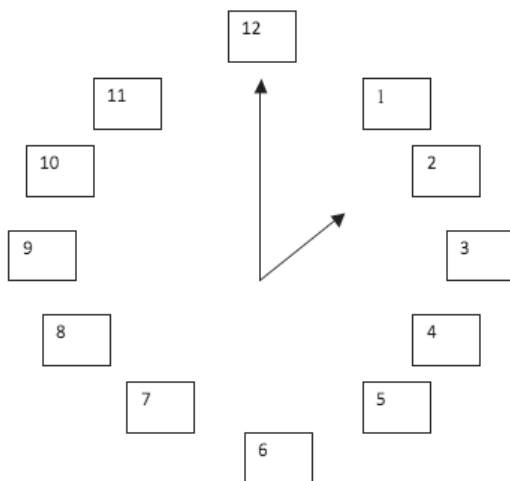


References

1. Abakumova I.V. Smyslodidaktika. – Moscow: Publishing house “CREDO”, 2008.
2. Kolesina K.JU. Metadesign training: the theory and technologies of realisation in educational process. – Rostov-on-Don: Publishing house Starye Russkie, 2008.
3. Fomenko V. T. Initial logic structures of training process. – Rostov -on-Don: Publishing house of Rostov State University, 1985.

The appendix

Basic signal to a problem of the didactic standard



The note: figures designate the criteria of the content of process of training characterised above at new school.

Fig. 1. «Didactic clock» or “big wheel”