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Variations on the Subject of Developmental Education

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The article raises the problem of developmental teaching (education) from the standpoint of cultural- historical methodology, the origins and scientific foundations of it its basic principles and widespread practical systems. The author's aim is to discover the general and specific features of existing models of developmental instruction, both theoretical justifications and practical recommendations for the organization of real school education. It is suggested that there is one system of developmental education based on the ideas of L.S.Vygotsky about the correlation between education and mental development and there are various theoretical approaches and practical models based on it. We tried to compare different attitudes to the correlation between education and mental development. We analyzed work made by Galperin, by research teams led by Elkonin and Davydov, and rby esearch teams led by L.V. Zankov. Special attention is paid to Repkin's research on the psychological organization of educational material, it illustrates the interpenetration of two approaches: Galperin's ideas about the developmental effect of instruction and Davydov's theory of learning activity. The author's hypothesis needs a theoretical and experimental verification, which will have not only a narrow scientific value, but also determine the directions of changes in the content of school education in accordance with the psychological laws of assimilation.

Keywords: the correlation between education and mental development, Vygotsky's cultural-historical psychology, Galperin's theory of the gradual formation of mental actions and concepts, Elkonin and Davydov's system of developmental instruction, Zankov's didactic system.

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Вариации на тему развивающего обучения

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В статье с позиций культурно-исторической методологии поднимается проблема развивающего обучения (образования): его истоков и научных оснований; ведущих принципов; получивших распространение практических систем обучения. Автором поставлена исследовательская задача обнаружения общих и специфических особенностей существующих моделей развивающего обучения, а также поиска возможных точек пересечения, как их теоретических обоснований, так и практических рекомендаций при организации реального школьного обучения. Высказано предположение о наличии единой, базирующейся на идеях Л.С. Выготского о соотношении обучения и умственного развития системе развивающего образования, которая получила свое конкретное воплощение в различных теоретических подходах и практических моделях. Предпринята попытка сравнительного анализа подходов к решению проблемы соотношения обучения и умственного развития П.Я. Гальпериным, исследовательскими коллективами под руководством Д.Б. Эльконина и В.В. Давыдова, под руководством Л.В. Занкова. Специальное внимание уделено исследованиям В.В. Репкина по психологической организации учебного материала, которые иллюстрируют взаимопроникновение двух подходов: представлений П.Я. Гальперина о развивающем эффекте обучения и теории учебной деятельности В.В. Давыдова. Высказанная автором гипотеза нуждается в тщательной теоретической и экспериментальной проверке, которая не только будет иметь узко научное значение, но и определять направления изменений содержания школьного обучения в соответствии с психологическими закономерностями усвоения.

Ключевые слова: проблема соотношения обучения и умственного развития П.Я. Гальперина; система культурно-исторической психологии Л.С. Выготского; теория поэтапного развивающего обучения Д.Б. Эльконина и В.В. Давыдова; дидактическая система Л.В. Занкова.

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The science of learning well is one of the most mysterious areas of human life.

S. Soloveichik. "Learning with passion"

A little more than a quarter of a century ago, V.V. Davydov's article "On Theories of Developmental Training" [13] was published, the very name of which involuntarily prompts reflection both on the ambiguity of the phenomenon of developmental training itself, and on the diversity and possible inconsistency of the approaches describing it. According to V.V. Davydov, "many theoretical and practical problems of modern educational psychology and psychological pedagogy can be successfully solved depending on how seriously and deeply the problems of developmental education are developed" [13, p. 8]. At the same time, he notes that "educator-scientists, teachers, and methodologists do not have sufficiently clear ideas about developmental education, its various types and forms, moreover, they do not have clear ideas about the basic theories that one way or another interpret the question of the relationship and possible connection between schoolchildren's learning and development" (our italics — M.S.) [13, p. 8]. Turning to what V.V. Davydov said, we can only add that over the past years the situation has not changed, moreover, another trend is gaining strength: the number of those who easily consider themselves supporters of developmental education without sufficient grounds is growing. The position formulated by L.S. Vygotsky about the crisis of psychology in the first quarter of the twentieth century [5], manifested in the contradiction between science and practice, and further clarified by F.E. Vasilyuk to the statement about the schism of our science at the end of the twentieth century [4], when science and practices live a parallel life, today they sound hardly more relevant than in the times of L.S. Vygotsky and his followers.

In the current situation, the question of the principles, criteria and distinctive features of developmental education becomes especially significant. Perhaps it would not be a great exaggeration to say that this is primarily necessary for psychologists involved in education [see, for example, 34], since the subsequent choice in favor of certain teaching methods will depend to a large extent on the developmental effect they discovered (or its absence) of the pedagogical system. V.P. Zinchenko drew attention to this, referring to the accumulated experience of joint work: "... work on the theory and practice of developmental education, even regardless of its effectiveness, is a worthy example of cooperation between teachers and psychologists... Feelings of guilt and responsibility for failures and joy for both sides experienced success" [19, p. eleven].

This publication is devoted to the problem of developmental education, aimed at discovering the common features that unite its supporters. The author does not pretend to provide a comprehensive coverage of this fundamental problem; Our task is more modest, although not as simple as it may initially seem — to understand the foundations and origins of developmental education from the standpoint of cultural-historical methodology and further determine the uniqueness of existing approaches. This general task involves the following:

- identification of the scientific source of developmental education;
- detection of features of existing approaches;
- search for points of intersection of approaches.

It should be noted that in recent works V.V. Davydov turned to the concept of developmental education, which "links together developmental training and developmental education" [15, p. 82]. This was due, on the one hand, to the study of not only issues of education, but also education: "if you educate someone, then it means that in this education you teach something" [15, p. 80], and on the other hand, the development of issues of continuity between preschool and school education [16]. In our subsequent presentation, these two concepts — "developmental education" and "developmental education" — will be used as synonyms.

Origins of developmental education

The origins of developmental training (education) both as a theoretical approach and as an educational system go back to the problem posed by L.S. Vygotsky of the relationship between learning and mental development, which he approaches historically and analyzes three possible approaches to solving it. In some theories, training and development act as two processes independent from each other. In other theories, learning and de-

velopment are identified: a step in learning corresponds to a step in development: the child is developed as much as he is trained. Finally, the third group of theories tries to combine two points of view, and development is understood dualistically: there is development as maturation and there is development as learning.

L.S. Vygotsky contrasts these theories with his own, according to which learning and development are not two independent processes or the same process; there is "unity (our italics — M.S.), but not identity of learning processes and internal development processes" [6, p. 389]. It is neither correct to identify the processes of learning and development, nor to assume that the development process occurs independently of the learning process. L.S. Vygotsky claims that there is a complex relationship between learning and development doctrine: "... learning is not development, but, properly organized, ... brings to life a number of processes that would otherwise become impossible without learning. Education is... an internally necessary and universal moment in the process of development in a child of not natural, but historical human characteristics" [6, p. 388].

His words sound like parting words to his descendants: "Tracing the emergence and fate of internal lines of development that arise in connection with schooling is the direct task of pedological analysis of the pedagogical process" (our italics — M.S.) [6, p. 389].

L.S. Vygotsky not only proposed a new look at the problem of learning and mental development, but also emphasized its qualitative originality. If, from a traditional point of view, the assimilation of a new word or mastery of a new operation marks the end of the processes of its development, then from a new point of view, on the contrary, only from this moment does development begin. However, not all learning awakens developmental processes to life; it only becomes genuine when it runs ahead of development, in other words, it is in the zone of proximal, and not actual, development of the child. L.S. Vygotsky's introduction of the concept of the zone of proximal development turned out to be revolutionary for psychology: this is "the best, most direct evidence of the leading role of learning in the development of thinking" [11, p. 310], noted P.Ya. Galperin and D.B. Elkonin.

Types of learning and mental development

Based on the ideas of L.S. Vygotsky, P.Ya. Galperin paid special attention to the issue of the influence of education on the mental development of the child. According to the fair remark of I.M. Arievich, the research carried out by P.Ya. Galperin made it possible to identify the "mechanism of human learning and development" (our italics — M.S.) [2, p. 58].

P.Ya. Galperin drew attention to the fact that traditional teaching involves control mainly based on the final result, which the student arrives at by touch, which explains the variation in school performance. It should be specially said that P.Ya. Galperin, already in the very first publications on the theory of the gradual formation of mental actions, emphasized that differences in abilities exist, but they should not serve as an excuse for pedagogical marriage [7].

According to P.Ya. Galperin, it is urgent to find out "the conditions under which the student will act as he should" and will inevitably come to pre-planned results" [9, p. 3—4]. This system of conditions was called the systematic, step-by-step formation of mental actions and concepts and included four large groups of conditions:

— formation of adequate motivation for the student's actions;

— ensuring the correct execution of a new action;

— education of its desired properties;

— formation of action in the desired form.

Thanks to this organization of the learning process, a new action is formed much faster and easier than with traditional forms of learning. The advantages of the new teaching method were demonstrated on various subject material: writing letters, basic grammar concepts, basic physical and mathematical concepts, etc.

However, it is well known that not all training meets these requirements. Therefore, P.Ya. Galperin identified three types of teaching, each of which is distinguished by "its own orientation in the subject, its course of the learning process, the quality of its results and the attitude of children to the process and subject of learning" [9, p. thirty].

Incomplete training in type I training, the absence of a significant part of the conditions necessary for the correct execution of a new action, becomes the cause of trial and error. The latter arise where there are no instructions or landmarks; the action itself is oriented by the subject only towards a given end result. Independent compensation for missing conditions is always incomplete, which leads to a wide range of academic performance. Right action happens by chance. With such training, interest in the learning process remains external, not related to cognition; this determines its direction and stability. The majority of children studying in type I learning accumulate narrow subject knowledge and skills. The development of thinking and abilities occurs as if in addition to learning.

Type II training involves obtaining complete guidelines for a separate action in a ready-made form, which practically eliminates trial and error. Systematic education of the desired qualities allows you to achieve the intended results without significant scattering of academic performance. Such learning is based on the characteristics of individual specific objects, and transfer to new objects or new conditions is limited by their external similarity. The main disadvantage of this type of teach-

ing is the formation in students of an attitude towards ready-made knowledge, and not towards the discovery of the unknown, which fosters not a substantive, but an applied interest in knowledge.

When learning according to type III, an object is revealed not in isolation and not only in its difference from others, but as a particular phenomenon of the general system. The orientation scheme is drawn up as a result of preliminary independent research of objects in this area. Mastering p As a child, the method of research opens up unlimited perspectives, just as the knowable reality itself is unlimited. P.Ya. Galperin specifically emphasizes that the III type of orientation requires deep processing of educational subjects, which causes the main difficulty in its implementation.

The main thing in type III learning is the stimulation of cognitive activity, the strengthening and development of cognitive interest, which results in the exclusion of other types of motivation. "For a student who has a method of successful movement in a subject, the latter is revealed as a limitless field of productive activity, the results of which, even only promising ones, bring specific satisfaction of cognitive needs" [8, p. 33]. The specificity of such cognitive motivation itself, which arises as a result of the student's personal involvement in the learning process, was very accurately described by W. James. Addressing the teacher, he wrote: "... when teaching, you must simply arouse in the child such interest in what you intend to tell him that no other subject can penetrate his consciousness, then present the subject being presented in such an expressive form that he forever imprinted on the mind of the student; finally, instill in the child a yearning desire to find out what further follows from this subject" [17, p. 19].

It can be said without exaggeration that P.Ya. Galperin discovered precisely this method of constructing an educational subject according to type III, when the features of the indicative part of the action being formed not only ensure a high level of its execution, but also contribute to the emergence of cognitive interest.

P.Ya. Galperina raises the question of the connection between types of learning and general mental development. In type I training, there is no positive connection between training and mental development, and mental development not only does not depend on training, but, on the contrary, determines its possibilities. When training according to type II, there is also no effect of training on mental development. And only in type III of learning is there an effect of general development, which manifests itself not only in the spread of learned techniques to sections of the same subject, but also in different forms of intellectual activity. P.Ya. Galperin sees the explanation for this in the following: "... such training equips the child with clear means of distinguishing and assessing the internal structure and properties of objects and generates a strong and ever-increasing interest in their study" [9, p. 40]. The powerful developmental effect of type III training "seems understandable and... quite natural" [9, p. 40].

However, P.Ya. Galperin's contribution to psychological science is not limited to this. P.Ya. Galperin's interpretation of the problem of the relationship between learning and mental development reveals the psychotechnical nature of his approach, which fits within the framework of the psychotechnical methodology of L.S. Vygotsky [36], which allows us to consider school education through the prism of the psychotechnical approach. P.Ya. Galperin managed to theoretically substantiate and experimentally show how the content and organization of education determine the cognitive development of the student, in other words, how the teacher becomes responsible for the child's intellectual acquisitions. It would not be an exaggeration to say that the position on types of learning developed by P.Ya. Galperin turned out to be in the zone of proximal development of Vygotsky's concept and contributed to solving the problem of the relationship between learning and development at a specific psychological level.

Thus, the theory of P.Ya. Galperin, psychotechnical in its methodological basis, is adequate for "psychological (as opposed to pedagogical) analysis of school teaching and the subsequent organization on its basis of real practical inclusion in the learning process" [36, p. 28]. This provision illustrates the possibility of carrying out a proper psychological analysis of the educational process in accordance with L.S. Vygotsky's understanding of its content.

Developmental learning as educational practice

A comparative analysis of the approaches of L.S. Vygotsky and P.Ya. Galperin to solving the issue of the relationship between learning and mental development was the subject of our scientific research [see, for example, 32, 33, 35], but in this case, taking into account the posed problem of developmental education as of the pedagogical system, it is of independent interest to turn to the works of V.V. Davydov.

According to V.V. Davydov, L.S. Vygotsky's hypothesis about developmental learning began to be tested extensively and on a broad experimental basis from the late 50s. The twentieth century, two scientific and practical teams — the team of L.V. Zankov and the team of D.B. Elkonin and V.V. Davydov. V.V. Davydov wrote: "Both of these teams were able to transfer the results of their many years of experimental work into the practice of mass schools and formalized them in the form of integral systems of developmental education" [13, p. 13].

Based on L.S. Vygotsky's hypothesis about the sources and psychological patterns of child development, Elkonin's periodization of child development, Davydov set

the task of "establishing the role and significance of primary school age in the general system of children's ages." n" [13, p. 13] and discovered that traditional primary education does not create zones of proximal development, but only consolidates and trains the mental functions that emerged in preschool age. He set the task of organizing training for younger schoolchildren that would contribute to the development of their cognitive and personal spheres. The basis of such training is the assimilation of knowledge and skills in the form of educational activities, the uniqueness of which lies in the assimilation by schoolchildren of theoretical information in the process of systematically solving educational problems, which requires an orientation towards the essential relationships of the subjects being studied.

It seems important both theoretically, and even more so in a practical sense, V.V. Davydov's conclusion that any reasonably structured education contributes to the development of children's thinking and personality, but the type of developmental education under consideration is aimed at developing theoretical thinking and creativity in younger schoolchildren as the basis personality. Such qualities are not formed in the conditions of traditional education, but "one cannot talk about developmental education "in general" — it is necessary to clearly identify and compare its different types, correlate them with well-defined historical conditions of their occurrence and with well-defined ages of a person" [13, p. 17].

The didactic system of D.V. Zankov, as well as that of D.B. Elkonin-V.V. Davydov, is based on L.S. Vygotsky's ideas about the relationship between learning and mental development. At the same time, L.V. Zankov draws attention to the difference between psychological and pedagogical approaches to solving it: if in psychology the center of gravity is shifted to the study of development itself, then in pedagogy the task is set of developing a system or teaching methods. L.S. Vygotsky considered the problem of the relationship between learning and mental development as psychological, and L.V. Zankov set the task of building a didactic system that would ensure the overall development of schoolchildren; this system was defined by the author as experimental, as opposed to traditional.

In developing the pedagogical problem of the relationship between training and development, L.V. Zankov proceeds from the leading role of training and education in development, which occurs not through special exercises, but in the course of mastering the fundamentals of science. Accordingly, the educational process should be structured based on the task of developing students, and not as focused solely on the acquisition of knowledge and skills. "The central idea of the experimental system is to achieve the highest possible learning efficiency for the overall development of schoolchildren" [18, p. 31]. The following principles contribute to ensuring the unity and consistency of the parts of the experimental didactic system:

• a high level of learning difficulty, which presupposes knowledge of the essence of the phenomena being studied, the connections and dependencies between them;

• studying program material at a fast pace, which hides the constant enrichment of new knowledge, the refusal to monotonously repeat what has been learned;

• the leading role of theoretical knowledge (mastery of terms and definitions, dependencies and laws), which does not reduce the importance of skills and abilities, but presupposes their formation on the basis of general development;

• students' awareness of the learning process — this principle corresponds to the general didactic principle of awareness of learning, that is, not all parts of the educational process are covered;

• purposeful and systematic work on the development of all students in the class.

The didactic system of L.V. Zankov caused critical comments from V.V. Davydov as not providing, in his opinion, the development of children beyond the limits of their empirical thinking and consciousness: "In this system there is no concept of educational activity as the true basis of the mental development of children schoolchildren; There is also no detailed understanding of the uniqueness of theoretical thinking (the presence of such thinking is recognized, but in inextricable connection with empirical thinking)" [14, p. 381]. While, according to the theory of developmental education by D.B. Elkonin—V.V. Davydov, "the content of developmental primary education is theoretical knowledge (in its modern philosophical and logical understanding), the method is the organization of joint educational activities of junior schoolchildren (and before in total, the organization of their solution of educational problems), the product of development is the main psychological new formations inherent in younger schoolchildren.

A comparison of this system with the system of L.V. Zankov reveals their fundamental difference. It is revealed both in the expected result of development and in the ways of achieving it" [14, p. 384—485]. It can be assumed that V.V. Davydov and L.V. Zankov put different content into the concept of "theoretical thinking", however, even discarding this assumption, one has to think about what was said by V.P. Zinchenko, who, as is known, after the death of V.V. Davydova became President of the International Association "Developmental Education". He wrote: "I'm not sure that V.V. Davydov and his colleagues formed theoretical thinking in schoolchildren, but what he strove (and achieved) was for his students' reason to prevail over reason — this is beyond doubt. I think that this predominance contains the core of theoretical thinking" [20, p. 278].

Developmental education: unity in diversity

In general, presented are 1) P.Ya. Galperin's approach to understanding the relationship between training and development and the requirements formulated by him for the organization of developmental education itself (III type of teaching), 2) D.B. Elkonin—V.V. Davydov's system of developmental education in the unity of theoretical and educational aspects and 3) the didactic system of L.V. Zankov as the pedagogical embodiment of the theoretical approach represent different options for solving the same problem.

As expected, the question arises about the relationship between these approaches, which can: a) either coincide (in whole or in part); b) either fundamentally differ and thereby contradict each other; c) or represent different models united by a common origin. This question has faced researchers before, and it should be noted that whatever the answer, it cannot be of a narrowly scientific nature; it is followed by specific practical conclusions, like a shadow behind a cast object.

Since all of the above researchers relied on the ideas of L.S. Vygotsky, then, apparently, the following statement of V.P. Zinchenko will be key in the search for an answer to the question posed: "Vygotsky's school today is a kind of cultural and historical code, since many of its followers themselves created their own scientific schools in psychology and education" [19, p. 409].

V.V. Davydov wrote about several theories of developmental education: about the developmental significance of the spiritual community of teacher and student in the pedagogy of cooperation of Sh.A. Amonashvili, in which the content-evaluative basis replaced traditional school grades; the school of "dialogue of cultures" by V.S. Bibler, when understanding is achieved by simultaneous consideration of natural phenomena or a work of art from the point of view of different cultures.

From the standpoint of developmental education, one can also consider the common sense pedagogy of A.A. Leontiev [22, 23]. According to D.A. and A.A. Leontiev [24, 25], from 1988 to 1991 A.A. Leontiev was a member of the Temporary Research Team "School", and since 1997 he has been the scientific director of the Interregional public organization "School 2000" (later — "School 2100"). Analyzing the accumulated experience, A.A. Leontyev came to the conclusion that "School 2100" was an attempt to develop "an educational system that:

firstly, there would be a system of developmental education...,

secondly, it would be accessible to mass schools...,

thirdly, it would be developed as a holistic system... of textbooks, programs,... teacher training systems...,

fourthly, it would be a system of holistic and continuous education" [28, p. 5—6].

A.A. Leontiev emphasized the uniqueness of the approach he developed in comparison with the developmental education systems of D.B. Elkonin — V.V. Davydov and L.V. Zankov. In particular, he drew attention to an important point in practical terms: if the directions of developmental education "create, as it were, a new school next to the mass one" [22, p. 4], then common sense pedagogy is aimed at developing a "model of developmental education for the transition period" [22, p. 4]. This statement by A.A. Leontyev has not lost its force, since the transition from a traditional mass school to a different model of education (not by chance called experimental) still quite rightly raises many questions, most of which have not received a substantiated answer.

A brief review of approaches to developmental training (education) suggests that researchers and practitioners can attach different meanings to the very concept of "developmental education." A similar idea was expressed by V.V. Davydov, noting that "the term "developmental education" remains empty until it is filled with a description of the specific conditions for its implementation according to a number of essential indicators" [13. With. 18]. The latter include the following:

- the main psychological new formations of a given age that arise and develop in this age period,
- leading activity of a given period, determining the emergence and development of relevant neoplasms,
- content and methods of joint implementation of this activity,
- the relationship of this activity with other activities,
- a system of techniques that can be used to determine the levels of development of relevant neoplasms,
- the nature of the connection between these levels and the characteristics of the organization of leading activities and other related activities.

If V.V. Davydov focuses on the specific content of the selected indicators, then V.P. Zinchenko formulates the general principles of developmental education, resulting from an understanding of the relationship between learning and mental development. He turns to the perspective of theoretical and practical work in the field of developmental education and develops the psychological foundations of developmental education and the principles of psychological pedagogy. V.P. Zinchenko writes that D.B. Elkonin and V.V. Davydov began building b cultural-historical pedagogy, and "the phrase cultural-historical pedagogy, like cultural-historical psychology, obliges" [19, p. 7]. According to V.P. Zinchenko, D.B. Elkonin and V.V. Davydov successfully combined in their approach the achievements of cultural-historical psychology and psychological theory of activity and developed their own version of a system of developmental education for junior schoolchildren, the core of which is ideas about educational activity . He notes that this theory "is not easy to understand, but even more difficult to implement in school teaching" (our courses — M.S.) [19, p. 411].

V.P. Zinchenko formulates the principles of psychological pedagogy, which "is both science and practice, and ideally technology" [19, p. eleven]. The principles of psychological pedagogy, in his opinion, go beyond the theory of D.B. Elkonin and V.V. Davydov. These are the principles of cultural-historical, or, as V.P. Zinchenko calls it, cultural-event theory and practice of education.

1. The main principle is the uncontrollability and creative nature of development.

2. The leading role of the sociocultural context or social situation of development.

3. Orientation of training towards sensitive periods of development.

4. Joint activity and communication as a driving force of development, as a means of training and education.

5. Leading activity, the laws of its change as the most important basis for the periodization of child development.

6. Determination of the zone of proximal development as a method for diagnosing abilities, understood as methods of activity.

7. Acceleration of child development as a necessary condition for the versatile upbringing of a child.

8. The enduring value of all stages of child development.

9. The principle of unity and asymmetry of affect and intellect.

10. The mediating role of sign-symbolic structures, words, meaning and myth in the formation of objective actions, knowledge, and personality development.

11. Interiorization and exteriorization as mechanisms of development and learning.

12. Unevenness (heterochrony) of development and formation of mental actions.

13. Embracing all others: freedom "in choosing your own model or "ideal", even imitating, to retain complete freedom of creativity, deepening, transformation, overcoming your "models"" [19, p. 418].

According to V.P. Zinchenko, the listed principles should form the basis of any modern reasonable and humane system of education and upbringing, since no reasonable alternative has been put forward to this entire system or set of principles. The task is to develop and operationalize them — to create appropriate methods, psychotechnics, and cultural pedagogical technologies.

Thus, based on the analysis, the following conclusion can be drawn: L.S. Vygotsky's ideas about the determining role of learning in development served as the scientific basis for the theoretical and experimental research of D.B. Elkonin, L.V. Zankov, P.Ya. Galperin, V.V. Davydova. According to our assumption, there is every reason to talk about a unified system of developmental education based on the ideas of L.S. Vygotsky, which has received its concrete embodiment in various theoretical approaches (systems). The most famous of them are P.Ya. Galperin's ideas about the types of learning and their connection with mental development, about the developmental effect of learning according to type III; developmental education system of D.B. Elkonin and V.V. Davydov; didactic system of L.V. Zankov.

Teach wisely

At the beginning of the publication, the issues to be discussed were identified. If the first two — determining the common source and discovering the specific features of each approach — have already been the subject of discussion, then the question has come about the points of intersection of approaches to developmental education. Above we discussed V.V. Davydov's critical attitude to L.V. Zankov's system; the analysis of the relationship between these two approaches is the subject of a separate study, and accordingly, the statement about the presence, as well as absence, of points of intersection remains hypothetical for now.

An illustration of the mutual enrichment of approaches to developmental education, in our opinion, can be seen in the works of V.V. Repkin, devoted to the psychological organization of educational material, in other words, "the use of its special "proper psychological" properties for the purpose of regulating educational activity" [31, p. 4].

V.V. Repkin's first experiments concerned the formation of spelling skill as a mental action based on the psychological concept of P.Ya. Galperin. V.V. Repkin came to the conclusion that "the method of forming mental actions should be considered as the theoretical basis of the methodology for teaching spelling"]29, p. 141]. Further research was completed in his Ph.D. thesis. At the same time, it is interesting to note that the dissertation, completed at the Department of Psychology of Kharkov State University under the direction of P.I. Zinchenko, was defended at the Faculty of Psychology of Moscow State University. M.V. Lomonosov, and in the Kharkov period of his work V.V. Repkin, in alliance with D.B. Elkonin and V.V. Davydov, was involved in organizing training and experimental work in the field of developmental education [see. about this: 21].

In his Ph.D. thesis, V.V. Repkin raises the problem of psychological organization of material, by which he means "the use of its special "proper psychological" properties for the purpose of regulating educational activity" [31, p. 4]. These actual psychological properties of the material are the features of the goal set in the task for students and the conditions under which this goal must be achieved. Depending on the content of the goal, cognitive tasks differ, when the goal is to identify a new property of an object and a new way of acting with it, and practical tasks aimed at transforming the object. Within cognitive tasks, there are theoretical tasks re-

lated to identifying a system of essential properties, and empirical tasks related to identifying individual properties, regardless of the degree of their significance.

The conditions for achieving the set goals allow us to talk about task-problems and sample tasks.

The system of tasks characterizes the method of psychological organization of the material, which does not coincide with either the subject-structural characteristics of the material or the characteristics of the "method of presentation."

It is the method of psychological organization of the material, according to V.V. Repkin, that determines the nature of the influence of the material on educational activity. If there is a natural connection between the method of psychological organization of material and the structure of activity, then it can be assumed, writes V.V. Repkin, that there is an optimal system of tasks, the use of which should ensure the formation of educational activity of the highest type (type 3 teaching according to Galperin).

The hypotheses put forward received experimental confirmation in studies by G.V. Repkina on students (based on the ability to solve problems "lining up objects for service") and by V.V. Repkina on seventh and third graders (based on the syntax of the Russian language). As a general conclusion, V.V. Repkin notes that "the psychological organization of material is one of the main means of programming educational activities... the effectiveness of such programming is determined by the method of psychological organization of the material" [31, p. 17]. The classical idea of assimilation as a process proceeding according to the scheme "perception-understanding-memorization-application" was contrasted with another "scheme of assimilation: "orientation-step-by-step formation of actions — knowledge and skills"" [31, p. 12].

Even a very cursory acquaintance with the results obtained by V.V. Repkin is enough to detect in his research an internal connection between the theoretical approach of P.Ya. Galperin with the approach of D.B. Elkonin and V.V. Davydov.

V.V. Repkin identified a method of psychological organization of material, according to which the main time is spent on mastering a system of theoretical concepts: the content of an academic subject was considered "as a factor that determines the characteristics of the assimilation process and the quality of its results" [30, p. 39].

P.Ya. Galperin in the article "Reasonableness of actions and the subject of science" raises the problem of the content of concepts acquired by students: "on the first approaches to science, at the first acquaintance and even the first meetings with it, a clear identification of its subject is especially important and constitutes an imperceptible, but irreplaceable condition its further study" [10. With. 555]. Science, according to the conviction of P.Ya. Galperin, should not be presented to the student as a set of individual facts, rules and laws, and using the example of mathematics, grammar, history, literature, he showed how the subject of science can be distinguished: "you cannot teach intelligently if you yourself the subject is presented unreasonably" [10. With. 566]. At the same time, the identification of the subject of science is a process that is performed by the cognizing subject himself, and as a result, the subject is presented as a "new field of his intellectual activity. It is systematically differentiated and freed from confusing influences from what is empirically connected with it... the identification of a specific subject of science produces a bipolar effect: in the subject it opens up optimal possibilities for its study, in thinking it outlines a qualitative shift in its development" [10. With. 566].

The question remains open about the relationship between, on the one hand, P.Ya. Galperin's understanding of the reasonable construction of a separate academic subject, and on the other, the development of requirements for the psychological organization of the material (V.V. Repkin), which "does not coincide with the subject-structural characteristics material, ... nor with the characteristics of the "method of presentation" ... regardless of its content" [31, p. 4]. In this regard, it is interesting to turn to the dissertation research of V.V. Davydov, carried out under the guidance of P.Ya. Galperin on specific educational material in mathematics [12]. A similar attempt was already made by L.F. Obukhova in 2010. Speaking at a symposium dedicated to the 80th anniversary of the birth of V.V. Davydov with a report on the topic "V.V. Davydov — a scientist from the scientific school of V.V. Davydov," L.F. Obukhova addressed the author's abstract V.V. Davydov and including the notes subsequently made in the margins of the abstract by P.Ya. Galperin in order to demonstrate the continuity of two approaches: P.Ya. Galperin and V.V. Davydov.

A comparative analysis of the approaches of P.Ya. Galperin and V.V. Davydov cannot help but encounter difficulties, one of which is the difference in their research programs. P.Ya. Galperin, as a general psychologist, was aimed at defining the subject and method of psychological science, but at the same time emphasized the importance of this issue for practice, therefore, the psychological analysis by the author of the mathematics program Ya.I. Abramson [1], built in accordance with with the requirements of type III teaching. V.V. Davydov entered the history of our science primarily as the author of the theory of educational activity. How does the mathematics program in the developmental education system differ from Abramson's original program? This is another direction for future research.

In Vygotsky's logic

To summarize, we can talk about various options for developmental training (education), based on the ideas

of L.S. Vygotsky about the relationship between learning and mental development. A thorough comparative analysis of its various models pursues two goals: firstly, theoretical, since its result is a reflection of the principles of developmental education, and secondly, practical, since it contributes to solving issues of organizing school education in accordance with the psychological laws of learning.

V.V. Davydov drew attention to the differences in developmental education systems depending on the importance attached to educational activities. He emphasized that if the system of D.B. Elkonin—V.V. Davydov is based on the concept of "learning activity", then other systems — L.V. Zankova, Sh. Amonashvili, V.S. Bibler — did not set themselves the goal start from the concept of "learning activity". He wrote: "Nowadays, only the followers of Vygotsky, and then Leontiev and Elkonin, can say that the basis of their understanding of developmental learning is the concept of educational activity. The famous Zankov, a student of Vygotsky, moved away from his teacher back in the mid-30s... Zankov never used the true concept of activity, much less educational activity... And for us, without this concept, it is simply impossible to approach developmental education" [15, p. 52]. Is the criterion chosen by V.V. Davydov sufficient to determine belonging to developmental education? A.N. Leontiev in 1957 in the article "Training as a problem of psychology" wrote: "... any teaching of knowledge, for example, teaching the basics of science at school, is at the same time a process of forming mental actions in students" [26, p. 13].

To what extent do the positions of V.V. Davydov and A.N. Leontiev contradict each other, given that actions constitute the unit of analysis of activity?

Who today can be considered a true follower of L.S. Vygotsky? L.I. Bozhovich, considering the cultural-historical psychology of L.S. Vygotsky as containing a number of ideas for building new original concepts, emphasized: "... it seems especially important to trace the logic of the thought of L.S. Vygotsky himself, and, without going beyond the framework created them the concept, to continue its research precisely in their own logic" (our italics — M.S.) [3, p. 357]. The words of D. Merezhkovsky have not lost their power: "Great people have no more dangerous enemies than their closest students — those who lie close to their hearts, for no one knows how to distort the true image of the teacher with such innocent deceit, with love and reverence" [27, With. 403].

We invite everyone interested to a joint discussion.

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