

REMEDIATION OF LEARNING DISABLED CHILDREN FOLLOWING L.S. VYGOTSKY'S APPROACH

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The paper defines remediating education, its peculiarities against traditional education, main tasks and principles, based upon the cultural-historical theory of L.S. Vygotsky. Base functional systems formed during remediation are discussed. Peculiarities of individual, group and dyadic methods of remediation are described with regard to its potential for mediating child's activity.

Keywords: remediating education, learning disabilities, cultural-historical psychology, L.S. Vygotsky, mediation, play therapy.

The works of L.S. Vygotsky started 1917 in his native town Gomel with assessing and helping children with vision and hearing disabilities as well as with mental retardation. In 1925 he continued this work in Moscow in newly created "Medico-pedagogical station of Narkompros (Ministry of education) of Russian Federation", later transformed into the Research Institute of Defectology (now the Institute of Corrective Pedagogy). These works were fundamental for creation of the cultural-historical theory, as L.S. Vygotsky showed, that a defect refrains a child from appropriation of the culture, while cultural means help the child to overcome the defect. By this, the cultural-historical approach has become and still remains a methodological basis for remediating education.

The cultural-historical approach ("instrumental method") and mediation as the basis of the development of higher psychological processes were first suggested in Vygotsky's diary of this period (fig.1), where he wrote:

Сущность инструментального метода в разном смысле слова заключается в том, что при помощи одного стимула, по отношению к которому существует привычка, и с помощью другого стимула, который является объектом, осуществляется операция. Всегда assuming two stimuli, the questions go as follows:

1. Как запомнить объект S1 при помощи знака S2. Первое S - 0, S2 - 7.
2. Как направить внимание на S1 при помощи S2.
3. Как передать информацию о S1 через S2 и т.д.

"The essence of the instrumental method resides in the functionally different use of two stimuli, which differently determine behavior; from this results the mastery of one's own psychological operations. Always assuming two stimuli, the questions go as follows:

1. How does one remember stimulus S1 with the aid of stimulus S2 (where S1 is the object and S2 is the instrument).
2. How can attention be directed to S1 with help of S2
3. How can the first word be associated with S1 as retrieved via S2 and so on."

Figure 1. From Vygotsky's diary

With this, according to Vygotsky, "in the whole multitude of stimuli one group clearly stands out for me, which is the group of social stimuli coming from people. It stands out because I myself can reconstruct these stimuli, because they very soon become reversible for me and thus determine my behavior in a way different from all others. They make me comparable to another and identical to myself. The source of social be-

havior and consciousness lies in speech in its full meaning” (Vygotsky, 1925/1982, p. 95).

The Vygotsky’s principle of “doubling experience” is primordial to understand the specific nature of human behaviour and consciousness, both normal and abnormal.

According to Vygotsky, the natural processes such as physical maturation and sensory mechanisms interact with culturally determined processes to produce the psychological functions of adults and the variety of ways the functions are carried out, through “*A bifurcation in the course of a child’s behavioral development into natural-psychological and cultural-psychological development*” (Vygotsky & Luria, 1930, p. 20).

These new formations have a cultural origin, a dynamic psychological structure, and a dynamic brain (body) organization as well. So a word is considered to be an external material sign, a psychological tool for organization of human behavior.

With this, “The mentality should be considered not as special processes above and outside the cerebral processes or between them, but it is their subjective expression, a particular aspect and a special feature of the higher cerebral functions” (Vygotsky, 1930/1982, p. 137).

So, the *cultural-historical approach in neuropsychology* stipulates that the origins of human conscience and mental activity should be searched for neither inside the brain, nor in the mechanisms of nervous processes but in the human social life. In other words, if we want to trace how it functions (or why it dysfunctions) in the behavior of an individual, we must consider how it is used to function in social behavior.

Assuming these theoretical foundations I will pass to the **problems of remediation for learning disabled children**. L.S Vygotsky proved that the education **entails** development, then remediating education **determines** development.

The remediating education differs from the general one in its **aims**. The aim of general education is to acquire knowledge, the remediation is aimed to form new functional organs or a new functional system that make it possible to perform a mental process. For learning of a special need child a remediation must endorse the general school education and create a base for future education. New basic functional systems formed during remediation make independent learning of the child possible in the future.

These **basic systems** include voluntary regulation and control of own behavior, space orientation, phonemic and kinesthetic verbal analysis and

syntheses, motor ability, volume and stability of verbal and visual memory, logic reasoning and communicative skills. Some of these systems should be already formed by the moment of entering primary school, the others, like space orientation, are in the process of formation.

The main task of remediation is to create the means of compensation together with a child and to overcome underdevelopment of some mental functions, with the 'strong' components of mentality compensating the weak ones.

Who needs remediation?

- pupils unsuccessful at school because of underdevelopment (retardation) in some mental functions (sometimes, talented in some others);
- children with low neurodynamic capacities in mental functioning;
- children with poor executive functioning;
- children with problems of behavior and social communication;
- pupils achieving success at school bringing harm to their general health.

This list can be continued.

Some common features or psychological consequences of academic failure unify these children, such as:

- negative attitude to education;
- fear of failures;
- low self-appraisal and self-credit.

Therefore remediation process is oriented to the following *tasks*:

- cognitive development and increasing success at school;
- correction of negative traits of personality and emotional reactions;
- improving of behavior at school and at home;
- development of communicative skills;
- psychological assistance to parents.

A multitude of remediation tasks determines necessity of a complex approach to their solution. This approach is based on Vygotsky's and Luria's **principles of neuropsychological rehabilitation and remediation**:

1. *Neuropsychological qualification* of child's problems is systemic neuropsychological assessment revealing both deficits and strengths in

child's development, his zone of proximal development, that, according to Vygotsky, are possibilities and conditions to improve the results with a help of an examiner. It is only possible with the use of Luria's principle of dialogue assessment, including components of education with form a base for individual program of remediation (Leontiev, Luria, & Smirnov, 1968). Together with this, Luria's assessment in contrast to psychometric methods measures not an achieved level of education (retrospective aspect), but a potential to education (prospective aspect). Luria's tests are oriented not at the result of the assessment (pass or fail), but at its process and possibilities to make it more efficient.

2. The principle of *complex remediation* means a combination at of cognitive, motor, respiratory and emotional methods each session so that together they form the same mental function.

For instance (Fig. 2), to develop space orientation in the motor part of the remediation session a child has to roll over from one part of the room to another oriented by two toys which must always be placed at the level of his waist. In the cognitive part of remediation, in the game called "fly" the task is to follow the flight of a fly in accordance with teacher's instructions – two rows up, one to the right and so on, – and they "catch" the fly if it gets out the cage. The respiratory method called "blow-ball" when a child blows an inflated ball into gates, not only increases the general activation, but also trains orientation in the space of the table, mutual interaction and adequate emotional reactions to success and failure.

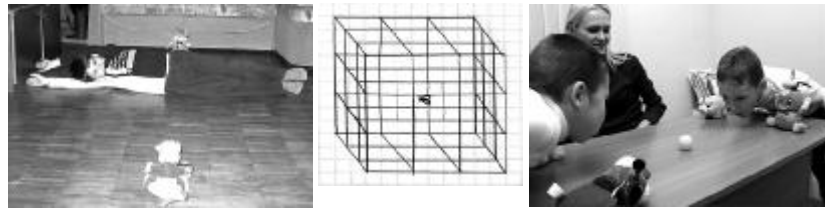


Figure 2. Motor, cognitive and respiratory methods for remediation of orientation in space

3. The principle of *systemic remediation* means that the program for each child does not focus on surmounting of an isolated defect alone but tries to balance the whole mentality and personality of the child. It doesn't leave aside the need of choice of the main orientation and specific

techniques at each step of remediation for every one child, based upon the data of his neuropsychological assessment and his personal needs. This principle provides the efficiency of neuropsychological remediation for learning disabled children.

4. Play remediation favors *emotional involvement and motivation* of the child in the remediation process. Games, competitions, small gifts etc. significantly increase the efficiency of remediation. It provides that *the child becomes a subject*, not an object of remediation. To realize it, the proposed tasks should be interesting and accessible for the child, being appropriate to his age and life experience, the failures should not follow one another, but the successes should not be achieved without efforts. The most important is not to teach something but to stimulate a desire to learn this thing.

If a child is a subject of own remediation, it forms "the affective basis of education", that is, according to Vygotsky, "the alfa and omega, the beginning and the end, the prologue and the epilogue of each mental development" (Vygotsky, 1984, p. 297). A child chronically unsuccessful at school must *experience a feeling of success* to increase own self-estimation and self-credit.

5. It results in an *individualized remediation* of every child. Every problematic child has his own problems and concerns.

6. The *weak components of mental functions are developed through support from the strong ones*. It means that at the beginning of remediation the teacher performs himself the functions of the weak components, and then gradually moves them to the child following the rules of interiorization, described by L.S. Vygotsky: from common activity to an independent one, from an action mediated with external means to an internal one, from step by step analytic action to a global automatized one (Akhutina & Pylaeva, 2008).

7. The cultural-historical approach in neuropsychological remediation of educating disabled children consists of further development of the theory of *mediation*. L.S. Vygotsky proved that mediation is a natural way of cognitive development as well as of the psychological compensation of cognitive and physical deterioration in children. This last principle results in a search for *mediation methods* in remediation instead of direct training of underdeveloped functions.

Hand writing and its underdevelopment in dysgraphia can be a good example. Dwelling upon Vygotsky's viewpoint, orthography is a tool of

written communication where a finite number of signs. They are continually recombined into symbols by following artificial rules of formulation. It is a set of abstract tools for written communication. So, to overcome dysgraphia – one of the most common problems of learning disability, a psychologist must form an instrumental behavior.

We use the following *methods of mediation*:

VISUAL:

Visual marks for space orientation;

- Frames for writing to overcome small lettering and uneven writing;
- Externalized numbers or signs for counting and attention.

SEMANTIC:

- Logical analysis in counting and problem solving;
- Actualization of text organization and words' semantic relations for increasing of text understanding and recitation;
- Actualization of image and word relations for vocabulary and
- memorization.

EMOTIONAL:

- Computer games for space orientation and vocabulary;
- Competition situations to increase motivation;
- Feedback.

For instance, external means (toys, indicative of the needed position in the space, a touch on the hand as a signal of “Stop and think about”) help the child with learning problems to form a system of orientation in the activity and an ability of self-control for his own movements and actions (Glozman, 2010). “A diary of achievements”, where the teacher together with the student puts the results of each session (note: only positive results are registered) is a good method to provide a feedback to the child and to overcome negative attitude to learning.

In all these methods the effects may concern both cognitive and motor abilities, linguistic formulation of knowledge, permanence in memory, transfer to concrete situations, links to other fields and situations, and motivation to attitude disposition of learners.

8. Mediation in groups or *co-mediation* in group and dyadic remediation may present different characteristics and challenges compared to mediations conducted by an individual. Communicative abilities' underdevelopment (often accompanied by weak executive functions) is one of the mechanisms of academic failure as well as behavioral and emotional

problems (Glozman, 2004, 2009). Communicative abilities are always socially formed, therefore their remediation is only possible in groups. Group remediation provides:

- an analysis and amelioration of own behavior and personality through group interaction;
- conditions and place to meet the needs for communication, common for every child;
- appropriation of new communicative skills in a protected and controlled environment: how to offer help, how to indicate a mistake or praise the peer, how to protect own independence and so on;
- feedback and emotional support from peers;
- new experience in solving interpersonal and intrafamily problems;
- increased self-appreciation.

Thus, group remediation has 3 main interrelated components:

- emotional (self-acceptance and stimulation of self-development);
- cognitive (knowledge about communication, oneself and others);
- behavioral (development of communicative skills and own problems solving).

Dyadic remediation should be considered in detail. It combines all merits of group lessons: options for playing activities, competitions and communication – with advantage of individual work: a possibility to concentrate attention on each one child.

Child's activity in a dyad is centered around different motivations: *Competition motivation* – a desire to win, to reveal own potentials and consequently to do own best to achieve the task.

Altruistic motivation – a desire to help the peer as assisting the other the child becomes more self-confident and self-respected.

Play motivation – child's attention is detracted from cognitive and motor abilities trained in a play, making them involuntary and easy and forming (following L.S. Vygotsky) the unity of affective and intellectual parts of activity. Besides, playing is primordial for executive functions' development. "Playing continually creates the child's demands to act against immediate impulse. At every step the child is faced with a conflict between the rules of the game and what he would do if he could suddenly act spontaneously... A child's greatest self-control occurs in playing. He achieves the maximum display of willpower when he renounces an immediate attraction" (Vygotsky, 1978, p. 99).

In dyadic motor remediation each child should take account of his partner actions, and it favors his self-control and skills of mutual interaction in a common play (Fig. 3).



Figure 3. Mutual interaction in dyadic remediation.

It is possible to differentiate the following types of dyadic interaction:

Cooperation

- of two children in achieving common goal;
- of one child with the teacher aimed to help another child.

Competition

- of one child with the other when the teacher becomes a judge;
- of both children against the teacher in a common game.

A specific form of dyadic interaction is a situation, when one child becomes a teacher's assistant – he controls and helps another child, and it favors his self-control a lot (Fig. 4).



Figure 4. Teacher's assistance in dyadic remediation.

9. The next principle of remediation (both individual and in groups) is *optimal teaching strategies*: participative-guided and peer-collaborative strategies are more efficient than classical-expository, optimal individualized choice of mediating means and interfunctional mediation (semantic/visual) is in most cases more efficient, than intrafunctional with some limitation for patients with specific features of interhemispheric interaction.

This means the teaching strategies are not only a way to learn culture; to form or to remediate mental functions – they are cultural instruments by themselves. This is the reason, why, according to Vygotsky, “The higher mental function is a social means of behavior, reverted to himself” (Vygotsky, 1978).

10. All methods follow the didactic principle: *from the simple to the complicated*. But in remediation this way takes account of the weak components in mental functioning of this child in all verbal and nonverbal functions including these components. The help of a psychologist must be interactive, that is reduced or enlarged in accordance with the child's achievements. In other words the specialist always works in a zone of this child's proximal development.

11. The next principle: the remediation is only efficient in *interaction with the child's parents*. The main task is an emotional support to parents. The task of the psychologist is to help the parents to realize the positive changes in their child after remediation and to accept “the new child”. It is necessary to stimulate the parents to participate in remediation process and also to create and maintain an active and optimistic life attitude of parents and the family unity, as we call it, “the family ‘we’”.

12. The last principle is *Team approach* (an interaction with medical and pedagogical stuff) that also favors the efficiency of remediation. Each specialist contributes to common task solving using his own methods.

Thus, the ideas of Vygotsky retain their relevance across the reaches of time and culture separating us from him.

It is important to emphasise, that Vygotsky–Luria's approach is a scientific phenomenon the value of which cannot be limited by the deeds realized by the authors themselves as it discovers potentials for development in new spheres and directions.

To conclude, it is necessary to point out, that remediation is not correction, it is creation. Psychologist must understand and overcome everything interfering with child's successful adjustment to the society.

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