Lev Vygotsky's Principle "One Step in Learning Represents a Hundred Steps in Development": From Idea to Practice

Viktor K. Zaretskii   ZAR-VICTOR@YANDEX.RU
Moscow State University of Psychology and Education
Moscow, Russia

Abstract

The article reviews Lev Vygotsky's published works to trace the evolution of his understanding of child development. The authors believe that his assumption that one step in learning may mean one hundred steps in development, is as important as the two other keys postulate of the cultural-historical theory: the principle that learning precedes development and the concept of zone of proximal development. The authors provide a rational for utilization of these assumptions in the practice of development-facilitating psychological and educational assistance. A mechanism of this learning-development relationship is hypothesized. The article outlines a multidimensional model of the zone of proximal development illustrating the above mechanism. This model is one of the conceptual tools of the Reflection and Activity Approach helping children overcome learning difficulties and promoting their development.

Having given the account of how they proceeded "from the idea to the problem" and "from the idea to the mechanism", the authors provide case studies showing how this mechanism allows working with learning difficulties to trigger simultaneous improvement in multiple developmental dimensions. The article reports on the experience of running special Summer Schools for children with learning difficulties, implementing the "Chess for General Development" Project, and assisting orphaned children with severe somatic conditions. A case study of a female college student displaying signs of the learned helplessness syndrome is presented. The authors infer that Vygotsky's idea of a specific relationship between learning and development may be of fundamental theoretical and practical value, especially for working with children with special needs.

Keywords : L. S. Vygotsky; Cultural-historical psychology; Developmental psychology; Learning and development; Step of development; Zone of proximal development; Multidimensional model of the zone of proximal development; Reflection and Activity Approach; Agency; Reflection; Child-adult collaboration; Children with special needs; Psychological and educational support; Learned helplessness; Overcoming learning difficulties; Chess for general development; Counseling; Psychotherapy.

CR☆RES

> Vygotsky argued that learning should precede development. However, such overtaking is rather odd as learning makes one step and development makes two or more. If a teacher is sensitive to a child's zone of proximal development, it will grow into the prospect of his unlimited development.

V. P. Zinchenko

> This constitutes the most positive feature of this new theory.

L. S. Vygotsky

Introduction

We have chosen the concluding remarks of our former article (V. K. Zaretskii, 2015) as the epigraphs hereto. That article attempted to prove Lev Vygotsky's "theorem" that one step in learning may result in a hundred steps in development (Vygotsky, 1982b). There were three reasons for writing an article on this subject. Firstly, in our opinion, this Vygotsky's idea received undeservedly little attention, just like his concept of the zone of proximal development (which is an area of action where the child - adult collaboration may bring about beneficial developmental outcomes). Surprisingly, although almost all Vygotsky's disciples and researchers of his legacy emphasized and attached value to his idea that learning preceded development, they kept silent about another idea.

According to that idea, learning did not just precede development but under certain circumstances resulted in a qualitative advance measured by many steps. The review performed in 2015 failed to find relevant references to this assumption in foreign literature. Although the number of references to Vygotsky's works amounted to tens of thousands according to Anne-Nelly Perret-Clermont, the researchers found no references to quotations and discussion of this idea, as if there were a peculiar conspiracy of silence against this assumption. For instance, "The Cambridge Companion to Vygotsky" had a chapter on "Thinking and Speech" which included the section called "Metaphor". However, the given statement was left unmentioned among the variety of Vygotsky's metaphors (Daniels, Cole, & Wersch, 2007).

Indeed, the Russian authors showed no inclination to mention this Vygotsky's statement either. David Elkonin, Vasily Davydov, Piotr Galperin neither mentioned, nor made any comments about it. The only two authors who laid emphasis on the idea were Lyudmila Obukhova (1995) who quoted this place in Vygotsky's works as important for understanding of development, and Vladimir Zinchenko, who gave an account of his understanding

of a special nature of the learning-development relationship in a short but brilliant essay about Lev Vygotsky (Zinchenko, 2011).

The second reason for writing that article dealt with objectives relating to practice of helping children with special needs. From this perspective, the question whether education of these children and, especially, children with a complex of disturbances and complications, might be designed so that their development could progress in quantum leaps, was vital rather than pertinent. If this mechanism existed, then such children as orphans with severe somatic conditions and corresponding developmental deficits would have a chance for normal development and actualization of their potential. Lack of this mechanism would most likely mean lack of the chance. One of the major directions of the authors' practice was facilitation of such children's development. Therefore, a search for evidence proving this Vygotskian "theorem" would make special sense.

The third reason related to "Thinking and Speech", Vygotsky's book recognized worldwide as one of his major works (please note, the book is also known as "Thought and Language" to non-Russian readers), and introducing the idea of a specific relationship between learning and development in Chapter 6. To be more precise, it related to the fact that up to then (2015), the book had been stimulating debate on an astonishing subject, namely, what was it about!

At first sight, this question was naïve, only at first sight, though. As a matter of fact, for one thing, Vygotsky's paradigm of the human mind and its development has remained far from complete. The nature of his publications showed that his research program had just started to develop during the last two years of his life. Secondly, Vygotsky's thought was exceptionally dynamic centering around several epicenters. This might explain why various authors, even his closest disciples and colleagues, viewed Vygotsky's work from different perspectives. David Elkonin who studied development all his life, believed that Vygotsky's main issue of interest was consciousness (rather than development). Alexander Luria, the author of an afterword to "Thinking and Speech" published in the second volume of Vygotsky's collected works, left the subject of development aside, making only a passing reference to significance of the zone of proximal development concept. Vygotsky's main book "Thinking and Speech" was labeled a book about "thinking", "verbal thinking", or thinking and speech development (Daniels et al., 2007; Leont'ev, 1990; Morozov, 2002; Vygotsky, 1982b). Gita Vygodskaya and Tamara Lifanova argued, ". . . This book is entirely devoted to development in general from beginning to end" (Vygodskaya & Lifanova, 1996). We quite agree with this statement. A review of the periods of Vygotsky's work provided evidence that development remained the main subject of his work throughout his ten-year professional career (V. K. Zaretskii, 2015). However, it took him quite a time to turn to this subject. In 1924-1929, the term "education" dominated the titles of his works relating to developmental issues, and the term "development" occurred only twice (among 77 publications) in 1928 and 1929. Both works discussed the issue of a child's cultural development[1].

---

1. It is interesting that Lev Vygotsky and Boris Varshava (deceased 1927) left the term "development" aside in their "Psychological Dictionary" (Varshava & Vygotsky, 1931) written and published in 1931.

In 1930, L. S. Vygotsky turned to the subject of development and this term appeared in the titles of his 25 writings (of 95 works written as of the time). One of Vygotsky's last texts introduced the idea of a hundred steps in development which might be considered as the last in a sequence of developmental concepts developed by him. Our previous article (V. K. Zaretskii, 2015) attempted to draw the readers' (and Vygotsky's admirers) attention to this assumption as especially relevant for the Vygotskian conceptual framework. We also attempted to discern a hypothetical representation of a crucial developmental mechanism in this image. We partially replicate the former line of reasoning in Parts 1 and 2 hereof. Part 3 provides case studies illustrating how the "mechanism" where one step in learning may lead to many steps in development, works.

1. From Problem to Idea

Assuming that Vygotsky's cultural-historical theory centered around the subject of human development and its conceptualization, we will attempt to reconstruct the journey Vygotsky's thought travelled to arrive at the idea which we believe to be pivotal.

Let us briefly clarify our understanding of his idea that a single step in learning may lead to many steps in development.

In our opinion, this statement contains three main perspectives.

The first idea designates the need for actual implementation of the assumption that learning precedes development.

The second represents the idea that learning "something special", something relevant for a given case, may trigger beneficial developmental effects in several dimensions simultaneously.

The third perspective deals with an implicitly contained – rather than explicitly verbalized – problem statement that learning can (and needs to) be performed in a way so that it could facilitate development. The question is how to do this?! What are the conditions that would make this effect possible? (In various contexts, L. S. Vygotsky argued that learning would not necessarily bring about development, and that development would not be brought about by any learning.)

Let's make an attempt to reconstruct how L. S. Vygotsky arrived at this idea.

At first, we would like to consider Vygotsky's decade-long journey through the lens of evolution of his developmental ideas. The corresponding review of Vygotsky's works has enabled us to single out five periods. Vygotsky's career in psychology is commonly divided into three periods: the first period of 1924 - 1927 years, the second period of 1928-

1931 years, and the third period of 1932-1934 years [(Daniels et al., 2007; Leont'ev, 1990; Morozov, 2002; van der Veer & Valsiner, 1991; Volikova & Glukhova, 2012), etc.][2].

However, from the perspective of our discussion, we single out two other periods relating to turning points in Vygotsky's conceptualization of development.

The first period: 1924–1927. L. S. Vygotsky started his psychological career. He focused on development and education of "mentally retarded and physically handicapped" children; introduced pioneering conceptualizations of psychology of children with special needs; defined the issue of development in terms of the learning objectives, socialization and professional education of children with various deficits. During the same period (1926), he wrote "Pedagogical Psychology" (Vygotsky, 1999) wherein he argued that the child's role in his/her learning and development was indeed significant. This period revealed three other lines of his conceptual thinking.

The first line of Vygotsky's thought reflected on the issue of consciousness. His essay (Vygotsky, 1982c) published in 1925 interpreted consciousness a connection between, interaction of "the systems of reflexes" - rather than "the connection of activities" as he defined it later). This perspective might have formed under the influence of Ivan Pavlov's and Vladimir Bekhterev's authority.

The second line of thought accounted for reflection on the difference between the human mind and the animal mind. It gave birth to Vygotsky's assumption that "the formula of human behavior includes the part that animals lack, that is: historical experience, social experience, and doubled experience" (Vygotsky, 1982c, p. 85).

The third line dealt with a search for the "signs" used by these new members of the formula to relate to each other. In 1925, Vygotsky introduced the corresponding formula having placed a plus sign between historical and social experience and having defined the result as "doubled experience".

The second period: 1927. It was the period of Vygotsky's self-identification within the framework of contemporary scientific psychology, as reflected by his key methodological work "Historical Meaning of the Crisis in Psychology" published for the first time in 1982 only (Vygotsky, 1982a)]. One should keep in mind that Vygotsky wrote it in a hospital bed having spent over six months there getting treatment for a virtually terminal diagnosis and showing no improvement (Volikova & Glukhova, 2012). The final part of the text carried an air of a testament, of instruction to the future generations of psychologists, of something that the author himself would have most probably had no time to do. However, Fortune gave him another 7 years of life and work.

"Historical Meaning of the Crisis in Psychology" was mostly devoted to the methodology of a new approach to psychology resting on philosophy and practice. It set a

---

2. The period of Vygotsky's work that culminated in "Psychology of Art" is sometimes designated as the first period of Vygotsky's legacy (Meshcheryakov, 2008). Herein, we start from his first works relating to developmental issues proper.

goal of developing some in-between, intermediate layer of concepts (in between materialist dialectics and realities under study). Vygotsky wanted to find a new name for this new science but eventually reserved the name "psychology" for it, emphasizing that it was to be "materialist" and "historical", though. Vygotsky considered historical materialism – which described the society development as a natural change of economic formations – to be a model for such science. Therefore, he argued that there was a need for developing concepts that would not only explain and describe the human psyche but also would help to master it. According to L. S. Vygotsky, the cause of the crisis and the driving force of development, respectively, had lain in a tremendous growth of applied psychology and emerging psychological practices.

He designated the practice of education as one of such practices. Confrontation with practice . . . compelled "psychology to reform its principles so that they may withstand the highest test of practice" (Vygotsky, 1982a, p. 387). And further: "The importance of the new practical psychology for the *whole* science cannot be exaggerated. The psychologist might dedicate a hymn to it" (Vygotsky, 1982a, p. 387) (Translation of the quotes adopted from Vygotsky, Lev. *The Historical Meaning of the Crisis in Psychology: A Methodological Investigation. In The Collected Works of Vygotsky*; Plenum Press, 1987).

The fact that Vygotsky prioritized the role of practice in development of the "new" psychology received wide recognition upon publication of "Historical Meaning of the Crisis in Psychology". We call the period covering the time when this writing appeared, "Vygotsky's self-identification", as he did not only set the goal of developing a new methodology, i.e. a system of "intermediate, concrete concepts appropriate for the scale of this science" (Vygotsky, 1982a, p. 419), but also identified himself with this methodology. We attempt to show that all his further work focused on developing such a conceptual framework that would allow for meeting objectives of his own practice.

His practice lay in the field of working with children with special needs. L. S. Vygotsky remained involved in this issue from beginning (since starting his career in psychology) till end. He kept focusing on three aspects: how normal development evolved; how abnormal early development evolved and how the conditions for reversing abnormal development could be created[3].

During these years, L. S. Vygotsky proposed an important assumption that development of normal and "defective" children (by the way, Vygotsky tended to avoid suchlike contemporary terms designating children with special needs) might be governed by the same laws and sought to discover those laws. As early as in 1924, he wrote that ". . . blindness is a normal rather than morbid condition for a blind person" (Vygotsky, 1983b, p. 68); that

---

3. The key points of Vygotsky's speech were discussed by the panel of the Narkompros (People's Commissariat of Education) Academic Council for Social and Legal Protection of Minors at their II convention in May 1924. Vygotsky - making his first steps in psychology at the time - reported on the work of three Sections (for the blind, the deaf, the retarded children). Nadezhda Krupskaya who was present at the meeting, proposed to facilitate implementation of the report's key postulates and emphasized the idea "that there is a need to find effective ways to bring education of defective children closer to learning and education in a general education school. . . to include these children in social and professional activity" (Volikova & Glukhova, 2012, p. 79)

"...Pedagogical Hygiene is right in advising that a blind child should be treated as if he were able to see" (Vygotsky, 1983b, p. 69); and that "...social education will overpower defectiveness. Then, it might be that people will hardly understand us if we say that a blind child is defective, but blind shall be they the name of a blind child, and deaf shall be they the name of a deaf child and *no other way*" (Vygotsky, 1983b, p. 72).

Coming back to Vygotsky's 1927-year's work (Vygotsky, 1982a), we would like to focus on one thread of Vygotsky's argument which could be considered as a clue to understanding the roots of his idea in some sense. According to Alekseev (1979), this thread of argument could actually serve kind of "modeling representation" for understanding of the learning-development relationship.

When assuming that there was a need of the new methodology, Vygotsky addressed Leon Binswanger's work (1922) which he turned to repeatedly throughout the text. He referred to Binswanger who had recalled "...Brentano's words about the amazing art of logic which makes one step forward with a thousand steps forward in science as a result" (Vygotsky, 1982a, p. 419) (Translation of the quote adopted from Vygotsky, Lev. *The Historical Meaning of the Crisis in Psychology: A Methodological Investigation. In The Collected Works of Vygotsky*; Plenum Press, 1987).

Seven years after, when discussing child (rather than science) development, L. S. Vygotsky wrote his famous statement that a single step in learning might mean a hundred steps in development. Clarifying it, he drew a direct analogy between science and child development. "Learning a new method of thinking or a new type of structure produces a great deal more than the capacity to perform the narrow activity that was the object of instruction. It makes it possible to go beyond the direct outcome of learning" (Vygotsky, 1982b, p. 230). Please keep in mind that this statement was given in Chapter 6 devoted to development of scientific concepts in children, which was written in 1934. In other words, both in 1927 and 1934, Vygotsky discussed scientific thinking – development of thinking in science in the first case, and development of "scientific" thinking in childhood, in the second.

The third stage: 1928–1931. Having recovered from his illness, Vygotsky – inspired and equipped with the idea of the new methodology – flung into work. Most writings of the time revolved around developmental issues. Most texts focused on working with various categories of exceptional children. In 1928, 22 works of 30 related to developmental issues (including 16 writings on development of exceptional children). In 1929, only 8 (of 18) works were devoted to development with half of them relating to normal development. In 1930, 21 writings of 30 touched on the developmental issues directly or indirectly (17 works were devoted to abnormal development). This period ended in 1931 culminating in "The History of Development of Higher Mental Functions", the epoch-making work with a self-explanatory title partly reflecting Vygotsky's 1927-year's conceptualization of psychology as a historical science (Vygotsky, 1983a). "The History" gave a methodological clue (the new logic, according to Brentano) allowing for taking a new perspective on child (human) development, consciousness and the specific nature of the human psyche versus the animal psyche (the line of Vygotsky's polemic with behaviorist and Gestalt-psychologists). It

also provided a practically-valid method of research implying that research should be performed through learning.

Importantly, the phrase "cultural development" appeared in the titles of Vygotsky's articles in 1928 for the first time and constituted the beginning of the third period, which ended with the first mention of the word "history" in the title. From that moment on, the new psychology developed by Vygotsky became indeed "cultural-historical".

The fourth period: 1932 – March 1933. During this period, Vygotsky led fundamental experimental research resting on the new understanding of the human higher mental functions development (studies of attention, memory and cognition). Seemingly, the period ended with Vygotsky's final speech at the conference on the 23rd of March 1933 (the speech was published in Volume 4 of Vygotsky's Collected Works in "Problems of Age"), where Vygotsky introduced the notion of "zone of proximal development" as a crucial construct for understanding of the child's development as of a human being, a social creature (Vygotsky, 1984). *From that moment on, the conceptual framework of the cultural-historical theory was complete with emergence of the concept integrating an array of Vygotsky's groundbreaking ideas on the specific nature of the human development, on the human consciousness, on the role of culture and the child's interaction with other people, namely, the concept of the zone of proximal development.*

The fifth period: March 23, 1933 – June 11, 1934. It was the times when every day counted. It was the times of a struggle, an emerging hate campaign, a terminal natural threat (his illness) and a social threat just as serious (Volikova & Glukhova, 2012). Both the "Biological" and the "Social" turned on Vygotsky and his cultural-historical theory. Those who used to extol Vygotsky, started subjecting him to fierce and unjust criticism. A while later (only two years after his death), his books would be withdrawn from libraries and destroyed. His articles would be excised from journals, and the surviving publications would be provided for reading only upon special permission. Still, it would happen later (1936 – 1956), and during the fifth period, Vygotsky was going through cultural and existential self-identification again, just like at a critical time in 1927, no matter what the "social situation" was. He started developing a research program based on the conceptual framework he had created. It is evidenced by the titles of his articles belonging to the period. We list them in the same order they appeared in Vygotsky's bibliography in Gita Vygodskaya' and Tamara Lifanova's book (Volikova & Glukhova, 2012): "The Problem of Age", "The Problem of Development", "The Problem of Consciousness", "The Problem of Learning and Development in School-Age Children", "The Problem of Development in Structural Psychology", "The Problem of Development and Retardation of Higher Mental Functions" (Vygotsky's last speech given 6 weeks before his death). Two other works – "The Problem of Child Development in Arnold Gesell's Research" and "The Problem of Speech and Thinking in Piaget's Theory" – published in 1932 (please note that our periods partly overlap) and relating to the books by Arnold Gesell and Jean Piaget – may as well belong to this list. Lev Vygotsky was never to realize the program he had outlined. It became the goal of his associates and disciples, and then their disciples and so on. Boris

Elkonin has argued that today the fifth generation of adherents of the cultural-historical psychology works in Russia (V. K. Zaretskii, 2015).

The life journey of Vygotsky's ideas was not simple. He remained virtually banned in the USSR, and unknown to foreign psychologists until 1956.

After the ban was lifted (we can imagine how much courage and effort his disciples had to invest to have it removed just a few years after the infamous Pavlovian Session), the first Vygotsky's publications started to appear. "Thinking and Speech", his main work, came up in 1956. "The History of Development of Higher Mental Functions" followed in 1960. In 1962, "Thinking and Speech" was translated into English and then into other languages. In the 1980s, 6 volumes of the Collected Works of Vygotsky were published. This collection was far from complete, but it gave an idea of the tremendous work he did over 10 years granted to him.

Consequently, cultural-historical psychology became increasingly popular. In the 1990s, the International Society of Cultural and Activity Research (ISCAR) was founded[4]. The authors participated in two ISCAR's congresses – in San-Diego (2008) and Sydney (2014), and noticed a positive trend: whereas in 2008 the congress welcomed representatives of 45 countries, as many as 62 countries were present in 2014!

What was the secret of such rapid growth of the popularity of Vygotsky's concepts? Was it really due to publishing the Russian edition of his Collected Works only?! We believe that the 1980s–1990s became a meeting point of two factors that brought about this "chemical reaction". This roaring response was somehow catalyzed by an essential feature of the cultural-historical theory. This was why "the chemical reaction" produced such a "vigorous release of energy".

The 1980s–1990s was the times when:

For one thing, unpublished writings of Vygotsky came up together with the opportunity to read authentic editions of his original works (it is important as Vygotsky's ideas have been frequently misrepresented, either intentionally or not).

For another thing – and this factor is most important – there was a surge in demand for psychology in various fields of practice. In other words, Vygotsky's times had come back but had completely changed their quality. The end of the 1980s saw the appearance of publications on academic and applied psychology (Etkind, 1987); ergonomics (a neoclassical complex practice-focused science utilizing psychology as its basic constituent) (V. K. Zaretskii, 1989); psychological practice (Vygodskaya & Lifanova, 1996), etc. Foreign practical psychologists flooded into Russia translating Western approaches.

It seemed that the concept that had been developed over several years by a small group of very young people (their leader Vygotsky died before he reached 38) a few decades ago,

---

4. In 2014, in Sydney, ISCAR's Executive Committee decided to rename the association as the International Society of Cultural-historical Activity Research without changing the abbreviation)

at a different historical time, and had lain still on the Spetskhran shelves[5], would fail to compete with methods and approaches intensively and continuously developed by many generations of researchers and practitioners[6].

Nevertheless, the cultural-historical psychology turned out to be even more than merely competitive. It started to successively win new and new fields of practice re-conceptualizing them, enriching its own conceptual framework which – from the very beginning – rested on philosophy and practice as formulated by Vygotsky in his 1927's work (Vygotsky, 1982a) (this integrative nature seems to be the core feature of the cultural-historical psychology).

Only few concepts and theories turned out to be useful for actual practice, even though there were many concepts describing mental processes and theories providing brilliant explanations of the latter[7].

Cultural-historical psychology was one of "useful" theories, as Vygotsky created it as a practical tool (he called his approach "instrumental", by the way). The heuristic potential of Vygotsky's concepts unfolded gradually. This journey could be traced on the example of the "zone of proximal development" (ZPD) which has travelled an amazing path from some marginal general aspect of the cultural-historical concept (frequently left unmentioned in psychological literature) to a major methodological principle in neuropsychology (Akhutina & Pylaeva, 2008; Glozman & Soboleva, 2016), developmental education [(Davydov, 1996; El'konin, 2008, 2015; Rubtsov, 2008; V. K. Zaretskii & Gilyazov, 2017, 2016b), etc.], special education (Korobeinikov, 2001), and psychotherapy in recent years (Kholmogorova, 2015; Kholmogorova & Zaretskii, 2011)[8].

Today, the ZPD concept is used as a fundamental principle (or a point of reference) for developmental diagnostics and education (remediation and development) of children. Still, implementation of this principle has posed a serious challenge in terms of methods and techniques to be employed. This is the point when the methodological issue of the philosophy-practice relationship has come up implying the need for development of an intermediate – as Vygotsky put it – level of effective concepts that would designate the object of efforts, and would equip a practitioner with methods enabling him/her to handle this object effectively.

---

5. Spetskhran – the Russian abbreviation for restricted access collections and archives in the USSR

6. Of course, Vygotsky's works did not merely lie on the shelves and suffered annihilation. His disciples, relatives and close people saved all his texts, synopses, and notes, and kept on doing what they had started with their Teacher. This feat – alongside the conceptual cultural-historical power of the approach itself – is the crucial factor ensuring that Vygotsky has become known worldwide as the founder of a new approach in psychology.

7. The authors faced this methodological challenge as early as at college, when no existing concept of creative thinking turned out to be useful for meeting the objective of "developing creative thinking" or, at least, facilitating the process of creative task solving (V. K. Zaretskii, 2012).

8. In 2014, the author and Alla Kholmogorova made a presentation on "The Zone of Proximal Development in Education and Psychotherapy" at the ISCAR congress in Sydney. The first response of the congress participants was, "Well, all that's missing is Vygotsky in psychotherapy!" Nevertheless, the attitude to this issue had changed, and the presenter was eventually elected to the ISCAR Executive Committee.

Vygotsky developed his theory as a practical tool, and its inherent (initially planned) focus on practice seems to have determined the rapid growth of its popularity and relevance on the cusp of the 20th and 21st centuries. So far, the cultural-historical theory has continued extending its scope of practical application and deepening its theoretical concepts. Specialists conversant with Vygotsky's concept keep uncovering it for themselves unveiling its hidden potential (see for example (Kholmogorova, 2015; Kholmogorova & Zaretskii, 2011; V. K. Zaretskii, 2008)).

The same thing happened to the ZPD concept. The end of 1990s and the beginning of 2000s welcomed the groundbreaking publications on the learning-development relationship viewed through the lens of ZPD [(Belopol'skaya, 1997; Kravtsova, 2013; Obukhova & Korepanova, 2005; Tsukerman, 2006; V. K. Zaretskii, 2007b). ZPD ceased to be considered as a plane of action. Rather, it was viewed as a complex multidimensional space wherein the idea of one step in learning triggering several steps in development, suddenly acquired a deep operational (i.e. practice enabling) meaning. This idea of the multidimensional ZPD found its first application in the field that Vygotsky started his practice with, namely, research into exceptional children's development and search for ways to facilitate this process.

The question whether educational, psychological, counseling and psychotherapeutic work with exceptional children could be designed so that one step in learning would facilitate many steps in development, has become critical in this field. As a matter of fact, there is no alternative way for these children, but this path opens feasible prospects to them, and the experience shows that it is possible. The question is, what the prerequisite conditions are? How can one conceptualize a hypothetical mechanism ensuring that the child-adult collaboration produces a quantum leap in development?

2. From Idea to Hypothetical Mechanism

This mechanism's functioning may be explained using the multidimensional model of ZPD. This model was developed in Reflection and Activity Approach (RAA) for the purpose of supporting children's development so that they could overcome learning difficulties [(V. K. Zaretskii, 1998, 2007a, 2007b, 2008, 2009, 2012, 2013, 2015; V. K. Zaretskii & Gordon, 2011; V. K. Zaretskii, Smirnova, Zaretskii, Evlashkina, & Kholmogorova, 2011; V. K. Zaretskii & Zaretskii, 2015), etc.]. As may be inferred from this statement, we are speaking about a helping practice. This help is provided in the course of learning as the child gets the adult's assistance when coping with his/her learning difficulties. Furthermore, the help targets facilitating the child's development rather than working on the challenges alone. Importantly, this model is based on the understanding of ZPD as a specific space of the child-adult collaboration. Developmental benefits brought about by this space may exist within certain limits only, and outside these limits, according to Vygotsky, this interaction is useless and may even be harmful to the child. The multidimensional nature of the model makes it special.

RAA arose as an approach that integrated practices of helping children with learning difficulties based on innovative approaches of teachers who succeeded in working with all categories of "difficult" children (V. K. Zaretskii, 2013). From 1996 till 2002, the authors sponsored a project named "Summer Schools for Children with Special Needs". The schools gathered teachers and other specialists who had fruitful experience of working with various categories of exceptional children. The term "RAA" was introduced to describe the practice that had emerged during the Summer-School sessions provided by the Russian Language teacher Natalia Abasheva and the psychologist Victor Zaretskii in 1997 (V. K. Zaretskii, 1998). Later, this practice was thought over and extended, and the scientific rationale for it was formulated. RAA today is an approach to research and practice with specific theoretical and methodological principles resting on the Russian schools of developmental psychology (L. S. Vygotsky, P. J. Galperin, V. V. Davydov, D. B. Elkonin, N. G. Alekseev etc.), and techniques for their implementation (V. K. Zaretskii, 2013).

What follows is a brief account of the essence and the content of this approach. We show how this approach views the mechanisms of the learning-development relationship within the framework of the child-adult collaboration; what conditions RAA provides to facilitate development and what factors contribute to this.

The starting point in RAA is a view that any challenge that arises in learning is a resource for development. Such challenges may include errors, difficulties, misunderstanding, incapability (really existing or imagined by the child), persistent academic failure, educational neglect etc. However, such challenges may be also due to natural factors relating to limited health capabilities, e.g. disability.

The challenge that has arisen in the course of learning tells the adult that the child is unable to do something by him/herself. Thus, the child's task falls beyond the limits of his/her ZPD, according to Vygotsky. Alternatively, if the task is within the child's ZPD, it endows the adult with an opportunity to arrange the process of his/her interaction with the child so that the child could make this "step in development". RAA identifies and provides the rationale for several conditions that enable the child to make this step-in collaboration with the adult, i.e. in practice, learning may precede development (V. K. Zaretskii, 2013).

Here is a brief account of these conditions.

The first prerequisite condition is contact. The adult establishes meaningful and emotional contact with the child, wherein the child feels protected, supported and accepted by the adult; feels him/herself at ease communicating with the adult; understands the meaning of his/her activity and why the adult's participation is necessary. The failure to establish this contact hinders fulfillment of the other conditions.

The second condition is, that development will occur if the child takes the position of a fully-fledged and legitimate agent of overcoming difficulties and reflecting on this activity.

The third condition implies that the child-adult interaction throughout this activity is collaborative, with the adult acting as an assistant to the main protagonist, that is, the child.

The fourth condition is that development results from the child's autonomous activity and his/her reflection of it carried out with the adult's help and support.

The fifth condition assumes that the child makes a step-in development through "owning" modes of action implemented in cooperation with the adult (interiorization, according to Vygotsky (1984)) and through reflecting on his/her own and shared modes of action.

The sixth condition indicates that in the course of joint activity aimed at overcoming a challenging situation, development may emerge in several areas simultaneously. In other words, "a single step in learning can represent a hundred steps in development" (Vygotsky, 1982b, p. 230).
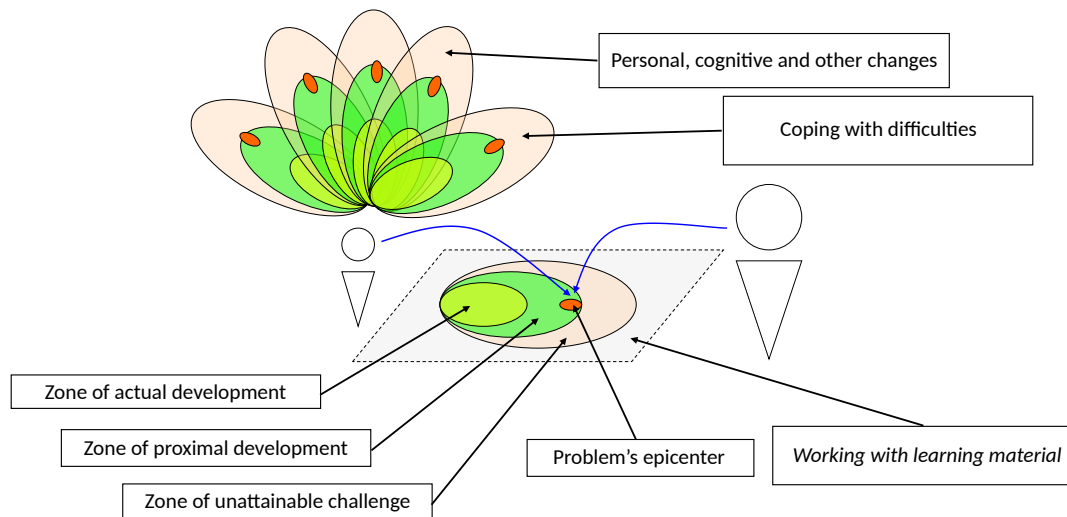

Figure 1. ZPD as a generality of dimensions of potential developmental steps. The diagram represents a challenge as a developmental resource and illustrates Vygotsky's assumption that one step in learning can represent a hundred in development (V. K. Zaretskii, 2013)

We illustrate the latter assumption and the essence of RRA with a diagram representing multidimensional – rather than two-dimensional – conceptualization of ZPD (Figure 1), which has been developed by a number of Russian psychologists [see for example: Belopol'skaya (1997); Kravtsova (2013); Obukhova (1995); Tsukerman (2006).

As follows from Figure 1 (this diagram is informally called "a flower"), development can be represented as a unique event in the child's life when a challenge creates the context for expanding the boundaries of the zones of actual and proximal development in several vectors simultaneously, and a new quality emerges. The child starts unfolding like a flower, hence the informal name of the diagram.

A detailed description of the diagram and specific examples of the steps in development (may it be at least several if not a hundred), follow.

The main idea of the approach is reliance on such resources as the child's sense of agency in learning, reflection and personal development. Correspondingly, the adult's task is to help the child feel him/herself an agent in his/her activity and its reflection; to be the child's partner-coworker; to enable the child to enhance his/her own resource. As the child requests, the adult's help when he/she can't fulfill the task him/herself, that is, within his/her ZPD, the adult can assist the child so that the child fulfills the task; understands what he/she could have done him/herself, what the adult has helped him/her with and what he/she needs to learn to fulfill suchlike tasks by themselves in the future. The approach received its name after two major processes performed by the learning child as an agent of activity.

Reflection and Activity Approach (RAA) is a system of principles and techniques facilitating the child's development in the course of his/her collaboration with the adult and peers, which relies on supporting the child's sense of agency in terms of his/her activity, reflection, awareness, reforming and constructing modes of action.

Learning-related development occurs through interiorizing the modes of joint actions. Developmental dynamics represents continuous expansion of the zones of actual and proximal development in terms of various dimensions of individual progress on the plane of learning and on other planes where various capabilities and personal qualities develop.

From the perspective of RAA, help is defined as support provided by the adult to facilitate the child's sense of agency and processes relating to implementation, reflection, restructuring and constructing modes of actions.

The child is viewed as the adult's coworker and partner, and, therefore, the actual lesson is a result of their co-creative activity. Teachers using RAA are guided by the general idea of the approach, its principles, limitations implied by the position of a coworker, the idea of providing help through reflection, as well as by some recommendations as to techniques. However, it should be reiterated that the actual process unfolds as spontaneous, creative and placing the teacher him/herself in the position of "a developing adult".

The adult's task is to identify learning-related ZPD; provide learning tasks matching the child's abilities so that it could be clarified what the child can/can't do by him/herself, and provide specific help. If the child's learning difficulties relate to deficits in "other dimensions", then the adult's assistance facilitates progress in these dimensions as well.

The dimension of "the ability to cope with one's difficulties" is crucial for children – especially children with persistent difficulties in learning or disabilities – as this dimension deals with development and enhancement of the child's sense of agency. Lack of experience of independent coping with various life (and learning) challenges can result in self-feeling similar to a phenomenon of learned helplessness introduced by Seligman (1992). Learned helplessness may be caused by repeated fruitless attempts to act within the

zone of unattainable challenge in children who faced educational neglect; or, alternatively, by overprotection for children with disabilities when the adult allows the child to perform no independent actions even within his/her ZPD. Learned helplessness may become a factor suppressing progress in other dimensions as it hinders realization of the prerequisite condition – that is, developing the child's sense of agency in learning, self-development, self-actualization and self-effectiveness (Bandura, 1977). Lack of the sense of agency prevents activation of the major mechanisms that are responsible for the onset of simultaneous progress in several dimensions regulated by the child's activity.

We believe that utilization of RAA to create conditions for development of the sense of agency and coping skills to overcome learning and life difficulties, represents a relevant and valuable resource, especially in terms of inclusive practice[9], which is used only episodically so far.

During the joint activity with the adult, the child starts to understand what he/she can do autonomously, and which tasks would require the adult's help. Above all else, the child starts to see progress day by day. He/she feels that the limits of his/her abilities get expanded and – most significantly – becomes aware of the enabling factors.

This idea was very clearly articulated by a second-grader who had just missed being sent to a school for mentally retarded children due to consistent academic failure. When a counselor (who observed the principle of collaboration and supporting the sense of agency) wondered whether the child would make the following task independently or together with the adult, the boy said, "We will make this exercise together, and I will try to make the next one by myself". Of course, a 9-year-old child diagnosed with "developmental delay" is unable to explain what the factors are, that enable him to do what they used to do together, by himself. However, he knows the meaning of interacting with a counselor and sees the results of this: today he autonomously does things that he used to do together with the adult yesterday (just like Vygotsky put it). Contextual gains, small victories over mistakes and difficulties, conceptualization and changing of the modes of action, reflection on the previous and current experience somehow breach the totality of the learned helplessness. The child gets a space for action - even though very narrow at first – where the child is successful and where the efforts invested bring about actual results (understanding causes of a mistake is nevertheless a positive outcome as it becomes clear what one needs to work on, what cause shall be eliminated).

Children whose learning experience has been mostly negative, who get used to being unsuccessful tend to exhibit signs of learned helplessness when learning. Perhaps, this is why, "the therapy with success" is most efficient and instructive for them. We give a detailed account of how one may work with learned helplessness. It is worth mentioning that equivalents of the learned helplessness syndrome of different severity may be found not only in children with disabilities who are used to their limitations and do not seek to overcome them, but also in nondisabled children who display persistent academic failure,

---

9. It reminds us of the goal set by Nadezhda Krupskaya in 1924 to the participants of a meeting devoted to education of "defective" children when Vygotsky made his report (Volikova & Glukhova, 2012).

come from troubled families and have nobody to help them cope with challenges. These children are often promoted from one grade to another so that grade retention could be avoided. Furthermore, these children find "work-arounds" themselves (cribbing during tests, avoiding speaking in front of the class, skipping lessons), or reconcile themselves to their failure to change their situation for the better and make no attempts to improve it at all. This behavior (lack of useful activity) and the mode of experiencing the challenging situation (feeling helpless, unable to change anything, feelings of futility of efforts, self-doubt and lack of desire to do anything) make the situation traumatizing, potentially harmful for healthy mental functioning. Learning recedes into the background, and its psychotherapeutic potential (Kholmogorova & Zaretskii, 2011), i.e. the possibility to facilitate fruitful personality change (personal development) staying within the framework of learning, comes to the foreground.

In this context, the problem's epicenter lies on the plane of the learned helplessness syndrome rather than on the plane of concrete modes of action. This syndrome needs to be specifically addressed by the adult (not necessarily a psychologist but a teacher or a parent). In this case, the plane of learning and the plane of learned helplessness swap places in some way (Figure 2).
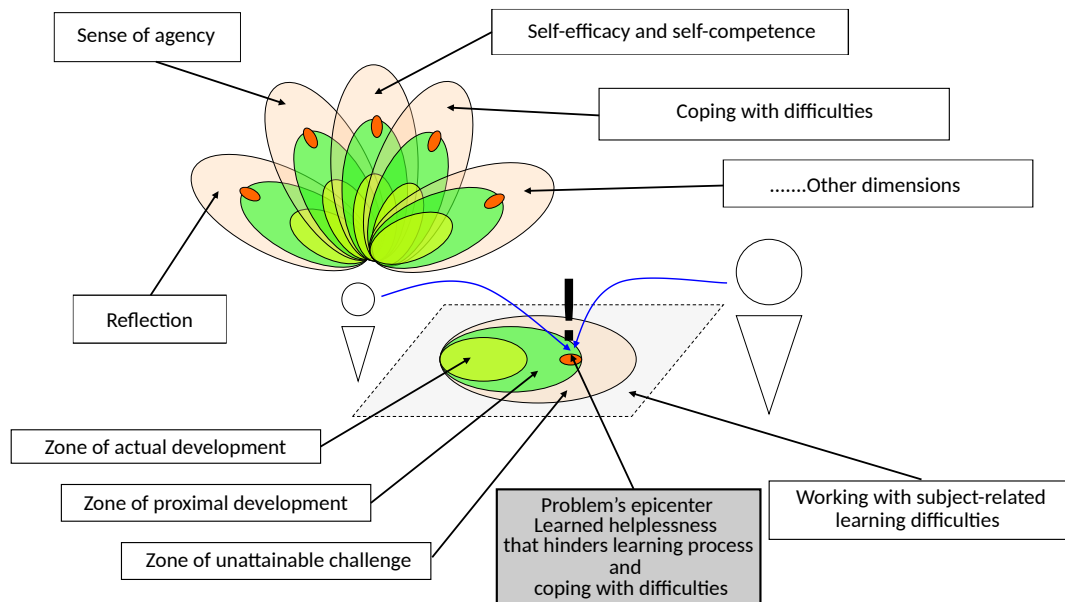

Figure 2. The multidimensional model of ZPD illustrating the case when the problem's epicenter lies on the plane of personality rather than on the plane of concrete modes of action

Assistance targeting learned helplessness initiates improvement in the related dimensions (agency, reflection, willingness and ability to cope with difficulties, self-competence, meaning etc.). Figure 3 indicates the moment when these dimensions start changing by changing their color respectively.
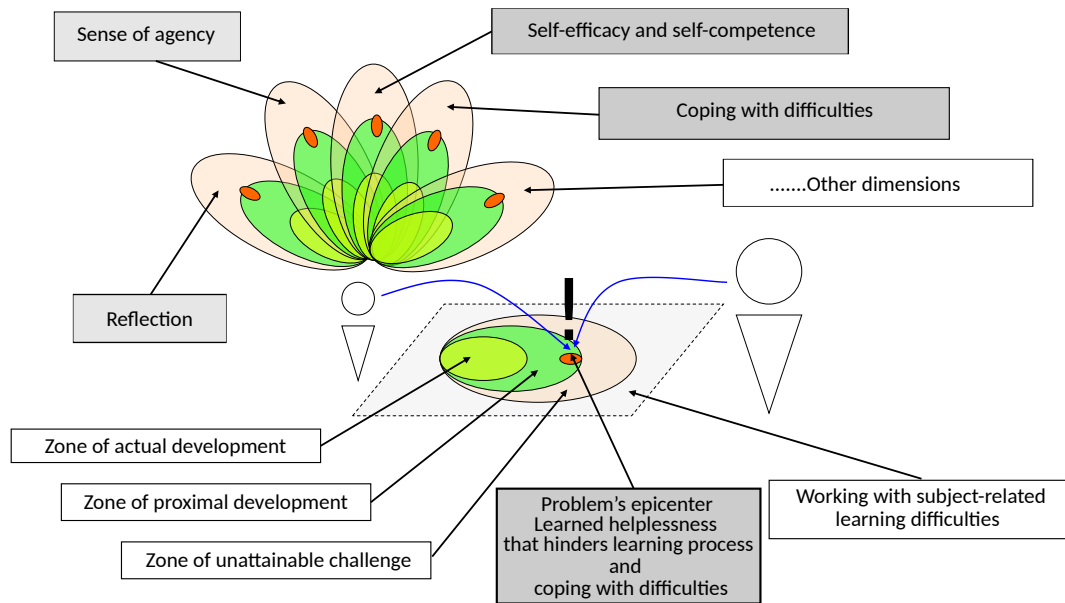
Figure 3. The multidimensional model of ZPD illustrating the point when the improvement in the learned-helplessness-associated dimensions starts (V. K. Zaretskii, 2015)

On the one hand, these dimensions - or exclusion of their resources when coping with a challenge, to be precise – depend on the past experience that resulted in learned helplessness which oftentimes manifests itself as a loss of capacity to do even simple, doable things. On the other hand, "exclusion" of these resources reinforces learned helplessness and feeds the person's self-myth that he/she is incapable of this kind of activity.

If the child ceases investing efforts to overcome some learning difficulties, it may jeopardize his further development. This way of experiencing the challenging situation may entrench itself. Should another situation and another learning activity take place, the child may repeatedly view him/herself as incapable. His/her own activity may become selective; the life space may start narrowing and he/she may become a psychotherapy client, as the child's mental health may come under threat.

So, how may the personality qualities be developed through activity? For one thing, activity itself is not as important. It may be an activity involving insuperable difficulties, or it may be some neutral activity, e.g. a game of chess. The child who is being engaged in playing chess, may be quite skeptical about his/her ability to be successful in it. However, what if the activity is performed so that the success is inevitable?! We emphasize and focus the child's attention on the fact that our joint activity is always a success. As a matter of fact, success itself may be different. If the child learns something, then it is a learning success. If he/she has failed, but he/she has been able to reflect on the mode of action and has become aware of the cause of failure, then the success lies in awareness, in a deepened understanding of what he/she does and how he/she does this.

This focus on the content of activity distracts the child from hard feelings of helplessness and sets a positive mood even when there are no achievements in the activity itself. At the same time, it enables the child to get used to this activity. The child is indeed getting used to it as if he/she were walking carefully, feeling the ground to understand whether there was no danger to walk in that direction. The main challenge is to begin: to involve the child in activity whereas he/she firmly believes that investing efforts makes no sense. Here "another thing" comes into play. For another thing, the contact established between the child and the assisting adult becomes – in a way – more important than activity itself. If this contact is deep, emotional and meaningful, if the relationship is built on collaboration, if the child tends to trust the adult (even when the child mistrusts him/herself) and believes him, these may be the decisive factors in overcoming learned helplessness. If the child is resistant or irresponsive to suggestions to start doing something giving an excuse of "Nothing is going to work", then, if the contact is good, the adult can always say, "Do you think that you will fail? And I think differently. I can help so that you will make it. Do you believe me? Then let's try". Then the art of helping and arranging lessons comes into play. If the child has realized the line between his/her zones of actual and proximal development, reassured himself that he/she can do things autonomously, then this experience will become a source of inspiration empowering the child, enhancing tolerance to difficulties and making efforts meaningful. So, according to Vygotsky, tomorrow the child will autonomously do things he/she does together with the adult today.

The littlest success may revive improvement in all the mentioned (and unmentioned) dimensions producing the effect when one step in learning results in one hundred steps in development.

3. From Mechanism to Supporting Development

Practitioners facilitating child development do encounter cases of "wonderful transformation" when a child suddenly makes a giant step in development and does things that seemed to be impossible a moment ago.

Christel Manske, who has devoted over 40 years of work to children with Down syndrome, autism and attention-deficit/hyperactivity disorder (ADHD), relies on the principles of cultural-historical psychology. In her lectures and writings, she gives accounts of the cases from her practice when even a short conversation brought about dramatic change in lives of people she interacted with (Kolomeitsev & Manske, 2015; Manske, 2014).

Lebedev (1996), one of the four members of the first team of the famous Novosibirsk Habilitation Centre "Borozdin's School", reported that during a public lesson in Krasnoyarsk (broadcasted on the local TV), he offered a girl to catch the ball and she started using her right arm which – according to the girl and her mother – had not "worked" before.

In the 1990s, Ogoniok (a Russian magazine) published several accounts of the Borozdin's School experiences including sections called "Evidence of Miracle". In his "Sketches on

Habilitation Education", Borozdin (2000), the founder of the school, gave an example of "one step-in learning" which for Lucy B. was shaped as learning a couplet of a song, "Cornflower, cornflower! You are my favorite flower. Tell me when your pale blue eye will burst open in the rye". One couplet equaled one step. However, the thing was that the girl had neither talked, nor sung, nor understood a word of this song as of the onset of her classes on the 1st of June, 1991. She sang this song articulating words clearly, without mistakes, and with full understanding of what she was singing about, exactly that day twelvemonth (June 1, 1992). One can only imagine how many developmental steps she made within this "single step in learning"! Interestingly, Aleksey Borozdin called his lessons "music therapy" in this work (Borozdin, 2000, p. 31).

Giving an account of his studies on development of elementary mathematical concepts (measure, unit, number), Piotr Galperin (Galperin, 1998) indicated that learning mathematics resulted in the change of operational cognitive schemata relating to an object: the child ceases conceptualizing objects syncretically (focusing on a "strong", eye-catching feature) and starts conceptualizing them as having various aspects, each measured by its own unit. The developmental leap occurring at that point results in disappearance of Piaget's phenomena.

In our Summer Schools for children with special needs and learning difficulties, which based in a summer camp called "Gagarinets" in the Nytvensky District of Perm Krai, Russia, we frequently witnessed dramatic improvement in many children as early as during first days in the camp. For example, the first Summer School in 1996 gathered different specialists (teachers, psychologists, artists) who were aware that there hardly was any chance to achieve significant outcomes for these children as far as bridging gaps in academic knowledge and coping skills was concerned, for 18 days (with only 13 days of academic training). Therefore, they set a major goal to endow every child with an opportunity to feel him/herself successful in something and regain their self-confidence. As Margarita Gordon, one of the Summer School organizers, noted, "The collaborative fulfillment of this goal brought about "miracles" when buds which seemed sleeping or even faded, opened to form bright and beautiful flowers. Nearly all children in the Summer School acquitted themselves well during a lesson or some activity. Should such breakthrough occur during one lesson, all the other teachers noticed at once that the child started to work better, to show interest or even active engagement. Furthermore, his/her status among classmates improved" (Gordon, 1996, p. 396).

This account had been given ten years before the multidimensional "Flower" diagram appeared (V. K. Zaretskii, 2007b). However, as you can see, the image of an unfolding flower reflects the multidirectional process of the quantum change, excellently. The above quote shows that children who have experienced success in some kind of activity ("one step in learning") and who regained their self-confidence (one of the doubtless epicenters within the space of the developmental dimensions), enjoyed improvement in several dimensions, including interpersonal interaction with other children, simultaneously.

Ch. Manske compared the child's developmental leaps with a butterfly's life cycle, "Just like a butterfly starts life as an egg turning into a larva and then a pupa, children experience

developmental leaps during their ontogenesis, which result in a complete restructuring of their psyche" (Kolomeitsev & Manske, 2015, p. 120). Furthermore, "if a tiny step in learning had initiated a developmental leap, it happened . . . .because it was appropriate" (ibid). Manske considered that those learning steps were "appropriate" that "matched the structure of a relevant stage of mental development" (Kolomeitsev & Manske, 2015, p. 145). Speaking in terms of the multidimensional model, it can be assumed that an "appropriate" step is a step made in the problem's epicenter.

The problem's epicenter in a key dimension blocks the ability to progress in other dimensions and becomes an insuperable obstacle for development. When the child has broken through it, energy gets released immediately and progress in other dimensions starts. This process might be figuratively described as "a hundred steps in development".

4. Summer School Experience

Part 2 hereof has given a theoretical account of how learned helplessness blocks any activity and discounts the significance of any coping efforts, and what effect overcoming learned helplessness may have for development. We faced the reality of this phenomenon in the Summer Schools.

Thus, in the Summer School-1997 – the one where N. Abasheva and the authors started using the term "Reflection and Activity Approach" (V. K. Zaretskii, 1998) designating the practice of helping children overcome learning difficulties while studying Russian – we achieved significant outcomes working with the nine-year pupils of a local school. As their school teachers confessed, the academic advancement did not matter for the grade promotion. The pupils were promoted from one grade to another so that they left school as soon as possible, as the teachers neither had energy nor saw any point in teaching them. The gaps in their education were disastrous. Four of the seven pupils who came to the Summer School made over 100 errors in a 186-word dictation. One of the pupils wrote "ni na shto" (*Russian* "for nothing") with seven (!) mistakes. Another one wrote "dioblyje tni" instead of "tioplyje dni" (Russian "warm days") and failed to find the mistake independently during the error analysis. Another boy merged all prepositions and conjunctions with other words, and a girl asked to remind her of how the letter я ([ya] – the last letter of the Russian alphabet) was written. We became aware that we faced total illiteracy, the experience of persistent failure (8 years at school taught these kids nothing) and senselessness of the learning activity as it was. All this produced the effect of learned helplessness. We found support only in the fact that the children came to the Summer School voluntarily because the organizers invited solely those kids who wanted to learn and overcome learning difficulties. Therefore, they *wanted* to learn and to attempt to change something in their life. It was the only visible resource for joint activity at the start.

Their ZPD implied the following: (1) to involve them in the activity, i.e. writing a dictation (during this stage, we managed to clarify the significance of our lessons and the dictation, in particular, and endow these with meaning for the kids); (2) to analyze their

failures; (3) to chose a mistake they would correct assisted by a teacher and a psychologist, (4) to develop their own unique mode of action that would ensure preventing this mistake (V. K. Zaretskii, 1998). During the last stage, they tested the new mode of action. This "trial" showed that everyone was able to correct one mistake and to learn how to prevent it. However, this mistake did not differ from others. If one was able correct this mistake, then all the others could also be managed. It inspired children who regained self-confidence, and reassured themselves that collaboration with counselors to overcome learning difficulties was useful.

One step in learning Russian (correcting one mistake, learning one rule, one mode of action) produced changes in many dimensions: self-confidence; making meaning of learning; readiness to invest effort, readiness to act by oneself; readiness to accept help; understanding the line between their zones of actual and proximal development, i.e. awareness of when the help was needed; reflection (shaped as consistent self-improvement and improvement of one's modes of action; establishing a connection between efforts invested and outcomes, between modes and failures, between mode amendment and disappearance of failures etc); attitude to the self and the future (they said "We will enter college", and some children did enter and graduate from Perm universities, it happened several years after and at quite mature age though). This list might be continued, especially if we were to account for the kids' individual progress.

Nevertheless, what was the most striking for us was what happened later. By some quirk of fate, no teachers who worked with these children came to the Summer School. We taught them Russian exclusively. However, as their ninth school year showed, they achieved success in all the other subjects too. They got fairly earned "Bs" rather than "conditional Cs", and their efforts resulted in subsequent successful academic performance in various vocational schools and even colleges in Perm. Russian as a subject is, of course, very important, as knowledge of Russian means more than being literate and knowing rules, it also means understanding the discourse and other people, it is the culture of expressing thoughts. Still, even being an important condition for success in other subjects, it is not sufficient. We assume that the children were able to translate the experience they got during the Russian lessons to other school subjects and activities due to two factors. Firstly, their sense of agency in relation to learning and life overall emerged and started strengthening. Secondly, they improved the dimension of "the ability to cope with challenges" implying both the ability to invest efforts (do one's best) and to seek help from others if one's own abilities are limited. Besides, this dimension involves the ability to learn implying both knowledge accumulation and changing and refining one's modes of action in collaboration with another person.

5. Implementing "Chess for General Development"

The "Chess for General Development" project has become one of the practices supporting development through learning (Razuvaev & Zaretskii, 2004). The project rests on Nikita Alekseev's idea proposed as early as in 1979, that "Chess is a created-by-God material or

a model for development of the ability to act in one's head" (Alekseev, 1990, p. 45). The attempt to implement this idea was made as late as in 2004 after N.G. Alexeev's death, when a group of enthusiasts started to promote an idea of including chess in school curriculum in Satka (a city in the Chelyabinsk Region). They started chess classes that targeted building a methodology of teaching chess to facilitate general development. The lesson design and the methodology rested on the following concepts: principles of cultural-historical psychology (L. S. Vygotsky); the system of the stage-by-stage formation of mental actions (P.Y. Galperin); the idea of reflection-based lesson design (N.G. Alekseev); principles and techniques of establishing collaborative relationships, providing support for overcoming learning difficulties and implementation of one's plans by means of RAA (V.K. Zaretskii).

The main idea of the project was to design and give chess lessons in a specific way so that they developed the ability to perform "in one's head" so that it could be translated to other activities in other school disciplines. As it was the pupil who was to become an agent of the conscious translation of the ability, the learning procedure activated such factors as "the sense of agency" and "reflection" The process was centered around developing the child's ability to mentally move a piece, i.e. to do chess problems in his/her head, and the whole process represented the stage-by-stage formation of actions constituting this ability. Initially, all actions were performed on the material plane, and later, an action was translated to the ideal plane[10] according to the principles of the stage-by-stage formation of actions.

The progress was made within every pupil's zone of proximal development, i.e. the lessons were individually focused. The setting was two 45-minute lessons a week. The first participants of the experiment were Satka-school second graders and Primary and Secondary school teachers who had shown interest in the project and an opportunity to learn new educational approaches and wished to become co-developers of the method (as the method did not exist at the time). The first pilot class received chess lessons for three years (from the second till the fourth grade). Later, the children followed the usual Secondary School curriculum.

The class consisted of neighborhood children, no preliminary selection was performed. An array of psychological assessment tools was used to monitor the children's progress. They included cross-sectional assessment of attention, memory, verbal and nonverbal intelligence, performance and the ability to perform mental operations. The researchers carried out cross-sectional testing in two classes of other schools in order to assess the effects of chess lessons. Children in one class demonstrated lower average levels of the functions tested, children in the other class exhibited higher levels.

The findings of a comparison study showed that in the beginning, the chess project participants outstripped their peers as far as their development rate was concerned, and

---

10. wo Teacher's guides "To Development through Chess" and "Chess for General Development" and "The Workbook for Children and Teachers" emerged as tangible outcomes of the chess project implementation. They were published in 2016 (V. K. Zaretskii & Gilyazov, 2017, 2016a, 2016b) with support of the German-Russian Chess Foundation, Satka/Russia, created by the enthusiast Matthias Draeger. Alexey Chernysh, an IT specialist and a psychologist, developed software to support the learning process.

by the end of the academic year they showed better results as to development of memory, visual memory, attention, performance, internal plane of action (as measured by two tests), nonverbal intelligence (Veresov, 2015). Later, the chess learners were compared to their peers from other classes, with positive effects of chess lessons for development of various functions being consistently confirmed. Unfortunately, the methods chosen allowed for monitoring and registering changes in no other dimensions.

Still, we have good grounds to hypothesize that these changes might as well have emerged. For instance, the diagnosis of "a delay in mental development" was subsequently removed for some children. The parents reported that their children became more organized and independent. The teachers indicated that the children made attempts to do problems mentally during other lessons, Mathematics, for example. The transition from the primary to the secondary school resulted in no decrease in academic performance in the pilot class (such decreases usually take place due to critical changes in the learning process and an emerging need to adjust to them). A curious story happened during a City math test ran by a new teacher, who did not know the story of the pilot class. The test included a problem for advanced learners, which was optional for the pupils tested. The teacher was amazed when all the pupils solved this problem, even those who failed to solve all the mandatory tasks. . .

In 2014, the pilot class pupils finished the secondary school. Five pupils (chess project participants) were awarded "gold medals" for exceptional academic performance. It was the best result in the city and the Chelyabinsk Region taking into account schools providing advanced secondary education. The average score on the Unified State Exam in this class was significantly higher than in Russia. Another pilot class where pupils were taught by other teachers (both as far as chess and school subjects were concerned) finished school in 2016. 21 of 25 children who entered the first grade, finished school, six pupils were awarded "gold medals", and one girl finished school having only one "B" (with "A-s" in all the other disciplines). Taking into account the fact, that there was no preliminary selection of children in neither of the pilot classes, these results stimulate thinking on what factors have ensured this outcome.

What was the role of "Chess for general Development" in this outcome? One of the first-pilot-class pupils who finished school in 2014 and continued her education at college in Chelyabinsk gave the following answer to this question, "Chess has taught me think logically. Before doing something, I think everything over carefully, visualize possible outcomes. . . Chess helped me so that when working on a task, I visualized the plan of action, various options as to performance and potential outcomes. Then I chose the most appropriate one. It helped me avoid unnecessary mistakes. I still keep vivid memories relating to chess. I recall how we studied in groups, every group had its teachers, we learned to do chess problems in our heads. . . "

The chess project is underway. It is too early to draw conclusions as at this point, one may only hypothesize what aspects of these lessons produce the general developmental effect. However, it can be assumed that this effect relates to three specific aspects of the chess lessons.

The first specific aspect is their focus on developing the ability to act "in one's head", which is the crucial new formation at this age, i.e. the work is done in the "age-related epicenter". Efforts targeting development of this quality, individualized tasks accounting for every child's ZPD help to form it on the basis of chess and to translate it to other activities.

The second specific aspect is supporting the child's sense of agency in relation to learning. There is evidence that the child's sense of agency in learning facilitates both child development and benefits learning itself (V. K. Zaretskii et al., 2011; Y. V. Zaretskii, 2013).

The third aspect deals with supporting the child's reflection on his/her own and joint activity performed in collaboration with the teacher. Reflection process takes place at the beginning, at the end and in the course of a lesson as may be necessary to conceptualize challenges, their causes and coping strategies. For instance, during every lesson children were offered to focus on what they were able and unable to do by themselves; on what help they needed; and what challenge was worth dealing with during the following step. It allowed children to perform appropriate objective assessment of their abilities; to monitor changes in the ZAD and ZPD boundaries; to make an informed decision when choosing the task complexity; to accept the situation as it was rather than experience failure as a trauma; to monitor the dynamics of changes and to be aware of a crucial role the teacher's assistance played in these changes, which would be impossible unless the teacher were there. Indeed, the last point implies understanding of the value of cooperation and seeking to build such relationships in life.

6. Experience of the "Visiting Dunno" Centre

The Centre "V Gostyakh u Neznayki" (*Russian* "Visiting Dunno"; Dunno, or Know-Nothing, is a character created by Nikolay Nosov, a Soviet children's writer; hereinafter the "Visiting Dunno" Centre) was created by the "Deti.msk.ru" Charity Fund founded by Father Alexander Men in 1989 (Lina Saltykova has been the Fund's President since its foundation). Until 2012, the Centre's organizers used to focus on the issues of arranging treatment and sustenance for children, creating emotionally healthy environment to "warm them up" (many children experienced severe trauma in the past). In 2012, they set a goal of establishing educational facilities for their little residents. The Centre invited teachers and psychologists using RAA for overcoming learning difficulties (V. K. Zaretskii, 2013) among other specialists[11].

---

11. When the Fund Officers invited the authors to a conference devoted to education of orphaned children with disabilities and severe somatic conditions (September 2012), the first response was that RAA could hardly solve the problems of these children. For one thing, we had never worked with these children before. For another thing, pedagogy and psychology seemed to be helpless there due to a whole host of problems caused by orphanage, disability, life style, lack of social experience and related developmental delays. However, Vygotsky's idea that learning could be structured so that one step in learning would produce multiple steps in development, did offer hope to us. It goes without saying that we also accounted for a unique Russian experience of educating the blind and deaf-mute children. This experiment was led by Ivan Sokolyansky and Alexander Meshcheryakov. The author eye-witnessed the miracle of this

Currently, all residents of the Centre receive school or home-school education despite severity of their condition, and get additional assistance from invited teachers, psychologists and tutors.

Below, we give an account of progress achieved by Pasha, a resident of the Centre, to illustrate beneficial effect of learning on the children's development. Pasha's example is exceptionally illustrative of the changes that may be brought about by breaking through the problem's "epicenter", namely, learned helplessness reinforced with an "objective health condition" resulting in to natural limitations.

Pasha has a diagnosis of arthrogryposis. It means that, among other things, he has muscular dystrophy. Pasha has a very limited range of movements. He can raise his arms, use his leg to propel a wheelchair, perform trunk movements. His head movements and speech are intact. After his birth, Pasha travelled from an infant orphanage through an orphanage for older children, to a hospital, and since 2010, he has been a resident of the "Visiting Dunno" Centre.

Regular video recordings made by the "Visiting Dunno" Centre's specialists registered a turning point in Pasha's life that happened when he played chess and that triggered an avalanche of changes, including those in personality.

When chess lessons started at the beginning of 2013 in the "Visiting Dunno" Centre, Pasha got keen on them and became a very dedicated chess learner who quickly achieved certain progress.

Once he was offered to give a mate in one move. He realized at once that a mate was to be given by the queen and said whereto (which square) the queen was to be placed. A counselor playing with him suggested that he should move the queen by himself. Pasha answered, "I can't". The counselor responded, "I think, you can". Then Pasha contrived to raise his arm and grasped the queen with two fingers. The arm and the queen moved down. Pasha took a careful sight and – with the second wave of his arm – moved the queen to the corresponding square. Indeed, some pieces fell down at that moment, but the game was ended with checkmate. A week later, Pasha ate by himself (he invented a mode of action that allowed him to eat soup and the second course pressing his elbow on a spoon or a fork lying on a plate). Then he started to expand the range of his actions. He started using orthoses which helped him move on his legs rather than in a wheelchair. Six months later, he could kick the ball and started playing soccer with his peers. He started going to school. He set a new goal – to become independent and self-sustaining. He started to train his arms, expressed a wish to "attempt to learn to play the piano" and, indeed, he found a way how to do it. At first, he learned to play on the black keys, and then on all the other. Two years after, he learned to attend to himself autonomously; bridged the gap with the peers as far as academic performance was concerned; had various hobbies and became one on the best chess players at school. Table 1 gives an account of Pasha's progress for three years.

---

experiment himself as he worked in one laboratory with Alexander Suvorov, a deaf-blind participant of that study and Ph.D. in Psychology.

Table 1

Pasha's Progress

Pasha, 13 years old (2013)	Pasha, 16 years old (2016)
Hardly did anything by himself.	Lived independently at an apartment.
Received no school education before, but was accepted to the fifth grade.	Had a roommate.
Able to write and to draw holding a pen or a pencil in his mouth.	Attended to himself, seeks help if needed.
	Consistently invented new ways "how to do something".
Sang, as he had an ear for music and a good voice.	Believed that he could do anything.
Read no books	A ninth-grader.
Used orthoses reluctantly as moving in them required much effort.	Learned to play the guitar and the piano.
Did not play chess.	One of the pest chess players at school.
Learned helplessness due to his physical condition.	Played soccer wearing orthoses.
Attempted to expand the range of physical capabilities made by means of surgical interventions.	Actor in a performance staged with the Centre's children by Natalia Shumilkina, a stage director of the Russian Academic Youth Theatre, where he sang, played drums and harmonica.
	Planned to work as a commentator on the radio as in that case "no one would make a fuss about his legs and arms" and his voice was OK.
	Did regular exercise to develop motor functions (doctors who witnessed his achievements said that the planned surgical interventions would not bring about such good results, and performed no surgeries so far).
	Read "White on Black" by Rubén David González Gallego. Liked Serge Yesenin's poetry, started reading Goethe's "Faust".

The main new formation that emerged during Pasha's play and learning activity seems to belong to "the sense of agency" dimension. Since the moment when Pasha set on becoming independent and discovered it for himself that it was all about modes of action, that he needed to look for them, show initiative and persistence, Pasha has started challenging himself and others. The author recalls that he wrote that he wanted "to try to learn to play the piano" in an individual project for the Summer School 2013. When asked how

he was going to play the piano with his non-functioning fingers, he said, "Well, one can always try!" There was nothing to say against this logic. Eventually he learned to play the piano, and, moreover, the guitar and the drums. Pasha's life attitude is characterized with a fully-fledged sense of agency. He seeks modes o actions that ensure self-sustaining and independent – in the future – life style for him in an active and aware way.

7. Case Study: Student M.

When employing RAA to assist with overcoming learning difficulties, a counselor usually needs to invest special effort to activate, support and strengthen learners' sense of agency (V. K. Zaretskii et al., 2011; V. K. Zaretskii & Zaretskii, 2015; Y. V. Zaretskii, 2013), especially when the latter have a complex of persisting failure, practically undistinguishable from learned helplessness. Such learners fail to cope with the challenge without the adult's support, but are often unwilling to accept help. Another experience of failure, especially when one has invested significant but futile effort, is a painful step that a person is reluctant to make. The conflict experienced by the person in that case may be briefly described as the desire of the impossible. If this conflict persists, it affects the person's development in a most traumatizing and destructive way. The secondary changes in the person's personality, behavior and affect occur. Then, the person may need psychotherapeutic help rather than psychological and educational counseling.

In our opinion, Igor Grinshpun provided a very precise definition of the difference between psychotherapy and counseling in his lectures on the history of psychotherapy. "If the client, let us say so, has an internal resource for problem-solving and psychological help consists in supporting him and assisting him with opening this resource, then it is likely to be counseling. If the resource is insufficient, and there is a need of creating it and a need of a lasting deep dialogue and accompanying this person, of joint progress within this dialogue, then it is likely to be psychotherapy. Nevertheless, it is very difficult to differentiate between these two within an actual process" (Grinshpun, 2015, p. 176).

The case of M. described in the authors' article in memory of P. Galperin (V. K. Zaretskii, 2012) clearly confirms the fact that sometimes it is hard to differentiate between these processes. Alternatively, it shows that virtually any activity may enable development.

Before discussing M.'s case, let us recall the place in Vygotsky's "Thinking and Speech", Chapter 6, where he conceptualized the relationship between learning and development. We would like to give a complete quote. "A single step in instruction can represent a hundred steps in development. This constitutes the most positive feature of this new theory. This theory teaches us to see the difference between instruction which provides only what it provides directly and instruction which provides more. Learning to type may not change [italics added] the general structure of consciousness. Learning a new method of thinking or a new type of structure produces a great deal more than the capacity to perform the narrow activity that was the object of instruction. It makes it possible to go beyond the direct outcome of learning" (Vygotsky, 1982b, p. 230) (Translation of the

quote adopted from Vygotsky, Lev. *The Historical Meaning of the Crisis in Psychology: A Methodological Investigation*. In *The Collected Works of Vygotsky*; Plenum Press, 1987, but for the last sentence excluded from the English source).

As we can see, L. S. Vygotsky's reasoning did not concern new formations here, and he was very cautious in his judgment, "Learning . . . may not change general structure. . . " Nevertheless, it follows that it may change under some conditions?! The article in memory of P. Galperin (V. K. Zaretskii, 2012) gives a detailed account of an example when it was learning to type that led to a breakthrough in development (Student M.)[12] This breakthrough became possible due to formation of an error-free 10-finger touch typing motor skill after 18 lessons.

. . . November 200. . . , student M. came to me with a request to become an academic adviser for her Master's thesis. All the previous advisers had refused to work with her. She received only 7 points ("C", almost "D") for her penultimate fourth-year Term Paper. I did not understand how she had managed to pass exams as her speech was incoherent. Then, I noticed her unique tactics of "handing initiative over to a teacher": at the most responsible point when she had to say something specific, she got agitated, coughed, cleared her throat and the teacher unwittingly started answering his/her own questions, and M. agreed to these answers readily. This examination tactics enabled her to go through 4 years. . . Term papers were a challenge for her, as she had to produce a written text then. I don't know what sort of papers these were, but as I have already mentioned she got a score of 7 (a conditionally positive grade) for the last one. M. came to me upon advice of her friend, my former student who used to have difficulty writing, too. Under my guidance, she had eventually prepared quite a decent Term Paper which could have made a good Master's thesis the year after, she had missed the deadline though. . .

M.'s desire to become a certified psychologist, willingness to work, hope that I would help her (even though we had never met before) appealed to me. What worried me was her low expertise and complete self-distrust. I based my work with M. on the principle that it was the process that was to be supported, the person had to proceed with the content by him/herself depending on his/her abilities and within his/her ZPD. . .

. . . As there was little time left till the thesis defense, and M. had never announced that she had wanted to work on a certain subject, I offered her to test a new questionnaire we were developing at the time. Work with the questionnaire would allow for gathering a large volume of data, and statistic analysis would enable her to get valid results. The essence of this work was quite clear, so describing results would not become a challenge. . .

Nevertheless, M. failed to defend her thesis during the first year of working on the subject as she never wrote a line with her hand. She did a tremendous job of processing the results; she got valuable research findings and even reported them at a student seminar, but there was no text at all. Right before the defense date, after a hard decision had been made to postpone the defense for another year, she emailed me one page of original text. . .

---

12. As the author was the student's academic adviser, it is more convenient to present a case study in the first person.

The same happened the next year. She kept on doing enormous amounts of technical work refining forms of research findings representation. When discussing the subject, she showed understanding of what her work and findings meant. However, she produced no text. By spring, the situation became threatening. I warned her openly that I was ready to work with her test, poor as it was, but that I refused to write or to dictate the text for her as it was against my principles. . . By the middle of April, M. made a sudden statement that she failed to write the text as she typed very slowly, with two fingers. I responded that I knew the Galperin-Malov's method and could teach her error-free ten-finger touch typing at the speed of 90 signs per minute. . . She agreed, having expressed her doubts that she would learn something though. . .

Having made patterns representing a keyboard of her laptop, we proceeded to the stepwise development of the skill of touch typing with ten fingers. . . It is difficult to say whether it was a stage-by-stage skill development process or "psychotherapy with activity", as I continuously perceived something usually called "learned helplessness". M. said that she had "been confusing right and left, top and bottom all her life", that she would never be able to learn it. We put stickers with the arrows showing "up", "down", "right", "left" on the laptop's screen. She could say, "I am moving the second finger of the left hand upwards" and move the fifth finger of her right hand downwards, without noticing that her movement failed to match her words. One of the main assumptions of the stage-by-stage formation is, "The action has to be performed correctly, without mistakes, from the very beginning". It was impossible to follow this principle as the action consisted mostly of mistakes despite the fact that she had the orientation basis for action in front of her. I was aware that the roots of her problem lay in the personality-related aspects of her thinking, and that reflection might help to overcome this personality-related barrier. However, things that seemed good in theory, were hard to implement into practice. . .

We failed to meet the deadline of seven hours. I suspected that despite my instruction to do nothing at home, M. tried to learn the keys, and was worried sick that she failed to memorize it. She believed my explanations that there was no need learning the keys as the framework of action would allow for involuntary mastering of its modes. Nevertheless, she didn't guide herself with these explanations. . .

A quantum leap occurred during the eighteenth hour of work (we practiced almost every day for one hour) when she travelled the distance from performing on the count of four (we used a metronome) to performing on the count of one, i.e. she started typing slowly but firmly with her ten fingers, without errors, at a speed of 60 signs per minute. It was the last of our "typing lessons" as we achieved the required result although it took us two and a half times as long as usually. . .

However, the text of the thesis was still lacking, although the main obstacle seemed to have been eliminated. It meant that there must have been another reason for M.'s failure rather than a low speed of typing. I assumed that this "another reason" was the deepest self-distrust, belief that she was unable to write anything that would make sense. A desire to become a psychologist no matter what it would take and self-distrust were fertile ground for an internal conflict paralyzing her own creative initiative, and still prompting her to find "bypass routes". As a matter of fact, when, a year earlier, I had been able to persuade her to postpone the defense, the decisive argument had been, "Would you feel yourself a certified psychologist if the text was written by someone else and you

receive a "C" for it?" It turned out that M. found it important both to have a degree and feel herself a psychologist, i.e. a fully-fledged specialist . . .

The situation cleared up in a few days before she had to hand the thesis in for review, and the text was still lacking. M. needed a single night to write 53 pages of the original text using the typing method she had mastered. For one day, the work on the text was completed. As an academic adviser, I edited the text. The reviewer gave M. an excellent grade (14 grade points). M. had to make a spontaneous presentation of her thesis as she failed to prepare the text because of the technical failure of her laptop . . .

Overcoming of learned helplessness, and understanding of the fact that she wrote the thesis using someone's help but by herself enabled M. to start learning new activities. She mastered quilling and then toy sewing. She needed no teachers, as she learned using on-line descriptions of activities. Her professional career after graduation from college was quite successful. She started hercareer as a nursery educational psychologist, and quite soon, having gone through a complex selection procedure, she became a managing director of a family and children support centre.

This case shows that it was the success in learning the typing skill that became the turning point in our interaction. It was with this breakthrough when a gap in the "I-want-but-I-can't" conflict appeared. This gap emerged in the "I can't", "I can if the process is arranged properly". No matter that it was nothing more but the touch-typing skill, the success in learning achieved at the background of serious internal doubts, brought about an amazing psychotherapeutic effect. This effect of the general development resulted from a dramatic change in the problem's epicenter that hindered and prevented progress in all other dimensions, save for the "bare" desire to become a psychologist unsubstantiated by resources.

It is difficult to say whether the counselor helped to "grow resource", or "the resource utilization skill" emerged, but M's collaboration with the counselor brought about an important event, namely, her first learning success in many years, which facilitated breaking the blockade built by learned helplessness. It was not about motor skills, of course. The lesson she learned was how to proceed from "I can't" to "I can". Thus, this case confirms the idea that any activity is a developmental resource.

***

If we compare such notions as "learning", "helping to overcome difficulties" and "psychotherapy", we will see that the line between them is most likely to be of a historical nature. They have something in common – they are all helping practices that facilitate building of the person's resources needed to cope with difficult life circumstances. Practitioners who provide these kinds of help frequently use the terms designating them as synonyms. They switch their roles easily. For instance, a teacher may become a psychotherapist or an assisting counselor. As it has already been mentioned, Aleksey Borozdin calls his music lessons "music therapy", and Ch. Manske emphasizes a therapeutic effect of appropriate learning steps. Cognitive-behavioral therapy devotes much time to teaching the client, developing

his/her coping skills so that they could manage their thinking and mental states. The assumptions of the cultural-historical theory – namely, one implying that learning precedes development, and another one relating to the zone of proximal development as a space of shared activity ensuring provision of the needed, available and effective help, - allow for using the cultural-historical principles in counseling and psychotherapy (Kholmogorova & Zaretskii, 2011).

Accordingly, let us return to Vygotsky's idea that prompted us to write this article. The assumption that on step might mean a hundred steps in development, made Vygotsky's disciples and researchers focus on the learning-development relationship. Nevertheless, whereas the issue of development had always been in the focus of his attention throughout his ten-year academic career as evidenced by his published writings (please see Part 1 hereof), he took much less interest in the issue of learning. Only one work of 274 references listed by Volikova and Glukhova (2012) had "learning" in its title, and discussed the learning-development relationship. In his "Thinking and Speech", L. S. Vygotsky addressed the issue of learning-development relationship when analyzing and criticizing Kurt Koffka's theory. When he discussed development from "his own perspective", e.g. while introducing the concept of ZPD, he used different terms. He spoke about the adult-child collaboration, about the process in which the adult passed on and the child adopted the cultural and historical experience. Learning is obviously only one of the forms that ensure transfer of experience. It is a specially arranged activity providing for translation of cultural patterns.

The concept of collaboration is broader. Moreover, any collaboration is possible within any activity, not necessarily learning. From this perspective, if we bring together two lines of Vygotsky's thought on development (one relating to learning, and one relating to the adult-child collaboration in the process of transferring and owning the cultural and historical experience and development of specific human types of activity therein), then there is every reason to change the original statement for "*one step in child-adult collaboration (interaction) may give a hundred steps in development*". Then, we may translate Vygotsky's ideas from learning on to other types of the child-adult interaction, including psychotherapy and counseling as helping practices provided by the adult for the purpose of solving life (in addition to learning) problems. However, this poses another question. Why do we speak only about the child when discussing development and collaboration? Perhaps, we could go further and imagine that it is not the child but another adult who develops through adoption of the cultural and historical experience, in collaboration with other people getting help to overcome challenges? Perhaps, this vector of Vygotsky's thought could be considered as falling within the zone of proximal development of cultural-historical psychology itself.

Afterword

We would like to conclude by sharing another brief line of reasoning rather than ending with questions. Let us imagine three lines. The first line is a trajectory of the cultural-historical psychology. Vygotsky's contemporaries opposed it vigorously (save for a narrow

circle of his closest colleagues and disciples), criticized, prohibited, and relegated it to oblivion. . . Later, it was re-discovered, proclaimed to be a game-changer for research and practice, and put into action. Many postulates of the cultural-historical theory became standards of thought and practice. The second line is the concept of the zone of proximal development. During Vygotsky's lifetime, this concept was exposed to severe criticism, denial and then oblivion along with the cultural-historical theory. When Vygotsky's name and texts found their way back to the cultural space, it took some time for ZPD to take its place in the system of the Vygotskian developmental ideas.

At first, it was ignored and its value was denied. The concept remained a subject of ridicule and attacks as bad as accusations of plagiarism, even in the texts published as late as in the XXI century. Later, a new understanding of this concept's essence and value emerged. Vygotsky's isolated statements relating to ZPD and its role in developmental assessment and pedagogy joined together to form the integral whole. The ZPD's heuristic potential for practice unfolded, and the practice worldwide got reformed so that to account for the deep meaning inherent in the ZPD concept. The third line is L. S. Vygotsky's idea that a single step in learning may represent a hundred steps in development. No one paid any attention to this idea in Vygotsky's lifetime. Consequently, it remained completely ignored. Throughout decades, no one attached any significance to it. Those who laid emphasis on it, e.g. Obukhova (1995), accounted for the meaning that stemmed from the context. Namely, it was believed that one step in learning that changed the structure of cognitions might reform the whole system of consciousness, and, within this framework, as L. F. Obukhova argued, "the teaching may be pennyworth, and the developmental result may be worth a dollar" (Obukhova, 1995, p. 188). However, if we bring together this statement and one of Vygotsky's last ideas that ZPD might be translated to the personality as a whole, to most various aspects of its development, then a new meaning, a new framework will emerge, that is, the image of multiple interrelated dimensions of potential development, each having its own ZPD. The epicenter of this framework may be not only age-related or lie within the cognitive structures. It may lie on any of the dimensions designating the endless space of personal development. Therefore, any activity is a potential resource for development, and breaking through the epicenter by means of this activity may trigger progress in other related dimensions. Ch. Manske argued, "In chaos theory, the flap of a butterfly's wings may set off a tornado" (Kolomeitsev & Manske, 2015, p. 120). In a similar fashion, any developmental deficits, any difficulties of a given child have something "typical" and something "unique". An event that would trigger breaking through the problem's epicenter and change the whole configuration of dimensions, may happen in any activity, depending, first and foremost, on the child's individual features, on the specific characteristics of the social context of his/her development.

Should it repeat the trajectory of the two former lines, this Vygotsky's idea will become a standard of scientific thought and practice relating to creating conditions for personal development at any age and no matter what difficulties he/she has that necessitate providing him/her with psychological, educational, counseling or psychotherapeutic help. Utilization of this mechanism will become an "as-a-mater-of-course" aspect of the professional psychological practice. Hopefully this day will come anytime soon . . .

References

Akhutina, T. V., & Pylaeva, N. M. (2008). *Preodolenije trudnostei ucheniya: neiropsikhologich-eskii podkhod [Overcoming educational difficulties: neuropsychological approach].* Saint Petersburg: Peter.

Alekseev, N. G. (1979). Metodologicheskie printsipy analiza kontseptual'nykh skhem deia-tel'nosti v psikhologii [Methodological principles of analyzing conceptual schemata of activity in psychology]. *Problemy metodologii v ergonomike [Methodological issues in Ergonomics]*(17), 104–125.

Alekseev, N. G. (1990). *Shakhmaty I razvitije myshlenija [Chess and cognitive development].* Moscow: Vyschaya Schkola.

Bandura, A. A. (1977). Self-efficacy: Toward a unifying theory of behavior change. *Psycho-logical Review*, *84*, 191–215.

Belopol'skaya, N. L. (1997). Otsenka kognitivnykh i emotsional'nykh komponentov zony blizhaishego razvitiya u detei s zaderzhkoi psikhicheskogo razvitiya [Assessing cog-nitive and emotional components of zone of proximal development in children with impaired mental function]. *Voprosy psikhologii [Questions of psychology]*, *4*(1), 19-25.

Borozdin, A. I. (2000). The problem of activity in psychology. In L. I. Borovikov (Ed.), *Uroki muzykalnoi terapii v shkole borozdina [Music therapy lessons in Borozdin's school]* (p. 245). Novosibirsk: Isdatel'stvo NIPKiPRO.

Daniels, H., Cole, M., & Wersch, J. V. (2007). *The Cambridge Companion to Vygotsky.* Cam-bridge: Cambridge University Press.

Davydov, V. V. (1996). *Teoriya razvivayushchego obucheniya [The theory of developmental education].* Moscow: INTOR.

El'konin, D. B. (2008). *Detskaya psikhologiya [Child psychology].* Moscow: Moskovskii tsentr "Akademiya".

El'konin, D. B. (2015). Pedagogicheskaya ideya razvivayushchego obucheniya [Pedagogical idea of developing training]. *Sovremennost' i vozrast [Modernity and age].*, 26–28.

Etkind, A. M. (1987). Psikhologiya prakticheskaya i akademicheskaya: raskhozhdeniya kognitivnykh struktur vnutri professional'nogo soznaniya [Practical and academic psychology: differences of cognitive structures within professional frame of refer-ence]. *Voprosy psikhologii [Questions of psychology]*(6), 20–30.

Galperin, P. Y. (1998). Obucheniye i umstvennoje razvitije v detskom vozraste [learning and intellectual development in childhood]. In *Psikhologija kak objektivnaja nauka [Psy-chology as objective science]* (pp. 357–388). Moscow, Isdatel'stvo "Institut Prakticheskoy Psikhologii": Voronezh, NPO "MODEK".

Glozman, Z. M., & Soboleva, A. E. (2016). *Kompleksnaja korrektsija trudnostej obuchenija v shkole [Integrative remediation of learning difficulties in school].* Moscow: Smysl.

Gordon, M. M. (1996). Opyt pervoj letnej shkoly dl'a detej s osobennostjami razvitija [First summer school for children with special needs]. In *Podkhody k reabilitacii detej s osobennostjami razvitija sredstvami obrazovanija. Sb. nauchnyh trudov i proektnyh materi-alov. [Approaches to rehabilitation of children with special needs by means of education]* (pp. 391–402). Moscow: Institut pedagogicheskih innovacij RAO.

Grinshpun, I. B. (2015). Istorija psikhoterapii. Lektsija 1. Vvedenie v istoriju psikhoterapii [History of psychotherapy. Lecture 1. Introduction to the history of psychotherapy].

Konsul'tativnaja psikhologija i psikhoterapija. [Counselling Psychology and Psychotherapy], 23(2), 175–207.

Kholmogorova, A. B. (2015). Rol' idei L. S. Vygotskogo dlya stanovleniya paradigmy sotsial'nogo poznaniya v sovremennoi psikhologii: obzor zarubezhnykh issledovanii i obsuzhdenie perspektiv [The role of L. S. Vygotsky's paradigm for the development of social cognition in modern psychology: a review of foreign studies and discussion of prospects]. *Kul'turno-istoricheskaya psikhologiya [Cultural-historical psychology]*, 11(3), 25–43. doi: 10.17759/chp.2015110304

Kholmogorova, A. B., & Zaretskii, V. K. (2011). Mozhet li kul'turno-istoricheskaya kontseptsiya L. S. Vygotskogo pomoch' nam luchshe ponyat', chto my delaem kak psikhoterapevty [Can the cultural-historical psychology of Vygotsky help us better understand what we are doing as psychotherapists]. *Kul'turno-istoricheskaya psikhologiya [Cultural-historical psychology]*(1), 108–118.

Kolomeitsev, P., & Manske, C. (2015). *Kazhdii rebionok osobennii. illyuziya defekta [Every child is exceptional. Illusion of a deficit]*. Moscow: Nikeya.

Korobeinikov, I. A. (2001). *Narusheniya razvitiya i sotsial'naya adaptatsiya [Developmental disorders and social adjustment]*. Moscow: PER SE.

Kravtsova, E. E. (2013). Kul'turnoistoricheskie osnovy zony blizhaishego razvitiya [Cultural-historical foundations of the zone of proximal development]. *Psikhologicheskii zhurnal [Psychology Journal]*, 22(4), 42–50.

Lebedev, V. A. (1996). Vspyshki v prostranstve zhizni [Flares in the space of life]. In *Podkhody k reabilitacii detej s osobennostjami razvitija sredstvami obrazovanija. Sb. nauchnyh trudov i proektnyh materialov [Approaches to rehabilitation of children with special needs by means of education]* (pp. 382–391). Moscow: Institut pedagogicheskih innovacij RAO.

Leont'ev, A. A. (1990). *L. S. Vygotskii [L. S. Vygotsky]*. Moscow: Prosveshchenie.

Manske, C. (2014). *Ucheniye kak otkrytije [Learning as discovery]*. Moscow: Smysl.

Meshcheryakov, B. G. (2008). Vzglyady Vygotskogo na nauku o detskom razvitii [Vygotsky's views on the science of child development]. *Kul'turno-istoricheskaya psikhologiya [Cultural- historical psychology]*(3), 103–112.

Morozov, S. M. (2002). *Dialektika Vygotskogo: vnechuvstvennaya real'nost' deyatel'nosti [Vygotsky's dialectic: the reality of extrasensory activity]*. Moscow: Smysl.

Obukhova, L. F. (1995). *Detskaya psikhologiya: teoriya, fakty, problem [Child psychology: theories, facts, problems]*. Moscow: Trivola.

Obukhova, L. F., & Korepanova, I. A. (2005). Prostranstvennovremennaya skhema zony blizhaishego razvitiya [Space-time diagram of the zone of proximal development]. *Voprosy psikhologii [Questions of psychology]*(5), 13–26.

Razuvaev, J. S., & Zaretskii, V. K. (2004). *Shakhmaty dlja obshchego razvitija [Chess for general development]*. Moscow: Mir detstva.

Rubtsov, V. V. (2008). *Sotsial'nogeneticheskaya psikhologiya razvivayushchego obrazovaniya: deyatel'nostnyi podkhod [Socialgenetic psychology of developing education: the activity approach]*. Moscow: MGPPU.

Seligman, M. E. P. (1992). Power and powerlessness: Comments on "cognates of personal control". *Applied and Preventive Psychology*, 119–120.

Tsukerman, G. A. (2006). Vzaimodeistvie rebenka i vzroslogo, tvoryashcheje zonu blizhaishego razvitiya [Child-adult interaction: The creation of zone of proximal

development]. *Kul'turno-istoricheskaya psikhologiya [Cultural-historical psychology]*(4), 61–73.

van der Veer, R., & Valsiner, J. (1991). *Understanding Vygotsky: a quest for synthesis*. USA: Blackwell.

Varshava, B. E., & Vygotsky, L. S. (1931). *Psikhologicheskii slovar [Psychological dictionary]*. Moscow: Gosudarstvennoje Uchebno-pedagogicheskoje izdatel'stvo.

Veresov, N. N. (2015). Eksperimental'nogeneticheskii metod i psikhologiya soznaniya: v poiskakh utrachennogo (stat'ya vtoraya). [Experimental genetic method and psychology of consciousness: raiders of the lost (second article)]. *Kul'turno-istoricheskaya psikhologiya [Cultural-historical psychology]*, *11*(1), 117–126.

Volikova, S. V., & Glukhova, O. V. (2012). Dinamika urovnja razvitija poznavatel'nyh processov uchenikov nachal'nyh klassov, uchastvujushchikh v proekte "Shakhmaty dlja obshchego razvitija" [Developmental dynamics of learning processes in primary school children participating in chess for general development project]. In I. G. Sukhin (Ed.), *Aktual'nye problemy prepodavanija uchebnoj discipliny "Shakhmaty" v obshheobrazovatel'nyh shkolakh i detskikh sadakh rossii i drugikh stran mira: materialy mezhdunarodnoj nauchno-prakticheskoj konferentsii: Sbornik tezisov dokladov [Contemporary issues of teaching chess in schools and nurseries in russia and world-wide: International conference book of abstracts]* (pp. 27–31). Moscow: Satka.

Vygodskaya, G. L., & Lifanova, T. M. (1996). *Lev Semenovich Vygotskii*. Moscow: Smysl.

Vygotsky, L. S. (1982a). Istoricheskii smysl psikhologicheskogo krizisa [historical meaning of psychological crisis]. Voprosy teorii i istorii psikhologii [Questions of theory and history of psychology]. In A. R. Luriya & M. G. Yaroshevsky (Eds.), *Sobranie sochinenii v 6-ti tomakh [the collected works in 6 volumes]* (pp. 291–436). Moscow: Pedagogika.

Vygotsky, L. S. (1982b). *Myshlenie i rech' [Thinking and speech], Vol. 2*. Moscow: Pedagogika.

Vygotsky, L. S. (1982c). Soznanie kak problema psikhologii pove deniya [Consciousness as a problem for the psychology of behavior]. *Pedagogika*, *1*, 78–98.

Vygotsky, L. S. (1983a). Istoriya razvitiya vysshikh psikhich eskikh funktsii [Genesis of higher mental functions]. In *Sobranie sochinenii v 6-ti tomakh [The collected works in 6 volumes] V.3* (pp. 5–328). Moscow: Pedagogika.

Vygotsky, L. S. (1983b). K psikhologii i pedagogike detskoi defektivnosti [Psychology and pedagogy of children's defectiveness]. In T. L. Vlasova (Ed.), *Osnovy defektologii [Foundations of defectology]. sobranie sochinenii v 6-ti tomakh [the collected works in 6 volumes]* (pp. 62–84). Moscow: Pedagogika.

Vygotsky, L. S. (1984). Problemy detskoi (vozrastnoi psikhologii) [problems of childhood (developmental) psychology]. In *In sobranie sochinenii v 6-ti tomakh [The collected works in 6 volumes] V.3* (pp. 243–432). Moscow: Pedagogika.

Vygotsky, L. S. (1999). *Pedagogicheskaya psikhologiya [educational psychology]*. Moscow: Pedagogika Press.

Zaretskii, V. K. (1989). Ergonomika v sisteme nauchnogo znaniya i inzhenernoi deyatel'nosti [Ergonomics in the system of scientific knowledge and engineering activities]. In *Metodologicheskie problemy proektnoi deyatel'nosti v ergonomike [Methodological problems of design in ergonomics]* (pp. 8–20). Moscow: VNIITE.

Zaretskii, V. K. (1998). Ob opyte refleksivnodeyatel'nostnogo podkhoda k organizatsii korrektsionnykh zanyatii po russkomu yazyku [Using reflection and activity approach

for arrangement of remedial lessons in russian language]. In *Metody i sredstva reabilitatsii detei s osobennostyami razvitiya i invalidnost'yu [methods and tools for rehabilitation of children with special needs and disabilities]* (pp. 86–90). Moscow: IPI RAO.

Zaretskii, V. K. (2007a). O chem ne uspel napisat' L. S.Vygotskii [What Vygotsky didn't have time to write]. *Kul'turno-istoricheskaya psikhologiya [Cultural-historical psychology]*(3), 96–104.

Zaretskii, V. K. (2007b). Pomoshch' detyam s trudnostyami v obuchenii v opore na zonu blizhaishego razvitiya [Helping children with learning difficulties in relying on the zone of proximal development]. Materialy mezhdunarodnoi konferentsii "kul'turno-istoricheskaya psikhologiya: sovremennoe sostoyanie i perspektivy razvitiya". In *Cultural-historical psychology: current situation and prospects of development. proceedings of the international conference* (pp. 111–119). Moscow: OOO "ALVIAN".

Zaretskii, V. K. (2008). Evristicheskii potentsial ponyatiya "zona blizhaishego razvitiya" [Heuristic potential of the concept of the "zone of proximal development"]. *Voprosy psikhologii [Questions of psychology]*(6), 13–25.

Zaretskii, V. K. (2009). Zone of proximal development: What Vygotsky didn't have time to write. *Journal of Russian and East European Psychology*, 47(6), 70–93.

Zaretskii, V. K. (2012). Dumaya o Piotre Yakovleviche Gal'perine [Thinking about Piotr Yakovlevich Galperin]. *Kul'turno-istoricheskaya psikhologiya [Cultural-historical psychology]*(1), 73–85.

Zaretskii, V. K. (2013). Stanovlenie i sushchnost' refleksivno deyatel'nostnogo podkhoda v okazanii konsul'tativnoi psikhologopedagogicheskoi pomoshchi [Development and nature of Reflection and Activity Approach to the provision of advisory psychological and educational assistance]. *Konsul'tativnaya psikhologiya i psikhoterapiya [Counseling psychology and psychotherapy]*(2), 8–37.

Zaretskii, V. K. (2015). Teorema L. S. Vygotskogo «Odin shag v obuchenii — sto shagov v razvitii»: v poiskakh dokazatel'stva [L. S. Vygotsky's Principle "one step in learning — a hundred steps in development": In search of evidence]. *Kul'turno-istoricheskaya psikhologiya [Cultural-Historical Psychology]*, 11(3), 44–63. doi: 10.17759/chp.2015110305

Zaretskii, V. K., & Gilyazov, A. (2017). *To development through chess: reflection and activity approach. The educator's guide to teaching chess in primary school, volume 1.* Moscow: Otto Reichl.

Zaretskii, V. K., & Gilyazov, A. M. (2016a). *K razvitiju cherez shakhmati: refleksivno-dejatel'nostnyj podkhod. metodicheskoe posobie po vedeniju zanjatij v nachal'noj shkole [To development through chess: Reflection and activity approach. Primary school teacher's guide].* Moscow: Isdatel'stvo "Reichl".

Zaretskii, V. K., & Gilyazov, A. M. (2016b). *Shakhmaty dlja obshhego razvitija. Rabochaja tetrad' dlja zanjatij shakhmatami [Chess for general development. Chess workbook].* Moscow: Isdatel'stvo "Reichl".

Zaretskii, V. K., & Gordon, M. M. (2011). O vozmozhnosti individualizatsii obrazovatel'nogo protsessa na osnove refleksivno-deyatel'nostnogo podkhoda v inklyuzivnoi praktike [Possibility of individualization of the educational process on the basis of reflection and activity approach in the inclusive practice]. *Psikhologicheskaya nauka i obrazovanie [Psychology science and education]*(3), 19–26.

Zaretskii, V. K., Smirnova, N. S., Zaretskii, Y. V., Evlashkina, N. M., & Kholmogorova, A. B. (2011). *Tri glavnye problemy podrostka s deviantnym povedeniem. Pochemu voznikayut? Kak pomoch'? [Three major problems with adolescent deviant behavior. Why there? How to help?].* Moscow: Forum.

Zaretskii, V. K., & Zaretskii, Y. V. (2015). Sluchai Denisa G. [Case of Denis G.]. *Zhurnal konsul'tativnoi psikhologii i psikhoterapii [Journal of counseling psychology and psychotherapy]*(2), 166–180.

Zaretskii, Y. V. (2013). Sub'ektnaya pozitsiya po otnosheniyu k uchebnoi deyatel'nosti kak resurs razvitiya i predmet issledovaniya [Sense of agency in relation to educational activities as developmental resource, and subject of study]. *Konsul'tativnaya psikhologiya i psikhoterapiya [Counseling psychology and psychotherapy]*, 110–128.

Zinchenko, V. P. (2011). Lev Semenovich Vygotskii: zhizn' i deyatel'nost' [L. S. Vygotsky: life and activity]. In T. G. Shchedrina (Ed.), *Stil' myshleniya: problema istoricheskogo edinstva nauchnogo znaniya. K 80-letiyu Vladimira Petrovicha Zinchenko. Kollektivnaya monografiya [way of thinking: the problem of the historical unity of scientific knowledge. V.P. Zinchenko eightieth anniversary]* (pp. 294–299). Moscow: Rossiiskaya politicheskaya entsiklopediya (ROSSPEN).