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Re-Visiting Vygotsky's Concept of Vrashchivanie (Ingrowing): A Focus on Metaphors

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Prefatory Comments

Dear Colleagues:

Below you will find an essay that we have been working on for some time. Our initial plan was to engage our Russian colleagues in a discussion of a central concept by one of their most influential developmental psychologists. Unfortunately, the Russia attack on Ukraine put a stop to those plans. Now, after a delay of almost two years, we offer it here. Our goal is to intrigue you with the idea of understanding Vygotsky’s theory of development as a historically contingent, biological process. It is a process by which, in Vygotsky’s words, the cultural/historical and the natural/ phylogenetic sources of development, merge and interpenetrate, creating a qualitatively new and distinct living, human being.

In the vast literature on human learning and development, the process Vygotsky is referring to has ordinarily been referred to as internalization or interiorization—how it is that the “outside,” sociocultural world gets “inside” the developing person during ontogenesis. Phrased in this way, it is difficult to avoid the conclusion that Vygotskian theory is dualist at its core, a conclusion that belies the image of mutual penetration and Vygotsky’s self-characterization as a psychologist.

In seeking a way to reconcile the image of merging and mutually penetrating with that of a process of moving from an outside to an inside, we focused our attention on Vygotsky’s use of the metaphor of a garden and the process of growing plants as the entry point into our inquiry. Of course, we are not experts in botany or agriculture and our knowledge of linguistics is limited. We are also latecomers to the millennia’s-old practice of thinking of development in terms of gardens. Nonetheless, we resonate strongly to Vygotsky’s analogy between teacher and gardener.

If you are intrigued, please contribute your own thoughts.

Mike and Nataliya



Introduction

This paper began as a discussion in 2010 on the XMCA listserv (XMCA) about the Russian word (*vrashchivanie*) that Vygotsky used to characterize what is widely assumed to be equivalent to the English word, internalization. Russian authors often use the term, ingrowing, as the appropriate translation of *vrashchivanie*, but it remained unclear of what, more precisely, he meant by the term. Counting, he wrote, is a good example of an ingrown psychological function, but the example leaves unspecified the process by which it got there.

The question of what sort of ingrowing process he had in mind was raised in an XMCA list-serve discussion a decade ago,¹ Mike wrote at the time:

I am working on what LSV was thinking of when he used the term "vryachivanie" in that text. I think that the solution(s) to that problem and the idea of the zoped as a chronotope might be related... time as circle and time as arrow both figuring into the picture. Can spirals be far behind? (M. Cole, October 3, 2010).

Mike got a lot wrong in this note. For one thing, his transliterated term was misspelled, *vra~~ch~~* (doctor in Russian, not *vrasch*). Still, something felt right about it. Luckily, he and Natalia had been engaged for some time in reexamining key Vygotskian concepts (2008, 2009). So we added *vrashchivanie* to the list. Over the past decade, competing obligations have demanded our attention, so we could not follow through on our initial interest. The dislocations of the Covid pandemic and the completion of other tasks made it possible to return to our prior discussions.

Prior Inquiries

The passage of time has been kind to our inquiry. Over the past two decades, a small literature exploring the meaning of *vrashchivanie* has accumulated providing us with enriched materials for our own analysis. This period also witnessed the provision of online copies of many of Vygotsky's key texts, his notebooks containing comments and ideas at the time the texts were written, as well as the technical means to search for words and phrases.

Senyushenkov's (2006) initial logico-systemic analysis in Russian language about types of *vrashchivanie* in Vygotsky writing. He concludes that Vygotsky talked about two different types of *vrashchivanie*. The first type describes the transition of external individual forms of interiorization into internal individual forms. The second type involves transforming collective forms of behavior into individual ones as a cultural development mechanism. He also attempted to illustrate how *vrashchivanie* changed and developed by Vygotsky during different historical periods of his scholarship as Vygotsky moved from the instrumental phase in his writing to writing about the development of higher psychological function and onto the theory of psychological systems.

Damianova and Sullivan (2011) revived and re-examined Vygotsky's propositions on the types of *vrashchivanie* with respect to speech development. They noted that the importance of properly interpreting "vrashchivanie," was overlooked by Western scholars:

For instance, in the Russian school of psychology, the notion of an internalization typology is considered an integral part of the sociocultural

¹ The most common use of *vrashchivanie* in Russian refers to an ingrown toenail—a structure that first grows out of the body and then returns to it, a process that may be worth keeping in mind in the ensuing discussion.

conceptual framework (Meshcheryakov 1999) and has been addressed in recent explorations (e.g., Senushtenkov 2006). Contrastingly, in Western psychology, this theme has not been the focus of theoretical or empirical work by prominent neo- Vygotskian scholars (e.g., Cole, 1999; Wertsch, 2007; John-Steiner, 2007; Kozulin, 1986, 2005; Hedegaard, 2007; van der Veer, 2007; and others.). This is despite the fact that many of the contemporary advancements in the notions of cultural mediation and internalization have arisen from the work of these scholars (Damianova and Sullivan 2011, 344).

Their analysis sought to develop conceptual links between four types of internalization and the transformation of social speech into private, inner speech.

More recently, David Kellogg made use of recently available archival materials to assess the degree to which Vygotsky elaborated on the meaning of *vrashchivanie*. Using a sample of 50 different uses of *vrashchivanie*, he notes (2020, 194):

Vygotsky’s English translators have come up with a creative variety of near equivalents based on its cognates and connotations, from ‘rooting’ (1987, 109) to ‘revolution’ (Vygotsky 1997; 117, 118) to ‘turning inward’ (Vygotsky 1997, 186) to ‘conversion’ (Vygotsky 1997, 156).

To this list we can add “rotating” (*вращение*).

In an analysis based on Halliday’s (19??) theory of language development, Kellogg documents a progression in the degree to which Vygotsky elaborates on the conceptual content of *vrashchivanie*. He found that Vygotsky’s unpublished notebooks often provide more conceptual elaboration than his printed texts. However, even in their most elaborated form, Vygotsky’s texts do not provide much detail about the processes involved, leaving ample room for uncertainty, both among Russian and non-Russian scholars seeking to interpret and use his ideas.

Vrashchivanie and Vygotsky’s use of the Garden Metaphor of Development

Our own inquiry took a different direction than that of our predecessors whose work has explored the same territory. We, too, noted that the various translations of *vrashchivanie* revealed a common core of cognates and connotations. But instead of seeking to systemize them in terms of Hallidayan theory or with respect to language in particular, we focused on what Vygotsky’s varied uses of *vrashchivanie* implied about how he imagined the process referred to as internalization or interiorization.² We focused particularly on the metaphor of growing plants, in particular growing plants a garden. This reorientation, we believe, provides a plausible and useful way to understand Vygotsky’s efforts to overcome dualisms

² This is the term used by Zavershneva and van der Veer (2018) in their translation of Vygotsky’s notebooks based on their own analysis of Vygotsky’s language choices.

such as natural-cultural, inside-outside, and offers a useful way to think about learning and instruction, We return below to pursue our analysis, but first it is necessary to turn to the recent contributions of Nikolai Veresov.

In the process of drafting this article, Professor Veresov kindly provided us with the draft of a chapter in preparation devoted to *vrashchivanie* (Veresov, manuscript, February 2020). His work provides an especially useful bridge to our own.

Like Nikolai we emphasize the need to keep firmly in mind that Vygotsky is committed to a non-reductionist, non-dualistic, dialectical account of human development as an organic process.³ The passage below from *Fundamental Questions of Defectology*, first published in 1929, makes this basic aspiration particularly clear:

The growth of a normal child into civilization is usually fused with the processes of his organic maturation.⁴ Both lines of development—natural and cultural—coincide and merge one into the other. Both series of changes converge, mutually penetrating each other to form, in essence, a single sequence of formative, socio-biological influences on the personality. Insofar as physical development takes place in a cultural medium⁵, it becomes a historically conditioned biological process. The development of speech in a child serves as a good example of the fusion of these two lines of development—the natural and the cultural (Vygotsky 1987, 42).

Vrashchivanie, then, is a process in humans by which phylogenetic and cultural contributions to ontogeny “converge, interpenetrate, fuse” into one other in the cultural medium of the “present” to create an ontogenetic process that is conditioned by, not caused by, phylogeny. It is the emergent new form of life of *homo sapiens sapiens* at the center of which is spoken human language.

Nikolai’s analysis of *vrashchivanie* in this spirit leads him to interpret the process of change indexed by this term as “*growing into the organism*” **and** *vrastanie* as “*growing into the culture*.” As he formulates his overall proposal:

There is a dialectics of development and the proper way to discover and to understand what the process of *vrashchivanie* is means to disclose the dialectical relations of two processes—*vrashchivanie* and *vrastanie* of the child into the culture (вращивание ребёнка в культуру) as two interconnected and dialectically interrelated aspects of the process of cultural development. Both terms - *vrashchivanie* and *vrastanie*—address directly to dialectics of organic systems as they are related to the process of

³ LSV (1926/1997) wrote that “a fundamental premise in psychology asserts the unity of all the processes that occur in the organism, the identity of the mental and the organic, and the falsity and impossibility of any division between the two” (45).

⁴ The translation of this passage is symptomatic of the kinds of misunderstandings that mistranslations have introduced into the process of understanding Vygotsky. The English reads: “A normal child's socialization is usually fused with the processes of his maturation.”

⁵ Cultural medium (*kulturnaya sreda*) was translated as “social situation.”

growth and metamorphosis (qualitative reorganization) which are main characteristics of the development of organic systems according to dialectical logic. Ms, page 3).

We share Nikolai's goal of understanding development as a dialectical process of organic growth and metamorphosis. However, when one approaches that process as Vygotsky does, in terms of the organic process of the growth and reproduction of plants and trees being grown in a garden by a gardener, the interpretation of *vrashivanie* as "growing into the organism" seems to stop short of the more complex dialectical processes that the garden metaphor invites us to think about.

Nikolai himself identifies a concern with the incompleteness of his interpretation when he writes in his summary that Metaphorically we can imagine this [process] as a magic "plant" which is growing from the roots, but the roots are outside the child's mind, they are in the social world and the "plant" grows into the internal world of the human consciousness (ms page 3).

We suggest that if one considers the process of *vrashivanie* as it arises within the garden metaphor, the magic involved in finding the roots. But they will not be called roots anymore.

Rather than lay out our ideas in abstract form, we examine two key passages in which Vygotsky's elaborates on his notion of the metaphor of a garden and its relationship to human development.

Below are two cases where Vygotsky uses the garden metaphor. Each focuses on the role of the person who is responsible for the developing organism, in one case a gardener, in the other a teacher. Each focuses on variability among individuals, and each must face the challenges that such variability poses to those who responsible for those under care. As a pair, they help to fill out the manner in which Vygotsky was interpreting the process as a fusion of the natural and the cultural.

Example 1: From the Task of the Gardener to that of the Instructor

Figuratively speaking, when finding a real level of development, we determine only the fruits of development, that is, what has already matured and completed its cycle. But we know that a major law of development is the difference in the rates of maturation of individual aspects of the personality and its various properties. While some developmental processes have already borne fruit and completed their cycle, others are only at the stage of maturation. A true developmental diagnosis should be able to cover not only completed developmental cycles, not only the fruits, but also the processes in the ripening period. Just as a gardener, in determining the types of crops, would do the wrong thing, counting only the number of ripe fruits in the garden and failing to assess the condition of trees that have not yet borne fruit, a psychologist who limits himself to determining the mature,

leaving aside the maturing, can never get a correct and complete understanding of the internal state of development as a whole and, therefore, cannot pass from symptomatic to clinical diagnosis. Specification of the processes that have not matured today, but are in the period of maturation, constitutes the second task of diagnostics of development. This task is solved by finding the zone of proximal development (?).

This passage begins by reminding us of the fundamental significance of natural variation in the rate at which different organisms within a species complete their ontogenetic cycle - heterochrony. But this natural variation in outcome is unsatisfactory for the gardener whose labor has been devoted to increasing the yield of the garden as a matter of his own survival. The gardener needs a diagnosis of the processes at work. Knowing the product is insufficient to promote development- the gardener's task. It clearly links diagnosis of the causes of variation with the task of maximizing their growth in a desired direction.

Example 2: From the Classroom to the Gardener

The second passage makes explicit the similarity between teaching (as promoter of learning and development) and the gardening (as promoter of ripe crops).

Though the teacher is powerless to produce direct effects in the student, he is all-powerful when it comes to producing indirect effects in him by means of the social environment. The social environment is the true lever of the educational process, and the teacher's overall role reduces to adjusting this lever. Just as a gardener would be acting foolishly if he were to try to affect the growth of a plant by directly tugging at its roots with his hands from underneath the plant, so the teacher is acting in contradiction with the essential nature of education if he bends all his efforts at directly influencing the student. But the gardener affects the germination of his flowers by increasing the temperature, regulating the moisture, varying the relative position of neighboring plants, and selecting and mixing soils and fertilizer, i.e., once again, indirectly, by making appropriate changes in the environment. Thus, it is that the teacher educates the student by varying the environment (Vygotsky 1926/1997, 49).

Together these examples illustrate what Vygotsky meant by a “historically conditioned biological process”: The reorganization of the biological process by means of (mediated by) changes in the environment to produce humanly desired ends. That environment, in the case of persons, is made quite visible in the widely shared and institutionalized activity referred to as a kindergarten.

Here is where difficulty begins, because, while humans have long known how to act indirectly on the environment of (say) a radish or a pear tree to encourage their growth, it is not at all clear what the equivalent biosocial process is in the case of young people in a classroom. What are the social equivalents of fertilizer? What is “fertilizer” anyway and by

what process does it have its effects on plants? What might “turning up the temperature” mean for a kindergarten teacher or college professor? When we inquire in this way, it is clear that the garden metaphor employed by Vygotsky needs further elaboration if it is going to do what Vygotsky himself says is required - to specify the process of change involved with respect developing organism “itself?”

The next step in our inquiry was to consider more deeply what occurs in the development of a seed or a plant in a garden of the sort that Vygotsky discusses or at least under conditions where it can grow to maturity and give off seeds of its own.

Consider first the photograph of a small plant that grows between the flagstones in Mike’s backyard.



Figure 1

This figure illustrates several features of plant growth from a seed. The long tap root runs sideways, between two flag stones where water falls directly. Tertiary roots burrow deeper into the soil, spreading out to create a broad network in earth below the soil line. Together these sources of nutrition below the earth create sufficient nutrients for the growth of a different looking part of the organism, green leaves which provide the chlorophyll that combines with carbon dioxide and the energy of the sun to feed the roots that support them.

What is most obvious in the photo of this plant is that while roots indeed reach out and wriggle their way into the earth, it is not roots, but leaves that reach outward toward the sun and the sky. There is nothing magic about what is transpiring—the organism engages simultaneously in at least two kinds of exchanges with its environment, one with the earth, one with the atmosphere which together with energy from the sun constitute the conditions of life on earth. If, perchance, one constituent—sun, water, soil... is absent, the process of development will either not take place at all, or will be terminated before maturity. The roots

are not hanging in the air, nor are the leaves mere decorations; each is constituting material parts of the life system of the organism.

This complementarity can be illustrated by thinking of a flower seed that has been planted in moist soil in a tin can and placed in the closet at room temperature. After an appropriate length of time, the roots begin to grow and a stock from which leaves sprout emerges from the soil. But if the sprout is not exposed to sunlight, no matter how appropriate the moisture, temperature, or soil, the sprouts that emerge wither, no flowers bloom, the plant dies, development ceases.

The photo of a small flowering plant growing among and below patio paving stones illustrates a second feature of vraschivanie as a biological process— the physical distribution and material forms of the ingrowing are also distinctly different, reflecting the very different constraints under which these complementary material processes of penetrating and fusing are taking place.

A third interesting feature, visible in Figure 1, but much clearer in Figures 2a and 2b is the way in which the physical distribution of the root system is so imbricated with the soil in which it grows, that when you pull up the plant carefully at the juncture between stalk and earth, what emerges is a ball of earth that is, as it were, “domesticated” as a reservoir of needed sustenance fed by the periphery. Comparing Figures 2a and 2b it is clear that a plant is an extended entity, what among humans we would refer to as a “distributed” system or an extended organism.



Figure 2a

Figure 2b

Figures 2a and 2b illustrate a fourth interesting feature of development seen through the lens of the garden metaphor. Recall that our inquiry began from a discussion of zones of proximal development being usefully thought of as chronotopes, which Mike responded to by commenting that “time as circle and time as arrow both figuring into the picture. Can spirals be far behind?”

It turns out that spirals are not far behind at all. They are an emergent property of plant roots themselves. This spiraling is visible in the tangled root system in Figure 2a which was washed to make the roots visible. It is even more clear in a recent study of the development of roots and an AI simulation of the process (Taylor et al. 2021).

As shown in the video link (<https://www.youtube.com/watch?v=uXwYKymTiQg>), when filmed in super slow motion, the growing tips of plant roots make corkscrew-like motions, wiggling and descending in a spiral path as they burrow into the soil. Moreover, when an AI device simulates the pathway of an artificial root through a field dotted with obstacles (AI bits of hard soil), the simulated root moves in the spiral motion of its biological model.

Concluding Thoughts

To repeat our prefatory remarks,

Our goal was to intrigue you with the idea of understanding Vygotsky’s theory of development as a historically contingent, biological, biological process, a process in which what we call the cultural/historical and the natural phylogenetic sources of development interpenetrate flow together. We have clearly left a lot of important questions out of proper consideration.

For example, at the “micro” level of a growing plant, we are not clear on how to characterize the dialectical processes involved. The transactions between leaves and atmosphere are clearly of a different kind in their details than the transactions between the roots and the soil conditions. Are we to say that the leaves are roots extending into the essential environment for the roots to grow and the body of the plant/tree to develop? In such a case, we can understand the changing modes of participation in the social world as the way that nourishes the roots of the social person as they bloom into adolescence and reproduce. At the same time, interpreting the metaphor in this way, alerts us to the fact that experiences in the world—acquiring literacy for example—produce morphological changes in the brain that enable and sustain the activities that produced them.

We also forgo here a discussion of the gardener/teacher analogy. Vygotsky exaggerates. Teachers are by no means all powerful in being able to change the social situation of their students, any more than gardeners are all powerful in producing effective modifications of the environment. The stereotypical gardening example underplays the extent to which gardeners are constrained by lack of money to buy fertilizer, taxed by the government, and are subject to the will of broad ecological processes. In this respect they are like teachers in their mixture of control, responsibility, and fluctuating, generally inadequate, resources.

Finally, as our sociological and historical colleagues will quickly recognize, our micro focus needs to be supplemented by an account of how the garden metaphor have been used to shape the history of governance as well as child rearing, which right challenges us to link our micro observations to the political as well as the ecological conditions of all gardeners.⁶

Rather than linger to take up these and many other issues that clearly need elaboration and proper paring, we invite readers to provide feedback on our overall proposal and to help us to evaluate how useful or worthless our suggestions might be. And of course, if you like any of these ideas, please steal them.

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⁶ “... Erasmus, like Horace Mann, argued that you can control saplings, but not trees. One must fix the plants while they remain pliable, Erasmus contended; an untamed child quickly becomes a wild animal” (Bushnell 1996, 93–96). Rousseau wrote, ‘Let [the pupil] always believe he is the master, and let it always be you who are [...] Doubtless he ought to do only what he wants; but he ought to want only what you want him to do’ (Rousseau, 1762/1979, 120).