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Vygotsky's Theory and some Variants of Post-Vygotskyan Theories and their Implications for Didactic Interaction in the Inclusive School

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Introduction

The basic aims of this article are the following. 1) To show the components of Vygotsky's theory that is most relevant for understanding of the pedagogical and psychological phenomena in inclusive education. 2) Apart from the original theory of Vygotsky, some of the ideas originating from him and most probably belong to a broader category usually called post-Vygotskyan are briefly presented. 3) The matter of the "Piagotskyan" is presented, i.e. the idea of a possible synthesis of the co-constructivist theories of Vygotsky and Piaget. The second idea, the "reversed Vygotsky", emphasizes strongly Vygotsky's ideas that socio-cultural factors have a formative role in mental development, i.e. they influence not only the dynamics of development, but also contribute to construction of cognitive structures and knowledge systems. However, if the socio-cultural factors have negative parameters (as is the case in many social situations), then, according to the same Vygotskyan ideas, such socio-cultural factors could play a **destructive** role in mental development. That would be "reversed Vygotsky" because Vygotskyan mechanisms (for example, transformation of inter-psychological phenomena into intra-psychological) could explain this destructive role.

This author starts from the firm conviction that this interpretation of the Vygotsky's theory can be an exceptionally fruitful starting point for understanding phenomena that appear in the process of inclusive education, both in studies of these phenomena and in improvement of inclusive educational practices. Basically, in light of these ideas, education in the inclusive school can be seen as didactics as a specific form of social interaction, which has a significant place in Vygotsky's theory.

Vygotsky's original ideas

As mentioned, this section of the article provides a summary of a selection of Vygotsky's original ideas that could have significance for the understanding of the phenomenon of inclusive education. We start with a motto which is frequently referred to in Vygotsky's writings and which expresses some of his basic ideas in an appealing way. In Latin the motto reads: *"Nec manus, nisi intelectus, sibi permissus, multam valent: instrumentum et auxilibus res perficitur"*. A loose translation of this motto is that 'a bare hand and a bare intellect are of little value for it is the tools (instruments) and auxiliary gear that do the job'.

This aspect of Vygotsky's theory has been frequently referred to as "instrumentalism" (Vygotsky, 1982) and this is, to a certain extent, true: Vygotsky's theory on mental development and mental functions differs from almost all other theories in that in its interpretations of psychological phenomena and mental development, it is not confined to what exists within an individual. According to Vygotsky, in order to understand the specific psychology of man it is also necessary to consider everything in his environment (first of all, culture) as an **integral part** of the individual psyche. Moreover, ontogenetic mental development does not only consist of what develops within an individual but also includes the capabilities to use all "amplifiers" and socio-cultural support systems of the individual psychological functioning. Since these support systems develop over the course of history, Vygotsky's theory is justifiably entitled a cultural and historical theory.

This theoretical assumption has great heuristic value in that it opens up new horizons for researchers. In providing explanation of the mental development and functioning instead of carrying out research only on changes within an individual, this theoretical perspective shows that what also needs to be subjected to research is the whole socio-cultural infrastructure on which individual mental functions rely.

Vygotsky worked out these aspects of mental development and functions through his theory on cultural and psychological tools. Vygotsky's idea (1983; 1984) is very simple: Just as a great number of tools supporting physical labour and multiplying natural physical capacities of the man are created over the course of history, what is also created over the course of history are cultural tool systems supporting and multiplying man's natural mental powers. These ideas will be absolutely clear if we remind ourselves of the extent to which, for instance, IT equipment has multiplied the power of human memory, or if we carry out a supposition as to what the modern educated man would be able or unable to achieve if we deprived him of all cultural auxiliary tools.

Vygotsky's key idea here is that relying on these cultural auxiliary tools substantially changes the structure of internal individual processes. For instance, a man using a cell phone, pocket computer or any other electronic accessories organises his memory in a much different way than a man who does not use either a written language or electronic devices. Such changes of the structure of individual functioning occur in all mental functions (perception, memory, thinking, and problem solving). Research within this area has been continued by others, including myself (Ivić, 1976; 1996), and thus the research field has been further developed.

This theoretical assumption of Vygotsky may play a very significant role in understanding the characteristics of mental development of persons with developmental difficulties (for example the secondary effects of different disabilities may be better understood), as well as in studies of the process of inclusive education and in improvement of inclusive educational practices. Cochlear implants used for enabling children with impaired hearing to participate in an inclusive class may be taken as a metaphor for the application of Vygotsky's instrumentalist ideas. In line with this theory, it would not be strange to discuss intellectual implants because once a multiplication table and the procedure of solving equations with one variable are learned, they become "intellectual implants", i.e. cultural tools incorporated into individual mental functions.

These ideas should be widely generalised and applied in research on the development of persons with intellectual disabilities as well, and in the improvement of inclusive practices. We could simply start by conducting an inventory of cultural and psychological tools, establishing which of them are present and which are missing (unavailable) to different categories of persons with developmental difficulties, and analyse how the missing element could be compensated, and how a social and cultural infrastructure can be enriched as the bases for mental functioning of

*persons with developmental difficulties and for inclusive education. Thus, what can be **generated** from these ideas of Vygotsky are completely new cultural and psychological tools supporting these individuals.*

Theory and practice of "instrumental enrichment" by R. Feuerstein (1980) finds inspiration in Vygotsky's ideas and may serve as an example of an independent development of these ideas. However, one should also think of inventions of new technical tools, such as various adaptations of computers, etc.

The second component of Vygotsky's theory with research potential for inclusive education is its very original **social interaction concept**. According to Vygotsky, social interaction is based on human beings' primary sociality. We will use only quotation here (out of many different ones from Vygotsky's works) that clearly expresses this. *"It is through the mediation of others, through the mediation of the adult, that the child undertakes activities. Absolutely everything in the behaviour of the child is merged and rooted in social relations."* Immediately thereafter he continues: *"Thus, the child's relations with reality are from the start social relations, so that the new-born baby could be said to be in the highest degree a social being"* (Vygotsky, 1983b). This foundation of social interaction has not only a dynamic, but also a constructive (formative) role in development. This means that not only some of the higher mental functions will develop more slowly without intensive social interaction, but they also cannot come into existence without social interaction. For instance, in the fascinating and generally well-known research on children's language acquisition, Vygotsky shows that higher mental functions such as language and thinking and inner (private) language, which is located in the centre of the most intimate layers of the individual psyche, come into existence only in the process of social interaction without which they would not develop at all. This is the essence of Vygotsky's theory of co-constructivism.

Social interaction has a developmental effect primarily because it is deeply connected with the nature of the human being whose evolution was significantly influenced not only by the struggle for survival but also by living in a social group (in the past years research on the "social brain" has been developing; a field of research that Vygotsky would appreciate, as it is along the lines of his ideas on human beings' social nature). The child is therefore social in its nature (how far ahead we are here from Piaget's understanding of the child's egocentrism) which is demonstrated in its early sensitivity to social stimuli (early perception of a human face, early sensitivity to a human voice, early social smiling, and

above all, the ability to make affective attachment). Adults, on the other hand, are biologically prepared to react sensitively to the social needs of the child.

All this is the foundation on which **asymmetric social interaction** is built between child and adult (As opposed to this, in some of his works Piaget gave priority to symmetric interaction between children of the same age). Asymmetric interaction is every interaction where one of the partners is on a higher developmental level than the other (as in a child-adult relationship) or possesses a higher level of knowledge (child-teacher relationship, although here we also have asymmetry in the level of development). In such asymmetric interaction, which is of decisive importance for development, the adult partner brings cultural and psychological means, thinking and behaviour patterns which are shaped by culture. If such asymmetric interaction takes place in **the zone of proximal development** (another original concept in Vygotsky's theory as a form of operationalization of his general postulate on mutual adjustment of child and adult), a joint construction of novelties appears in the child's development. For example, you can specify the use of verbal means of communication by an adult while interacting with a child who cannot yet speak. Customizing language with a child's language (simplifications of speech, in particular, linking utterances with the child's current activities in a specific situation that the child can understand - for example feeding situations), – creates the possibility of "simultaneous translation" or the translation of "situational-practical language" – language of situations and practical actions that the child can understand, into verbal statements (Ivić, 1978), thus the child acquires new means of communication – verbal means. This is a clear example of co-construction. Transformation of communicative language into inner language via intermediate forms, such as egocentric (private) language, is another masterful example of co-construction demonstrated by Vygotsky. In this new developmental achievement, one cultural value, such as the language system, is being "privatized" and becomes an integral part of individual mental structures and is thus used for individual needs in the form of inner language. We have hereby shown the impact of Vygotsky's mechanism of **transformation of inter-psychic functions into intra-psychic functions** in the process of asymmetrical social interaction or, in other words, transformation of social relations into individual mental functions.

Didactic interaction in inclusive education – in light of Vygotsky's theory

Every teaching-learning situation is by nature a specific form of social inter-action. These situations are forms of interaction even when extreme forms of lecturing take place, except that in such situations there is total domination by one partner – the teacher. Accordingly, this is the case of pedagogical and didactic interaction.

To understand the nature of the processes occurring in this didactic interac-tion, it is important to identify its specific qualities. The first specific quality fol-lows from the function of the interaction form; it is directed at achieving some form of knowledge (factual and conceptual knowledge, practical skills, social skills, procedural knowledge, and adoption of the system of values or attitudes, and the like). Thus, the object around which the interaction is organized is some kind of knowledge.

Depending on the nature of knowledge which is the object of didactic inter-action, it is possible to observe the appearance of its different forms in this case. This is because the learning process takes place in one way if it concerns the process of acquiring a body of factual knowledge and in another way if it concerns a process of acquiring the conceptual knowledge. It takes place in a third way if it concerns practical or procedural knowledge or adoption of values and attitudes. Depending on the nature of knowledge and forms of learning, in an inclusive classroom, children with intellectual disabilities have a different status (for example, in the artistic group of at school they can be equal to or better than children without disabilities, but weaker when acquiring conceptual knowledge). Therefore, in different variants of didactic interaction, processes and dynamics of that interaction in an inclusive classroom can be very different, as is also the case when it comes to the effects of learning in the course of these interactions for children with and without intellectual challenges.

The first component of didactic interaction is the interaction between teach-ers and pupils; the second one is between the pupils themselves in the classroom, and the third one is a very specific interaction between the knowledge to be acquired by pupils and the pupils who adopt this knowledge (based on existing cognitive structures and prior knowledge). This third component of interac-tion is immanent to Vygotsky's theory, although he does not anywhere explic-itly mention it. We have called it "**cultural interaction**", that is, the interaction with the product of culture (cultural and psychological tools). Sometimes, the

cultural-psychological tools are mediated by adults (as in the teaching process), or is more direct when the individual is in direct contact with the cultural product, such as when a child learns from a textbook. But even in the latter case, it is also a social interaction, because the adult partner is implicitly present in the structure of cultural product.

The key form of didactic interaction, the teacher-pupil interaction, is an asymmetrical social interaction, because there are clear differences between the partners at the developmental and knowledge level. We have seen that according to Vygotsky, this form of interaction can have formative developmental effects, that is, it leads to the acquisition of knowledge and skills if it takes place in the zone of proximal development, if there is a co-construction; a joint construction of knowledge through joint activities. But if there is a clear dominance by the teacher, it can lead to rote learning, to passivity of the pupil and acquisition of knowledge that cannot be applied afterwards. A major problem of this form of didactic interaction is the distribution of the amount of interaction between the teacher and the pupils in the classroom. The teacher needs to be sufficiently professionally competent to assure participation of both children with and without intellectual disability in his or her interaction, or there will be imbalances – there will be either the prevalence of interaction with children with disabilities or with those without disabilities. In any case, it would lead to marginalization either of the children with disabilities or children without disabilities and hence lead to lower school achievements for either of the groups. This could be used as an argument against inclusive education.

Another form of didactic interaction as a form of social interaction is the interaction among the pupils in the classroom (if the organization of classes allows). In an inclusive school, this interaction can be in the form of symmetric interaction between peers in the part which is not related to learning but to **interpersonal and group relations** (children with and without intellectual disabilities in the group) This form of interaction can be of great significance for the overall development both of children without intellectual disabilities – acceptance of differences and establishment of solidarity – and for children with intellectual disabilities – reduction of effects of social isolation, building of important social skills, personal affirmation because of opportunities to gain social status in the group on the basis of those personal qualities that have been preserved and the like. The possible positive effects on socialization of all children in this form of social interaction are main reasons for introduction of inclusive education. However, it depends upon an organization of schools and classes that eliminates

the possibility of discrimination and exclusion of children with intellectual disabilities.

Another variant of social interaction is **didactic interaction among pupils**, that is, peer interaction oriented to learning. In the case of inclusive education involving children with special needs who are only somewhat different, such as children with physical impairments or from socio-culturally deprived milieu, a didactic interaction may take place that is very similar to interaction in non-inclusive classrooms. Such a learning situation can be fruitfully used to encourage exchanges among pupils having different and complementary experiences – different life experiences, various extracurricular experiences and learning experiences. This kind of didactic interaction can lead to co-construction of knowledge from which both groups of children benefit. In this respect, this form of didactic interaction greatly resembles the didactic interaction in a multicultural classroom.

However, didactic interaction in inclusive classroom may also appear as **asymmetric didactic interaction** among pupils, especially when one group consists of children with intellectual disabilities. In this case, there is a difference in both mental level and level of knowledge. This form of didactic interaction resembles interaction in multi-grade classes where the teacher works with pupils of different ages in the same class. These forms of didactic interaction can probably have positive effects in terms of school achievement of children with intellectual disabilities and learning difficulties – or younger children – if the teacher organizes the work by engaging the pupils who are at higher levels of development and knowledge to help other pupils. But, in this case, a serious question has to be raised concerning how pupils at a higher level of development benefit from the interaction. This problem is often the reason why some parents oppose inclusive education because they fear that their children's learning and development is endangered. In this form of interaction, there is also a danger that children without intellectual disabilities will dominate, leading to marginalization and passivity of the children with intellectual disabilities and learning difficulties.

Due to reasons stated here regarding didactic interaction in inclusive education, **asymmetric didactic interaction among pupils is of critical importance, in particular between pupils with and without intellectual disabilities and learning difficulties**. If serious problems, which necessarily appear in this kind of didactic interaction, are not solved (and in combination with imbalance in didactic interaction between teachers and pupils) the inclusive education itself

may be questioned if and when school achievements of pupils are perceived as problematic and thus provoke parents' resistance. *Vygotsky's concept of social interaction and handling of didactic interaction as a specific form of social interaction may have great importance for the analysis of the teaching-learning process in inclusive education.*

Primarily, it is highly productive to perceive teaching-learning processes in inclusive education not only as a narrow pedagogical process but also as a form of social interaction. This perspective reveals the nature of numerous processes during the course of education: education seen as a process revealing power relations between partners (between a teacher and a pupil or between some categories of pupils), existence of interaction or its absence, frequency and duration of each specific form of didactic interaction, relation between practice in certain forms of didactic interaction and school achievements of pupils and school achievement in different categories of pupils etc.

It is important that an overview of forms of didactic interaction is used as a powerful tool to analyse teaching/learning processes. Thus video footage of classes during this common project[13] may be analysed so that it will be established for every class which forms of didactic interaction exist or not and what characteristics they have (didactic interaction between teacher-pupil, didactic interaction between pupils, etc.).

*For the future of scientifically based inclusive education **didactic interaction among pupils with intellectual disabilities and learning difficulties (and other categories of students included in the education) is of critical importance**: whether it exists, how frequent it is and how long it lasts, what its characteristics are, what possible impact this interactions has on school achievements both of pupils without disabilities and pupils with intellectual disabilities and learning difficulties. If this form of didactic interaction does not exist or is deformed, then inclusive education may be demoted to nothing more but a stay of pupils of the two categories in the same physical space.*

*Hence it appears that Vygotsky's theory of social interaction (and didactic interaction as a specific form) is of obvious importance in **research on the process of inclusive education**. However, the theory may be highly productively used to*

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13. This article was presented as a lecture at a joint workshop at the University of Oslo on behalf of the participating universities in the international project *Comparative Classroom Studies towards Inclusion; the universities in Belgrade, Ljubljana, Sarajevo, Skopje, Tuzla, Zagreb and Oslo* (Johnsen, 2013; WB 04/06). In this sentence the lecturer and author of this article refers to this context (editorial comment).

advance inclusive education practice by preventing failures and increasing positive potentials in all forms of didactic interaction.

Piagotsky

In this and the next section of the article some theoretical statements are summarised which are not contained in Vygotsky's original theory (thus belonging to post-Vygotskyan ideas). Their significance for inclusive education will also be described. The neologism "Piagotsky" represents an attempt to outline a synthesis of Piaget's theory of constructivism and Vygotsky's theory of co-constructivism[14]. Exploring possibilities of a synthesis of these two theories is particularly important for analyses of the development of individuals with developmental problems and applied programmes for inclusive education, because, in discourse on this category of human beings we dominantly speak about **help**. It certainly seems that Vygotsky's theory is here the most advantageous since it highly emphasises the constructive role of adults. It is clear that this is very important for people with special needs. However, every social interaction contains power relations, and there is a hidden danger of domination by the adults: to overprotect, make children passive, manipulate and develop learned helplessness. Piaget's theory of (individual) constructivism may be used as counterweight to these trends. His theory strongly emphasises the role of individual activities of a person in active construction of cognitive structures and systems of knowledge. From Piaget's theory it is possible to generate all those useful teaching/learning procedures which provoke cognitive conflict and challenging situations where the learner independently strives to find solutions to these conflicts and to rebuild equilibrated structures. It is of extreme importance to create conditions to **encourage active construction for individuals with special needs also, and in inclusive education** (instead of serving them ready-made knowledge and solutions). The two theories – of constructivism and of co–constructivism – concurrently show that no true development is possible without these mechanisms.

It is hence necessary and seems possible to apply Piagotsky's theory on inclusive education in order to develop intensive asymmetric social (in the form of didactic

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14. The author of this article used this term for the first time in his paper presented at Conference II for Socio-Cultural Research: Vygotsky-Piaget in Geneva in 1996. The paper analysed obstacles and possibilities to build synthesis of these two major developmental theories (Ivić, 1996).

interaction) interaction which also includes creating social-cognitive conflicts (as specified by Vygotsky's theory). Then, in a planned manner, enough room would be given to individual cognitive constructions under Piaget's model. Of course, such intellectually challenging learning situations would be attuned to children's developmental level and the level of knowledge regarding learning content. There are sufficiently good overviews in the literature related to the application of the notions of co-constructivism and constructivism in creating productive learning situations.

Reversed Vygotsky

The author of this article has been studying Vygotsky's theory and its application in education for a long time (for example, when developing the concept of active learning, in theoretical elaboration and in practical application of the concept of cultural-psychological tools in construction of school textbooks). But in the period of wars and great social crisis in our country in the 1990s, we came to understand that there was (and we succeeded to realise a small number of research projects on child development in this situation of crisis and war) also another form of impact of social and cultural factors on development. In this situation we acquired a clear insight concerning that Vygotsky only had in mind truly formative effects. However, when social and cultural factors are deeply disturbed, the effect may be contrary to formative or, to put it differently, it becomes negatively formative as it leads to disturbed development; to destruction. In such circumstances the theoretical statements that social and cultural factors are extremely important for development retains their validity. Their effect is not only dynamo-genic, but also leads to construction of structures. It concerns in effect the Vygotskyan mechanism of transforming inter-psychological phenomena to intra-psychological (individual) ones, but the effect in such situations is destructive, **de-formative** (instead of formative). Consequently, in this case developmental effects are: setbacks in development, developmental disturbances, building of perverted structures and destructive behaviour. This is exactly what the author calls "the reversed Vygotsky".

In developing this new theoretical presumption, these ideas have been generalised. Thus, there are a number of social situations where social and cultural factors themselves (including cultural and psychological tools and resources) are deeply disturbed. These are war situations, deep social, economic and political crises, inter-ethnic conflicts, poverty, social and cultural deprivation, social isolation, exile with separation from entire social and cultural support, social

chaos (which is often transformed into inner disorganisation), natural disasters and being a refugee. Research done on refugees show that what mostly leads to human disturbance is when individuals are separated from their close relatives, personal belongings – trivial but personally highly regarded belongings such as books you loved, poems, photos, souvenirs – all these are true Vygotskyan external components of a personality and they therefore belong to the cultural and psychological support of mental functioning. All these disturbances at the macro level strongly reflect on all institutions for children (such as schools) and on the families, thus leading to serious disturbances at the micro level. Vygotsky's theory is a powerful instrument to explain development under such circumstances. This also supports Vygotsky's theoretical presumptions concerning developmental mechanisms such as acquisition of cultural- psychological tools and transformation of inter-psychological (including Vygotsky's formulation that these are really social relations) into intra-psychological phenomena (that are inner individual mental functions). But in this case everything is "reversed"– the effect of social and cultural factors, which are also troubled, is destructive and de-formative.

The life situations of persons with disabilities, because of the very nature of the problems they have can lead to similar "reversed" (destructive) developmental effects, especially if they live in the mentioned perverted social situations.

Based on the arguments above we may conclude that the difficult circumstances in which persons with disabilities live and are educated should be carefully explored in order to establish the normality of social and cultural factors themselves in their environment. They may create circumstances such as: seriously reduced, poor and distorted social interaction or even isolation, absence of cultural-psychological tools and resources or their deprivation as well as deformation of their system of values. These disorders of social and cultural factors may lead to disorder in learning and development, unless preventive actions are taken.

Conclusion

Inclusive education originate, and with reason, from the framework of human and children rights. But unless the concept and practice of inclusive education are also supported by scientific and professional arguments, inclusive education may be questioned.

In this this article we wanted to demonstrate that Vygotsky's theory, and especially some components of it and their further elaborations, may be highly

productively applied **in scientific research on the process of inclusive education** (which also includes opening very serious issues from the perspective of scientific founding of inclusive education) and also elaborating on **the conception and practice of inclusive education**.

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