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Vygotsky's Legacy Regarding Teaching-Learning Interaction and Development

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Introduction

Pupil-centred education requires knowledge about learning and development. But what is learning, and what is development? And how are learning and development related to each other and to education? Wertsch and Sohmer (1995: 332) argue that even though the terms have been debated since the beginning of developmental psychology, "… we have not made a great deal of progress in addressing it. One of the major reasons is that the very terms 'learning' and 'development' take on quite different meanings in different theoretical frameworks." The main purpose of this article is to explore how these terms are applied in the Vygotskyan and cultural-historical tradition of education. Secondly, the purpose is to examine the relationship between the concepts and the perhaps most cited notion in Vygotsky's texts, namely the Zone of Proximal Development (ZPD). The third and additional purpose is to investigate whether and, if so, how the account of the relation between ZPD, learning and development in Vygotsky's texts contributes to explain individual differences in learning and development. The article is written from the point of departure of Norwegian educational practice and research and with an international target group.

Keeping in mind the widespread use of the notion of the zone of proximal development, the article starts with an examination of how Vygotsky explains the concept and how it is applied by his theoretical followers. Explorations into

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Vygotsky's texts soon revealed interpretation difficulties related to translations of the original Russian texts into English. What do these problems indicate about different "mentalities" when it comes to making meaning of central concepts such as learning and development? The position of the zone of proximal development in Vygotsky's texts is also questioned. Does it represent the core of his theoretical construction? And what might the consequences be of reconsidering the meaning of ZPD in texts based on English translations and interpretations? Should different interpretations be considered as either "right" or "wrong"? Have "wrong" interpretations provided new aspects in analyzing learning, development and related concepts – and phenomena? And is it fair to say that the ZPD has been applied in different ways from being an inspiration to being a part of a groundbreaking theoretical construction? These questions guide the text studies of this article, ending with a short account of Vygotsky's construction of the development of higher mental functions. However, constructions of relations between ZPD and other main notions only represent one aspect of Vygotsky's complex theory building. A number of his other concepts are necessary in order to follow the lines of arguments towards an applicable theoretical understanding as well as for professional educational and special needs educational practice. Thus, insofar as this article provides answers to the questions posed above, it will also end with a series of new questions aiming at further studies.

The Zone of Proximal Development

As mentioned, the introduction of the zone of proximal development (ZPD) has been groundbreaking for the educational disciplines in several ways. 1) It situates education at the core of learning and development. 2) It places responsibility for children's learning and development with the educational professions and other "more competent persons". 3) With regard to defectology and special needs education, the construction of ZPD contributes to move the main attention from assessment (diagnosis) towards the acts of evaluative teaching and learning; thus, it also makes a strong argument for the principle of meaningful and individually adapted teaching and learning as stated in the Norwegian National Curriculum (L 1997) and wider. Vygotsky describes the zone of proximal development as follows:

> … the distance between the child's actual developmental level as determined by independent problem solving and the higher level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers (1978a: 86).

This quotation is from the article *Interaction between Learning and Development*, in one of the classical anthologies with several of Vygotsky's texts in English translation (Vygotsky in John-Steiner et. al., 1978a). The editorial preface states that the article is from a posthumously published collection of essays entitled *Mental Development of Children and the Process of Learning* (1935 in John-Steiner et. al.: 1978: ix). This particular article has not been found among the translated texts in *The Collected Works of L. S. Vygotsky* edited by Rieber and colleagues (Vol.1, 1987; Vol.2, 1993; Vol. 3, 1997; Vol. 4, 1997; Vol. 5, 1998; Vol. 6, 1999). However, Vygotsky also discusses the zone of proximal development in other of his works.

In Volume 1, Chapter 6: *The Development of Scientific Concepts in Childhood*, Vygotsky introduces "… a unified conception of the problem of instruction and development" (1987a: 201). He presents the basic approach that instruction and development are neither two fully independent processes nor one single process, but rather two processes with a complex interrelationship. In summary his argument is that instead of basing instruction on a pupil's actual development, the zone of proximal development is a more fruitful point of departure for teaching in order to meet the pupil's optimal intellectual potentials. In Volume 5, Chapter 6: *The Problem of Age*, Vygotsky again discusses ZPD not only in relation to the dynamics of development, but also in relation to teaching, maturation processes and imitation. He points out that optimal teaching is not merely based on the child's already mature functions but on his or her maturing functions:

> The period of maturation corresponding to the functions is the most favourable or optimum period for the corresponding type of teaching. It is also understandable, if we take this circumstance into account, that the child develops through the very process of learning…" (Vygotsky, 1998: 204).

In this way Vygotsky argues that teaching in accordance with the pupils' maturation processes is a prerequisite for optimal learning leading to development. This argument supports current curricular-didactical arguments concerning the importance of individually tailored education within the community of different levels of mastery in the class or group (Johnsen, 2001; 2014a). As may

have been discovered, teaching and instruction have been in focus and related to development in the two later texts referred to.

Interpretation difficulties. The problem of translation was mention in the introduction. It is well known that translation contains interpretation and that different interpretations may cause controversies. Such a disagreement has arisen concerning the Russian word *obuchenie*, which has been translated with 'learning' in Chapter 6 of *Interaction between Learning and Development* (Vygotsky, 1978a), 'teaching' (Vygotsky, 1998) and 'instruction' (Vygotsky, 1987a). What causes the eager debates about the interpretation of this specific word? Chapter 6 (1978a) is one of the most widely read texts in English. It is from this text that Vygotsky's argumentation for the zone of proximal development has become widely known. In the chapter's title *obuchenie* is translated with 'learning'. This corresponds well with traditional Western developmental theory, where the pupil's learning receives the prominent focus in relation to development, not least due to the influence of Piaget's theoretical construction of cognitive development (Ginsburg & Opper, 1969; McShane, 1991). Thus, to use a "Piagetian" concept, Vygotsky's developmental theory and introduction of ZPD seem to have been "assimilated" into a Western focus on the individual pupil's learning and development. In his brief discussion of *The Perils of Translation*, Cole (2009) supports this analysis. Why is this a problem? Sutton (1980 in Cole, 2009: 292) points out that "… Soviet developmental psychology is a psychology of teaching and teaching difficulties as much as ours is one of learning and learning difficulties". Accordingly, if the intention is to grasp an in-depth understanding of Vygotsky's texts on development, translating *obuchenie* with 'learning' is not sufficient.

Wertsch (1984), Wertsch and Sohmer (1995) as well as Cole (2009) make specific accounts of the translations of *obuchenie* into English, documenting that the word has a double meaning. On one hand it may be translated with 'instruction' or 'teaching' and on the other it means 'learning'. As shown above, all three English words are used in translations of Vygotsky's texts. The debate surrounding the translation issue has mostly focused on criticising the use of the learning concept standing alone, while the words 'instruction' or 'teaching' have been preferred. However, Wertsch and Sohmer (1995) and especially Cole (2009) argue for applying the compound subject 'instruction-learning' or 'teaching-learning'. The use of this compound subject or, similarly "teacher and learner interaction" seems to be a fair solution to this translation problem, also in view of the contextual aspects of Vygotsky's use of the term *obuchenie*. Based on this

clarifying discussion, it seems that a number of texts using the 1978 translation of ZPD as their point of departure are biased when they focus only on learning related to ZPD and development. Instead, the notions of 'teaching-learning interaction' and 'development' are necessary in order to grasp the original meaning of Vygotsky's arguments for the ZPD. This application coincides with the similar use of the concepts of 'teaching-learning situations' and 'teaching-learning processes' applied in curricular-didactical articles on individual educational needs and inclusive practices in school (Johnsen, 2001; 2014a).

"The good news" in this connection is that Vygotsky's texts on ZPD focus even more explicitly on educational aspects of pupils' development than previously interpreted; his texts place teaching in the foreground. "The less good, but inspiring news" is that re-readings of Vygotsky's famous text on ZPD (1978a) in light these discussions show that it is time to revise former interpretations of the concept, since it now seems that both my own and several other researchers' earlier applications of ZPD have been too strongly influenced by the emphasis on learning in Piagetian and related developmental theories.

The position of ZPD in Vygotsky's texts. Does ZPD have a central position in Vygotsky's texts on teaching, learning and development? According to the immense popularity in English texts in recent years, and the subsequent inspiration they generate, one should believe this to be true. However, Chaiklin (2003) finds that the concept is discussed in eight of Vygotsky's texts. Compared to the large number of his writings this is a very small part. In Chaiklin's view ZPD should not be seen as a main concept in Vygotsky's theory of child development, and he continues: "Rather, its role is to point to an important place and moment in the process of child development" (2003: 45–46). In order to understand ZPD it is necessary to go beyond dictionary translations and study Vygotsky's theory of development in full.

The zone of proximal development – inspiration or part of a groundbreaking theory?

Lacking Russian language skills is a serious disadvantage for in-depth text studies. As we have seen, the researcher is dependent on translations with accompanying interpretations. Consequently, the text studies do not have optimal thoroughness. Studying the movements of ideas and traditions in general shows how they change as they are grasped and used by authors with varying abilities and possibilities concerning language skills and cultural-historical belonging

(Bakhtin, 1986). Ideas may be changed to the point of being unrecognisable; sometimes their width and depth is transformed to superficial statements, or they may be diligently criticised to the extent that they lose original value (Johnsen, 2000).

Chaiklin (2003) analyses what he sees as problematic interpretations of Vygotsky's concept of ZPD in several English texts, some of which are widely known and used. One of the problematic assumptions concerns the belief that Vygotsky intends the ZPD to be applied to all kinds of learning. Chaiklin (2003:42) rhetorically asks: "If Vygotsky's intention was to use the concept for all kinds of learning, then why not name it the zone of proximal learning?" Chaiklin calls this kind of interpretation 'the generality assumption'. He points out that Vygotsky distinguishes between two kinds of instruction; one that covers instruction in the form of training specific skills, such as typing and riding a bicycle, to use Vygotsky's own examples. The other, development of higher mental functions, is connected to the kind of instruction or teaching-learning interaction, that "… impels or wakens a whole series of functions that are in a stage of maturation…" (Vygotsky, 1987a: 212). As mentioned, this kind of teaching is optimally productive when it occurs at a certain point in the ZPD, Vygotsky points out. Of the numerous post-Vygotskyan scholars, not all follow his strictly formal delimitation of the ZPD to development of higher mental functions and preferably to school instruction. Thus, the ethnographic writings of the psychologist Barbara Rogoff seem to belong to Chaiklin's category of generality assumption. In spite of her strong devotion to Vygotsky's thinking, Rogoff writes the following about his construction of the ZPD:

> Although Vygotsky's idea is very important, it seems to focus especially on the kind of interaction involved in schooling and preparation for use of academic discourse and tools. (This is no accident, because Vygotsky was particularly interested in promoting academic skills in his nation.) The focus on instructional interactions tends to overlook other forms of engagement that are also important to children's learning (Rogoff, 2003: 282 – 283).

Thus, it seems that Rogoff chooses not to follow Vygotsky's line of argument concerning fundamental aspects of the notion ZPD. However, the ZPD as well as other aspects of his cultural-historical theories of development have inspired her to adapt and apply his theory as a foundation in her very interesting ethnographic studies of high relevance in international education. Wertsch (1991) argues that Rogoff's and other current ethnographic studies in cultures where nonverbal communication is more applied than speech reveal an underlying

ethnographic bias in Vygotsky's texts, as may also be said of several other contemporary ethnographic studies implemented in unfamiliar cultures.

When it comes to ZPD, post-Vygotskyan scholars have followed either of two different main tracks, the "inspirational" or the "text analytical". Rogoff is one amongst many researchers who have successfully been inspired by, interpreted and further developed important parts of his texts. Together with Wertsch and Sohmer (1995) and Cole (2009), Chaiklin (2003) has contributed to clear up and clarify the line of arguments in Vygotsky's texts on ZPD and its place as a part of the development of higher mental functions. As mentioned, Chaiklin also establishes that the ZPD does not represent the core of Vygotsky's construction of development. That provokes the question if Vygotsky has given an explicit description of child development.

Development of higher mental functions

> Our concept of development implies a rejection of the frequently held view that cognitive development results from the gradual accumulation of separate changes. We believe that child development is a complex dialectical process characterized by periodicity, unevenness in the development of different functions, metamorphosis or qualitative transformation of one form into another, intertwining of external and internal factors, and adaptive processes which overcome impediments that the child encounters (Vygotsky, 1978b:73).

With these two sentences Vygotsky sums up his theoretical construction of development of higher mental functions. Cole (2009) points out that the only thing missing in this conceptual description is an account of the kind of and complex relationship between instruction, learning and development that takes place within formal education. He specifically calls for an account of the conditions in which instruction could be said to promote transformation to development. Vygotsky argues that teaching-learning interaction and development do not coincide (Vygotsky, 1987a:212). In the most favourable position he foresees that one step in learning may lead to two steps in development (Vygotsky, 1978a: 83–84). What exactly does he mean by this? Cole (2009: 294) provides the following example:

> … if one assumes that it is possible to create a form of instruction (…) so that having learned a particular fact (e.g. 2 + 3 = 5) one is led to acquire, simultaneously, greater insight into the basic arithmetic operations as whole.

Vygotsky (1978a: 83–84) also explains this expected relation between teaching-learning and development in a more general way with the following illustration: "Once a child has learned to perform an operation, he thus assimilates some structural principle whose sphere of application is other than just the operations of the type on whose basis the principle was assimilated".

Individual differences in the zone of proximal development

The history of ideas about intellectual development shows that even scholars in Greek antiquity were well aware of individual differences, as demonstrated by Plato (1974) in *The Republic*. It is possible to follow various explanations for differences in learning and development throughout history and up to the present day (Johnsen, 2000). (It is surprising that this knowledge seems not to have been taken into account in the teaching going on in many classrooms around the world). Vygotsky also recognises that there are individual developmental differences. How does he explain this diversity?

As a matter of fact, Vygotsky (1978a; 1998) uses the generally accepted recognition of individual differences as a prerequisite in his argumentation for ZPD. He begins his argumentation by criticising mainstream educational psychology for using developmental tests in order to estimate the developmental level of individual pupils. This gives a necessary, but not sufficient, estimate, he argues, and to illustrate his point takes as an example two children. They are both supposed to be ten years old and with a mental age of eight years, which, he agrees, indicates that they are able to individually master intellectual tasks on the same level. The educational question is, however, how far the children are able to move towards a next developmental level when solving problems in cooperation with a teacher. Vygotsky proceeds by making the following statement:

> Suppose that I show them various ways of dealing with the problem. Different experimenters might employ different modes of demonstration in different cases: some might run through an entire demonstration and ask the children to repeat it, others might initiate the solution and ask the child to finish it, or offer leading questions. In

> short, in some way or another I propose that the children solve the problem with my assistance. Under these circumstances it turns out that the first child can deal with problems up to a twelve-year-old's level, the second up to nine-year-old's. Now, are these children mentally the same? (Vygotsky, 1978: 86).

Vygotsky applies this example of the two children in his argumentation leading up to his introduction of the concept of ZPD. Thus, this well-known passage in Vygotsky's texts shows clearly that he recognises individual mental differences between children of the same age.

Does Vygotsky follow up his recognition of individual differences with recommendations for teaching? In Volume 5 of *The Collected Works of Vygotsky*; *Child Psychology* (1998) he offers a brief and preliminary explanation of the practical significance of what he calls the diagnostic aspect of ZPD related to teaching; in other words, his focus is on how to assess the zone of proximal development in order to teach the pupil in accordance with her or his optimal maturity level. At first Vygotsky argues for the obvious difference in optimal maturation on different age levels, using examples of the optimal period for learning to speak and developing reading skills. According to this argument, it may seem that Vygotsky relates differences in mental level to chronological age. This would be a similar view to that of the Czech educational scholar, Johan Amos Comenius (1592–1670), who argued for organising school classes in accordance with chronological age (Johnsen, 2000). This principle has been followed in Norway and many other countries; and even though the main argument in the 1850s was to ensure teaching in accordance with pupils' different ability levels, when several smaller schools were merged into larger ones, a consequence of the age-based classes was a kind of teaching as if all pupils in the class had the same abilities – or, in Vygotsky's words, their ZPD was expected to be the same. This is one of the serious problems that Norwegian school struggles to change even today, more than forty years after educational acts have required teaching in accordance with pupils' individual abilities (Johnsen, 2000; 2014b).

Does Vygotsky's argumentation stop here? As already mentioned, it does not. In his critique of psychometrical developmental tests, he argues that they measure the symptoms of development from an external point of view. What is needed, Vygotsky argues, is not only an externally standardised measure of development but also "a critical and careful interpretation of the data obtained from various sources" (1998: 205). The data or information should be based on all manifestations and facts of maturation. Thus, a synthetic, dynamic picture of these manifestations, the aggregate of what he calls personality, enters

as a complete entity into the framework of the study – or the assessment of the ZPD of a pupil. Even though Vygotsky here makes an incremental move from practical recommendations to research, his line of arguments point in the direction of an understanding of individual differences between pupils. His other key issue in this connection is that a multifaceted assessment of the ZPD may determine as far as possible not only the externally standardised measures but also the pupil's internal state of development (Vygotsky, 1998: 203–205). Thus, even though Vygotsky does not argue explicitly for pupils' individual differences in this section, it is difficult to understand it otherwise than that he has individual personalities or pupils in mind in this line of arguments. However, in his introduction to *Fundamental Problems of Defectology* (1993:30) Vygotsky underlines that differences between children or personalities are not only quantitative, but also qualitative, when he puts forward the thesis "…that a child whose development is impeded by a defect is not simply a child less developed than his peers but a child who has developed differently".

According to the Russian scholar Vasily V. Davydov's interpretation of Vygotsky, the latter gave an explicit account for differences in individual mental development. In his overview of post-Perestroika Russian policy, Davydov (1995) describes several of Vygotsky's main ideas that are currently included in educational reforms. One of these ideas is that the most valuable methods for teaching-learning and upbringing should correspond to pupils' development and individual particularities, as he called it. Therefore, Davydov points out, these methods cannot be uniform. However, he points to the basic cultural-historical perspective in Vygotsky's theoretical construction; the society surrounding the child contains a historical and cultural frame around the collective activity that is conveyed to the child through teaching and upbringing and that leads to the development of the child's consciousness. Davydov adds: "But at the same time, Vygotsky proposed that to this collective activity, to this collaboration, every

child brings a personal contribution at the child's own level" (1995:17). Davydov[15] relates this line of arguments to Vygotsky's introduction of ZDP.

Another scholar in the cultural-historical tradition, Marianne Hedegaard (2005: 247), describes this point in the following way:

> Although each child is unique, children obviously share common traits with other children. Being of the same tradition, children in the same class have a lot of knowledge and skills in common. Instruction can build upon these common features if it takes into account that the children vary in their speed and form of learning.

From theoretical foundation to educational practice

This exploration into selected texts of Vygotsky and post-Vygotskyan scholars has confirmed a focal shift in theory of development from a traditional, cognitive focus on the solitude individual development and then learning to focus on a cooperative teaching and learning process towards development. It has also been established how Vygotsky's theoretical construction acknowledges the variety of individual differences in development requiring different adaptation of the teaching in accordance with the optimal zone of development of the single pupils within their joint cultural-historical belonging. Sadly, as mentioned above, Vygotsky did not manage to realise his intended account of the consequences of his theory for educational practice. However, alongside the lines of arguments in his empirically related theoretical construction-building,

15. In collaboration with translator Robert Silverman, Davydov prepared a larger work of Vygotsky for publication in English entitled *Educational Psychology* (1997), which has not been included in Vygotsky's collected works. In his introductory article Davydov (1997) estimates that Vygotsky wrote this book during the years between 1921–1923, and thus it belongs to his early works. One of the main concerns in Davydov's introduction is that Vygotsky connects educational psychology to conditional reflexes, innate elementary functions and other physiological terms related to Ivan Pavlov and other physiologically schooled researchers. Vygotsky moves away from this connection in his later works where he constructs the theory on the cultural-historical foundation of human development, uniting social activities, teaching-learning processes and human development. His introduction of ZPD occurs "late in these later works" and due to his early death, he seems not to have managed to complete his intended clarifications of educational consequences of ZPD in his cultural-historical theory (Vygotsky, 1998: 203).According to the Danish researcher Madsen (1986), Russian experimental psychology has its roots from the opening of a psychological institute at the University of Moscow in 1912. After the revolution in 1917, an attempt was made to develop a psychology based on a Marxist dialectical-materialist approach and on Lenin's so-called reflection theory on the psycho-physical problem. The world-famous researcher Ivan Pavlov's (1849 – 1936) studies seemed compatible with this paradigm and were eagerly studied by many researchers, including by the young Vygotsky, as his early text *Educational Psychology* (1997) indicates.

he introduced and discussed a number of concepts that have been applied in further, post-Vygotskyan theory building.

What are the central concepts for a more detailed discussion of implications for educational practices of Vygotsky's theory? How are these notions helpful in demonstrating the relationship between concrete knowledge about individual pupils' level of mastery and selection of relevant educational goals, content and methods as well as communication and mediation approaches focusing on their optimal learning opportunities within the zones of proximal development (Johnsen, 2014a)? Moreover, in order to grasp a slightly different aspect of educational practice, a third question is posed: How can Vygotsky's theoretical construction and related concepts help make the school capable of facilitating the teaching-learning process in order to optimise the development of all pupils in a group or class, all of whom have different zones of proximal development?

Amongst all the relevant concepts to be highlighted, it is tempting to start with the two words, 'cooperation' and 'imitation', since Vygotsky often applies them when describing the process from the momentary milestone of ZPD towards the next step in development. However, in order to grasp an overview of notions that contribute to a further account of implications of Vygotskys theoretical construction for educational practices, it may be helpful to situate this core theory within the larger scope of his theoretical construction. Personally speaking, as I am a former enthusiastic follower of Piagetian and post-Piagetian cognitive construction, it was Vygotsky's focus on the collective's impact on the single person's development or, as Arievitch (2003) indicates, a beginning resolution of the dichotomies of the individual and the social, that first captured my attention. Why? Because this was consistent with my common, conventional[16] perception that my own, my children's and other pupils' development depend on the historical period and culture into which we are born. Vygotsky differentiates between four interdependent genetic domains of development; the phylogenetic and the cultural-historical domain and the ontogenetic and microgenetic domain (Vygotsky, 1978b; 1987b; 1987c; Wertsch, 1991; Wertsch & Sohmer, 1995; Wertsch & Tulviste, 1992). The phylogenetic and cultural-historical domains represent the long and broad development that at any time frames contemporary teaching and learning processes. The ontogenetic and microgenetic domains are constructions on a micro level, where ontogen-

16. My use of the term 'conventional perception' here is inspired by the classical work of John I. Goodlad (1979) *Curriculum Inquiry*, where he applies the pair of concepts "funded knowledge" and "conventional wisdom" in order to differentiate between research based and layman influence on curriculum making.

esis represents the interactional individual development in a lifespan perspective, and microgenesis accounts for the single interactional unit of activity that, as Rosenthal (2004: 222) clarifies, "… concerns the psychogenetic dynamics of a process that can take from a few seconds (as in the case of perception and speech) up to several hours or even weeks (as in the case of reading, problem solving or skill acquisition)". A large number of texts discussing the relationship between the genetic domains belong to the rich Vygotskyan heritage. In the search for answers to the questions above, a relevant selection of these texts is necessary together with Vygotsky's works; more specifically, those that may contribute to clarify connections between long-term cultural-historical development and teaching-learning processes on a micro level.

When it comes to micro level, the cultural-historical school makes use of a considerable number of concepts. One of the main contributions of Vygotsky's construction is the emphasis on the totality of the theory and the relationship between and within the genetic domains (1987b; 1987c). Keeping in mind that any attempt to sort out concepts in different categories is artificial, several notions may be seen as relating to the developing individual, such as imitation, tools and signs, egocentric and inner speech, internalisation and intrapersonal processes, and periods of development. Vygotsky also applies a number of concepts in his argumentation and explanation of the interrelationship between society and child/teacher and pupil, such as communication, mediating activity, cooperation and intrapersonal processes. Together these two groups of concepts contribute to elucidate the complex and dynamic interplay between teaching and learning leading to development where, according to Chaiklin (2003: 45 – 46), Vygotsky gives ZPD the role to "…point to an important place and moment in the process". How does Vygotsky account for the complex and dynamic interplay designated by these concepts? How are his texts interpreted? How are new concepts developed by his descendants that may contribute to shed further light on the puzzle regarding the connections between teaching, learning and development for children with a plurality of ZPDs in a common cultural-historical setting? Vygotsky was aware of the close connection between developmental and educational or didactic theory and practices, as are also Davidov (1995) and Hedegaard (2005). Establishing a fusion of developmental and educational/didactic theory is crucial for planning, implementing, assessing and revising the teaching-learning process towards development of higher mental functions in all children based on their diverse zones of proximal development and within their common cultures, schools and classes.

Conclusion

The introduction of Vygotsky's works in the English language contributed to a turn in the understanding of child development. At that time development in Anglo-American mainstream literature was considered to be an individual achievement closely linked to learning. The idea of ZPD implied an explicit relationship between development and teaching or mediation. Further exploration of development of higher mental functions in his and his successors' works, as presented in this article, reveals an even more explicit relationship between teaching-learning interaction and development. Thus, development is constructed as an educational interactional process. The texts applied in this article contribute to revise the role of ZPD as it has been interpreted in English-based articles and position it, not as a main concept in the construction of development of higher mental functions, but as an important location and optimal moment in this development.

Does this construct of teaching-learning interaction and development account for individual differences in development? Vygotsky's texts reveal that he acknowledges qualitative as well as quantitative individual differences in development within the phylogenetic and cultural-historical frameworks at any given time and place. Referring to ZPD, Davydov (1995) points out that Vygotsky proposed that every child brings a personal contribution at her or his own level to this collective activity. Hedegaard (2005) also argues that every child is unique and individual, but when children belong to the same culture, their individualities have common features that need to be developed. Thus, these theoretical constructions support the didactics of individually adapted education in the community of the class and society and, accordingly, pupil-centred education (Johnsen, 2014a). This is a good reason for continuing to explore Vygotsky's and his followers 'texts.

However, Vygotsky also emphasizes the complexity of his theory, which makes it necessary to consider the totality of his construction, including the content and interrelationship of its various concepts. This article only touches on a small part of the construction. Several aspects and a large number of concepts need to be explored and connected to this "beginning" study – as already pointed out – from theoretical foundation to educational practice.

Vygotsky is also one of the very first European pioneers in special education research, or defectology, as it was named in his time. Special needs educational knowledge is currently in dire need of theoretical and empirical research. The discipline is shifting its focus from troubleshooting towards resource-based

mediation. This may explain the great interest in the ZPD as a concept where assessment of individual mastery and interactive teaching-learning processes are integrated. Special needs education is a necessary educational area for the development of individually adapted and inclusive educational practices. Therefore, the continued journey of discovery into Vygotsky's works and the cultural-historical school must be extended to this crucial aspect of their contributions.

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