

Developmental Education: from Vygotsky to Davydov

A short reflection on curriculum studies in Russia

*He has spoken wisely who says that schools are workshops for mankind,
because without any doubt man can only really become man through its activities.
Jan Amos Comenius, The Great Didactic (1656)*

Jacques Carpay

Summary

A hundred years ago William James in his well-known volume entitled *Talks to Teachers* severely denounced "those who hand down advice to teachers *from above*". According to him, a teacher's knowledge of psychological principles may make a negative, rather than a positive, contribution to her/his classroom performance. Psychology, James asserted, can only save a teacher from making mistakes. This Jamesian stance requires a radical conceptual analysis of the "do's" and don'ts" embodied in the various competing sets of curriculum guidelines provided by educational psychologists.

In the present essay this issue will be discussed by estimating the heuristic value of the pivotal concepts as conceived in a Gal'perian *achievement-oriented* teaching strategy in comparison to a Davydovian *discourse-oriented* one. It will turn out that both teaching strategies for constructing a zone of proximal development (cf. Vygotsky) offer equal opportunities for the teacher as well as the students to keep a continuous check on what they both are doing. But in addition to this focus on mutual monitoring and co-responsibility a *thinking curriculum* - as advocated by Davydov - seems to contain yet another distinctive feature. In favor of his discourse-oriented teaching strategy Davydov claims some added learning outcomes in terms of social learning: value orientations and above all identity formation. If it holds true, that in Vygotsky-inspired Developmental Education the routes of inquiry are just as important as the outcomes, then the key question arises how the conjoint making of meaning and personal sense in the classroom is orchestrated both by Gal'perin and by Davydov. A striking difference between the two is the obvious fact that Gal'perin attempted to model the master teacher, whereas Davydov tried to master the teaching model. Does Davydov's approach to collaborative learning adequately equip the students for the search after meaning in the public domain? Additionally, are we, as educationalists, with Davydov at hand equipped not only for talks to but also for talks with teachers?

The sociocultural context of education from a Jamesian point of view

Let me first set the context of the present argument in relation to the content of it. For I assume that the title of this essay causes a bit of confusion, because it seems to suggest that I intend to argue on a *linear* development from Vygotsky's view on learning activity through Davydov's conception of Developmental Education (cf. Davydov 1988; 1996). In order to prevent misunderstandings in this respect, I note here right away that I have chosen to discuss Davydov's theory from what I have called a Jamesian point of view (cf. James 1907). According to James' *pragmatic stance* the first standard of quality with regard to curriculum studies lies in its feasibility (i.e. its impact) in everyday teaching practice. James did not hold much of armchair psychology (cf. James 1907). In the context of the present argument I will follow James in his belief, that all pedagogies are true but that some are more true than others. Therefore, arguing on the in's and out's of specific teaching formats, I will categorically refuse to draw up a final account on the key issue with which teaching format at hand educationalists are in the best possible way equipped against oppositions from the teachers' trade. In the spirit of William James I contend that theoretical debates on the *what* and the *how* of teaching and learning can only be solved once they are tested in long-term school experiments executed in real school classes in which the researchers considered the teachers as their *co-researchers* (cf. also Wells 1999). I am pleased to conclude that on this first standard of quality Davydov is in full agreement with James' argument.

I now come to the second Jamesian standard of quality. In his famous book on *The Varieties of Religious Experiences* (James 1901) James aptly remarks, "that to study religion from a psychological point of view the best one can do is to study the most religious man in his most religious moments". James had two things in mind, when he wrote these lines. First, we need a so-called *thick description* (cf. Geertz 1973) of the phenomena concerned and, secondly, we have to make use of what in the Symbolic Interaction Theory are called *sensetizing concepts*. Judged by this second standard

Davydov's perspective on Developmental Education also is in tune with the Jamesian point of view. His approach is learner- rather than teacher-oriented.

My third and last standard of quality as regards the pro's and con's of certain teaching formats is borrowed from the title of one of James' books which is the one best known in educational circles. I am referring here to his publication entitled: *Talks to Teachers on Psychology* (cf. James 1897). Actually this book originated in a collection of lectures delivered by James to an audience of teachers in Boston in 1892. At that time James was 50 years of age and already a well-known Harvard professor of psychology. I don't want to dwell on this book but I only note here that one can still read it because it seems as if nothing has changed since. In addition, James was an excellent author. Although I follow him also on this point I must, however, make a slight correction in referring to it. I prefer not to speak about talks *to* but about talks *with* teachers. Since this essay is not the right place to argue on this issue in great detail I hope that my point will come home anyway. One last preliminary remark on this key issue I have yet to make. My talks to and with teachers are embedded in the context of preadolescent education in the Netherlands. Additionally, my reference is to teachers as a specific professional community with its own academic standards of judgment. Accordingly, I am always trying to make myself understood in two quotation communities; the first is the community of educational psychologists and the second is the community of educationalists, or, broadly speaking, the community which Goethe has called the educational province. In my opinion an educationalist has to be by definition *bilingual*. With this technical term I refer not only to a command of two speech genres but most of all to a specific competence for communicating in two different quotation communities (cf. on this point also Tharp & Gallimore 1988; Wells 1999). In sum, the quality of the teaching formats involved must, in view to my Jamesian argument, be estimated according to three standards: 1. *feasibility*; 2. *thick description*; 3. *embeddedness* in two different quotation communities: a psychological and an educational one. I will argue that Davydov's approach to Developmental Education meets the first two standards of quality, but not the third.

So far and briefly on my point of departure. I hope that the orienting framework sketched in this section will be of some help in getting a true and fair mental picture from the exhibition I have composed of the various educational landscapes in the Russian Vygotskian community. Deliberately I have set up my argument in such a way that it is understandable to the teaching profession. So I have arranged it not along the lines of psychological reasoning but rather according to the narrative I learned from regular discussions with teachers. I will first give some short notes on the pedagogy of Vygotsky, then on El'konin's and Gal'perin's. Subsequently, I will proceed to a brief personal reflection on Davydov's approach to learning activity. The main reason for asking attention to this topic is that the research done by the various Russian adherents of Vygotsky is rather unknown in the West despite the availability of translations in English (cf. Carpay 1999).

Vygotsky's approach to educational psychology

The germinal work of Lev Semionovič Vygotsky (1896-1934) has exerted a profound influence on educational psychology over the past decennia. Vygotsky was an educationalist turned psychologist. His writings clearly reflect his pedagogical concerns regarding the appropriation of *new* modes of knowing, thinking and speaking in the preadolescent school (cf. Vygotsky 1997).

- For Vygotsky formal as well as informal learning activity settings are the best natural laboratories in which to study both the appropriation and the subsequent usage of modes of communicated thinking and public speech by various categories of students.
- Vygotsky focused on the issue of educative discourse, in which a teacher and her/his students (or a caregiver and a child) are conjointly (re-)constructing various *new* modes of handling canonical knowledge of the world. In his view such instances of interpersonal 'distributed cognition' contain the kernel structure of educative discourse conceived of as an *agentive encounter* or as he called it "learning in a narrow sense", i.e. learning under the guidance of a teacher a more competent peer.
- From a Vygotskian perspective students are viewed as strong not weak, self-reliant not dependent, active not passive.

- According to Vygotsky we have to search for comprehensive series of teaching-learning situations in which the Zone of Proximal Development is most likely to be activated by means of external help and social support. From his vantage point the most powerful learning arrangements are in the realm of *theoretical thinking* (cf. Carpay 1999). In Vygotsky's view Developmental Education chiefly has to establish in the students a scientific attitude toward a *text-based* knowledge of the world (cf. also Dewey 1916; 1938; Wells 1999).

Gal'perin and the stepwise appropriation of a repertoire of knowledge

Pjotr Jakovlevič Gal'perin (1902-1988) has sponsored a theory on the stepwise appropriation of a repertoire of knowledge and the related cognitive and communicative competences required for the orientation in and the processing of complex discipline-specific repositories of school knowledge (cf. also Vygotsky on scientific concepts).

- Gal'perin advocated a content-bound process analysis of the psychological aspects of the learning tasks involved as a basic prerequisite for the design of a thinking curriculum.
- According to Gal'perin new mental abilities have to be formed, first, by teaching the students material(ized) actions, which subsequently are to be appropriated (i.e. internalized) by passing through a series of stages in which the patterns of action concerned take successively different shapes (i.e. material, verbal, mental). Various lesson scripts and monitoring devices are designed by Gal'perin in order to bring about the gradual transition from one stage to the next one (see further Arieviditch & Stetsenko 2000; Haenen 1996; 2001; Kozulin 1997).
- Gal'perin's theory is by now well-known thanks to translations, textbooks and articles in various languages (cf. the previous references).
- Gal'perin tried to model the master teacher. (Cf. the famous Socratic dialogue that is actually not an educative discourse but a conversation rendered into quasi-dialogic inquiry.)
- Gal'perin's unit of analysis is the teacher-student dyad handling specific formats of scaffolding (cf. his monitoring devices designed in the form of combined iconographic models of the thought objects concerned and the displays of handling them). An example of a monitoring device in the spirit of Gal'perin is the following one designed for the scaffolding of sentence parsing. This learning task is *materialized* (i.e. displayed) as follows.¹

Sentence: the beer is in the refrigerator next to the tomatoes.

Meaning A:

The beer		
	is	
		in the refrigerator next to the tomatoes

Meaning B:

The beer		
	is in the refrigerator	
		next to the tomatoes

(B is possible, given, for example, in the context of a restaurant kitchen with several refrigerators, one of which sits next to a large container filled with tomatoes.)

El'konin on learning activity and on the issue of periodization

Daniel Borisovič El'konin (1904-1984) applied and extended Gal'perin's learning theory. According to him a key issue in developmental psychology is the study of learning activity in school settings, i.e. in a whole-class setting, conceived of as a community of learners or inquiry, respectively (cf. El'konin 1972).

- From El'konin's perspective learning activity has a complex structure. In his monist view the cognitive and the affective domains are not segregated and consequently, there are no separate psychological functions or universal learning strategies. All psychological tools (cf. Vygotsky) are embodied in one overarching learning activity structure. The main constituents in this structure are:
 1. task orientations and learning motives (i.e. value-orientations conceived of as wants and needs);
 2. curriculum content (i.e. the objects of thought concerned and the sociocultural scripts incorporated in them);
 3. (meta-)cognitive monitoring devices for control on learning progress (cf. Gal'perin on displays of patterns of action);
 4. modes of valuing learning outcomes for students as well as teachers (cf. Markova 1990).
- All these psychological tools have to be developed up to the best possible educational standards, i.e. according to what is feasible and valued in a given thinking practice and, additionally, with reference to the educational needs and wants of the students and the nature of the intended learning results (cf. Vygotsky on *conceptual change* and on the concept of *periodization*).
- El'konin always declared himself against all official educational standards which make a strong appeal to requirements stemming either from educational experience or from extrapolations from general psychology (cf. the necessity of teaching experiments).
- For El'konin as well as for William James: "psychology ought to give the teacher *radical help*" (cf. James: Talks to teachers 1897, p. 5).
- Like Kurt Lewin's, El'konin's maxim is: "if you want to understand our students, try to change them". In other words, if one wants to study cognitive development, one needs to mobilize and to canalize the student's learning activity starting from acting on the basis of 'loaned consciousness', i.e. with external help and social support. Cognition is always *co-action* (Russ. so-destviye; cf. Vygotsky's zone of proximal development.) It takes two to tango. The same holds true for teaching and learning. Accordingly, the teacher and student dyad is a category of its own; they have to be studied as a *social unit(y)* like Peter and Paul (cf. also Wells 1999).
- The nature of cognition as well as of inner speech is fundamentally *dialogical*. Schools are 'workshops' in which the usage of communicated thinking and (semi-)public speech has to be approached as input and output. Exteriorization and interiorization are a *dialectical* unity. (Cf. also Kozulin 1997; Wells 1999.)

Davydov on Developmental Education

Vasily Vasilevič Davydov (1930-1998) revised and extended in close cooperation with El'konin Gal'perin's theory of interiorization in bringing it closer to the two main aims of preadolescent education, i.e. of learning to think discursively and becoming a full-fledged learner (cf. also Dewey 1916; 1938; Wells 1999).

- According to Davydov, modern society needs well-educated individuals but above all well-informed future citizens to be taught in the best possible schools.
- For Davydov cognitive development and the formation of a personal and social identity are intertwined processes, so are *obučenie* and *vospitanie* (teaching and education).
- Like Gal'perin Davydov argued that curriculum content must be knowledge-oriented but schools also need to develop to a rather great extent the social and communicative competences and the related intellectual and moral attitudes and dispositions of the students, i.e. their personal and social identity (cf. Dewey 1916; 1938; Wells 1999).
- According to Davydov conjoint meaning making of school-based knowledge is not enough, there is also a need for establishing a positive attitude toward the conceptual matrices involved (cf. Carpay 1999). Hence his emphasis on exercises in the negotiation of meaning by means of discursive reasoning and arguing, not just in terms of the data given but also in terms of the epistemic claims involved. In this respect Davydov appears to be a typical representative of the Russian intelligentsia. He liked to dispute. So he fostered discursive thinking and dialogic inquiry in his experimental schools. Seven or eight year old kids in the Davydov-inspired schools make use of the modes of argument and counterargument as fully qualified debaters. They argue with their teachers as well as with one another in order to establish mutual understanding of the curriculum content concerned (cf. also Wells 1999).
- In 1983 Davydov was expelled from office for this reason. He seemingly taught the spirit of 'glasnost' too soon. In 1987 Davydov was rehabilitated. From that time on he has been again in full office. In 1988 he was elected as vice-president of the prestigious Academy of Pedagogical

Sciences (APS), now the Russian Academy of Education. (See further on this issue Carpay in press.)

- In 1986 Davydov published a book in Russian entitled: *Developmental Teaching*. Extensive excerpts are available in an English translation in three issues of *Soviet Education* (1988). (A revised Russian edition has appeared in 1996.) Unlike most educational psychologists, Davydov did not restrict his argument to the quintessence of classroom-bound teaching activity. He also argued on curriculum issues and on matters of educational policy and teacher education. According to him learning activity in and for itself does not exist, there are solely some *manifestations* of it. But only a few of them meet the needs of the market (cf. Davydov 1999). There are of course victories but there is also failure. Although educationalists know quite a lot about worthwhile and successful teaching formats and lesson scripts, they still are at a loss once the issue of teacher education is put on the political agenda. We actually don't know how to turn mediocre teachers into good ones. Hence Davydov (unlike Gal'perin) did not aim to model the master teacher but to master the teaching model. (See further on this issue Carpay 1999; Wells 1999.)

A brief comment on Davydov's approach to enculturation

The thorny question arises which teaching format is really required in view of designing a genuine Vygotsky-inspired thinking curriculum and in addition which prerequisites are needed in order to teach the average teacher how to orchestrate the conjoint making of meaning and personal sense in a regular classroom. Essentially, this is actually the kind of educational research Davydov was advocating. His so-called "ascending from the abstract to the concrete" (A/C) teaching format, however, still occurs to cause some unsolved problems once it has to be converted into curricula and lesson scripts for the whole range of school-bound subject areas.² To a great extent though Davydov succeeded in proving that most of the seven or eight year old kids can learn things Comenius only dreamt of. So there is indeed substantial empirical evidence from Davydov's research that the learning outcomes in the cognitive domain can be improved. The students in his experimental schools perform not only better in the academic subjects; they also are on average one year ahead compared to students in the control classes. Additionally, Davydov's students manifest less anxiety in doing schoolwork and they also deal quite flexibly with learning tasks that are *new* to them (cf. Dušavitsky 1997). These are no doubt impressive results. Moreover, such results are not only achieved by Davydov, but also by his adherents in other countries (cf. Engeström et al. 1999; Hedegaard & Lompscher 1999; Chaiklin et al. 1999). Therefore, from an educational point of view one can conclude that the A/C teaching format has proven to be productive, at least for the great majority of the students involved (cf. Lompscher 1999).

But who is impressed by this fact, forgets one thing. What is proven is only proven on a small scale and in a specific context. Surely, expert teachers (or teacher-innovators as the Russians call them) get the point once acquainted with Davydov's approach. But other teachers don't, according to experiences in the Netherlands, but also in other countries Russia included. In this respect I think that there is just one way out. We have to return to William James who said that the only thing a psychologist can do for a teacher is to save her from making mistakes. Therefore, we have to teach the teachers more than we did up until now to study *mistakes*, their students' as well as their own (cf. Carpay 1996). The language game called 'teacher education' must be reconceptualized and brought in tune with the Davydov-inspired concept of Developmental Education, i.e. the usual abstract talks on *teaching methods* must be transposed to the teaching format of the A/C-approach. If this does not succeed, there will be only a few children of glasnost. The other children will remain deprived of Developmental Education and continue to be condemned to the recitation script (cf. Tharp & Gallimore 1988) with its preference for bookish knowledge and educational consumerism (cf. also Wells 1999).

Davydov, however, remained a realistic optimist and so do I. We have to radically reconstruct the teachers' working routines as is rightly argued by Davydov (cf. his view on pedagogical principles, Davydov 1988; 1997; 1999.) Therefore, it is important to approach the teacher's job as an intellectual endeavor and hence to emphasize its cognitive nature (cf. Carpay & Van Oers 1999 on the issues of intertextuality, intersubjectivity and the orchestration of educative discourse in the classroom). This Davydovian argument, however, runs counter to the prevalent view in cognitive (Western as well as East-European) psychology in which teachers are preferably seen as executors of curricula sponsored by others who act according to this view as purveyors of bookish knowledge. Pedagogical practice

cannot be standardized according to the prerequisites advocated in this approach to school renewal. Davydov as well as El'konin knew this. The curricula of teachers' training colleges, however, were outside their control. Therefore, their arguments primarily were addressed to the developers of teaching materials (the so-called 'methodist' in Russian) as well as to the educational policy-makers because they actually feature as the Supreme Court in the educational province.

Although I am in great sympathy with Davydov's argument concerning the A/C-teaching format I still have two main objections in respect to his approach to a thinking curriculum for preadolescent education. My first objection I already mentioned. It points to Davydov's view on Talks *to* teachers. To paraphrase on the title of James' well-known book I prefer to talk *with* teachers. My second objection is that Davydov (like most educational psychologists in East and West) restricted his research efforts to the two key issues of the Piaget-inspired agenda:

1. the study of learning activity in children only from six to ten years of age and
2. the exclusive focus on psychological problems related with accelerated academic learning, respectively theoretical thinking (i.e. formal reasoning as Piaget called it).

Research on learning activity in the middle and upper schools is conspicuously lacking in Davydov's writings.

Toward a Vygotsky-inspired format of teacher education

The implementation of Developmental Education on a *nation-wide* scale appears to be harder than Davydov seemed to suggest. According to him, school renewal amounts to the issue of getting a new curriculum (new textbooks) officially adopted. So Davydov made the classic error in his approach to school renewal: he did not study what teachers actually *do* with a curriculum (new textbooks) once adopted (cf. Fullan 1990). Admittedly, this issue was out of Davydov's control. This fact, however, does not provide a convincing argument in favor of abstinence of doing research on formal and informal learning activity of the teachers themselves. So in addition to research on learning in the upper grades the issue of the actual thinking and learning of teachers also is noticeably absent in Davydov's publications. In my opinion, though, most teachers - like students - *learn*. Therefore, they also require assisted performance that is attuned to their actual zone of proximal development.

An instructive and, seemingly, productive strategy *to on-the-job-training* based on a Vygotsky-inspired framework was developed by Tharp & Gallimore (1988). They conducted a series of studies in which they examined the feasibility and the impact of creating a Vygotskian space for teachers of elementary schools with students from the Hawaiian native population. In this research project it appeared that a provision of assistance by consultants and fellow teachers was necessary to implement Developmental Education in the spirit of Vygotsky. Tharp & Gallimore created a *community of practitioners* around the new curriculum. In doing so, they have harnessed Vygotskian theory successfully. Consequently, they have corroborated the argument that it is possible to build bridges between the traditional linear curriculum and a Vygotsky-inspired spiral curriculum. Therefore, the conclusion seems to be justified that the deficit of Davydov's approach to teacher education indicated previously can be removed, provided that adequate prerequisites for staff-development are met. I think that the outcomes of Tharp's and Gallimore's research does the Russian Vygotskian community great credit (see further Carpay 1999; Wells 1999).

Regrettably, research on functional mother tongue teaching and learning, on the teaching and learning of foreign languages and social studies is lacking in Davydov's experimental curricula. Note, that I use the technical term 'functional' here in a broader sense than Davydov did (cf. Markova 1978/79; Wells 1999). In my conception of Developmental Education the students are not only initiated in what scientists do within their conceptual matrices (cf. Kuhn 1963). The students have also to be initiated in the various discourse genres in which two or more 'claims on truth' are directly competing with each other, as is the case in all activity settings in the public domain. This perspective on the issue of 'possible worlds' (cf. Goodman 1978) in relation to the 'negotiation of meaning' involved is obviously lacking in Davydov's conception of Schools-for-Thought (cf. Carpay 1999; Lipman 1996; Wells 1999). I regard this issue as a serious deficit of an otherwise seemingly productive approach to the study of learning activity in real school settings by means of systematic long-term school experiments as advocated by Davydov.

The counter-argument that Davydov's research program in all respects fits in the Vygotsky-inspired approach to the conjoint making of meaning and personal sense in the classroom does not convince me. As I argued previously, his research outcomes only have circumstantial evidence for figuring out what things are really about in learning, for instance, history or appropriating communicative and social competences in school settings. Due to a lack of space I cannot dwell here on this thorny issue. So I confine myself to referring to Davydov-inspired research for instance in foreign language teaching done in the Netherlands by myself (cf. Carpay 1995) and in teaching history by Marjan Hedegaard in Denmark (cf. Hedegaard 1990). Concerning advanced reading comprehension I refer to research also done in the Netherlands by Bol and in Great Britain by Mercer (cf. Bol et al. 1990; Mercer 1995). A second unsolved problem in Davydov's approach concerns his rather narrow perspective on the issue of the *heterogeneity* of thinking in the average school class due to the various cultural backgrounds of the students involved (cf. Carpay 1999; Wells 1999).³

Conclusion

The state of the art briefly outlined thus far reminds me of an instructive assertion once put forward by the British philosopher Bertrand Russell (Russell 1946). Talking about the research on animal behavior he remarked that all animals observed behave according to the national worldview and the epistemic stance of the observer. Animals studied by Americans rush about desperately and finally achieve the intended result by chance. Animals observed by Germans sit still and think, and at last the solution emerges out of their inner consciousness. I can't help it, but I must agree with Pestalozzi who once aptly remarked: "that what nobody searches, is never found." Like the animal observers in Russell's example most educational psychologists seem inclined to look only for phenomena they know best on the basis of their own school biography or because they were initially trained in a Piaget-inspired research approach. In this paradigm all effort is concentrated on the *abstract* social individual (i.e. on the epistemic subject as Piaget liked to call it) in whose mind the bookish knowledge concerned is stored in some or another form. Adventurous thinking (cf. Bartlett 1923) with respect to curriculum studies Davydov apparently avoided, perhaps because of the political complications involved or for other reasons. Consequently, he seemed to ignore the impact of the *socio-semiotic* embeddedness to everything that goes on in the regular classroom (cf. Bruner 1996; Dewey 1916;1938; Wells 1999). After the perestroika, however, Davydov drastically changed his research program. He got more interested than before in the issue of the *existential* learning experiences of the various categories of students involved.

I started this essay with a reference to three standards of quality that I borrowed from William James. In view of these educational standards I elaborated my argument concerning two thorny issues in respect to my reflection on the Davydov-inspired interpretations and extensions of the Vygotskian paradigm. For more details I refer to the literature (cf. Carpay 1999; Lipman 1996; Wells 1999). In this essay I tried to keep away from excessive conceptual analysis as well as from psychometrical treatment of the various research findings. Rather I like to quote William James once more. At the conclusion of one of his *Talks to students* James remarked: "I was speaking broadly, I know. (...) But one can only make one point in a lecture, and I shall be well content if I have brought my point home to you today even in a slight degree" (cf. James 1897).

To end, I am of the opinion that a *comparative content analysis* of the various Vygotsky-inspired curriculum studies in Russia with those in other countries can provide us useful guidelines for thinking and arguing on a wide array of educational concerns. It is my strong conviction, that a Vygotsky-inspired pedagogy of mutuality can offer an orienting framework for making sense of new ideas, practices, and mandates. In reviewing the Russian Vygotsky-inspired literature referred to previously, I was deeply impressed by the contemporaneity of some pivotal concepts, the datedness of others, the omission of yet others, and the way in which some pedagogical background issues have risen to the fore since after the launching of the first Russian Sputnik 'the battle of books' (cf. J. Swift 1704) has started.

Notes

1. I borrowed this materialization for sentence parsing (conceived as a monitoring device) from musical notation. It goes without saying, that by using such a monitoring device an initially *successive* pattern of action can be gradually shaped into a *simultaneous* one which greatly facilitates the conjoint meaning making in the domain of reading pedagogy in the mother tongue as well as in a foreign language (see further Carpay 1995).
2. In this essay I have chosen to use the term teaching format instead of the Russian term *method* in conformity with the parlance in western cognitive psychology. The strange-sounding expression 'ascending from the abstract to the concrete' needs, however, some further explanation for readers who are not familiar with Hegel's *Phenomenology of Mind* (1807) on which Davydov's approach to Developmental Education chiefly is based. Because this explanation far exceeds the usual extent of a footnote it is added as an appendix to this essay.
3. In fairness I have to add that from 1990 onwards Davydov has paid more attention than previously to the *existential learning experiences* of the students being taught according to new experimental curricula that were developed after the perestroika. To my knowledge, however, from the Russian literature dealing with this issue not much has been translated in English. In my opinion though the data supplied by Davydov and his adherents have a great family resemblance to what is reported under this heading in western literature (cf. Carpay 1999; Lompscher & Hedegaard 1999; Chaiklin et al. 1999; Wells 1999). Therefore, by means of this detour Davydov's *developmental claims* could be corroborated.

Appendix

In the context of the Russian Vygotsky-inspired educational psychology the terms abstract and concrete do not mean the same thing as abstraction and generalization, at least not in the sense in which these terms are used in a Piaget-inspired vocabulary. Rather, it is a process in which we achieve higher-order thinking as a result of ongoing negotiation and communication with others. This focus on the emergent of meaning (semiosis) goes back to Hegel's *Phenomenology of Mind* (1807). According to Hegel the search for new worldviews is an ongoing activity (cf. also Peirce and Dewey on the principle of continuity). The human Mind is dynamic and active. Repositories of knowledge are mastered by a gradual expansion of the conceptual matrices of the discipline-specific 'language games' concerned with which we come into contact through communicated thinking and public speech. "Concepts grow", as Peirce once said.

According to Gal'perin as well as Davydov the issue of *conceptual change* and the various shapes it takes must be made the main focus of educational research. Davydov's A/C-teaching format refers directly to this Hegelian (or Peircean) universe of educative discourse (see further Lompscher 1999). Davydov's orienting framework is emphatically inspired by Hegel's conception of interindividual distributed cognition (see further on this 'dialectical approach' Marková 1982, part II). By the term *orienting framework* I mean a set of basic assumptions concerning the nature of the knower, the known, their mutual relationship and the interplay between them. Two things are important in this respect. First, the initial grasping of an object of thought by a novice is by necessity vague, or *abstract*, to use Hegel's term. Its subsequent domain-specific understanding takes various shapes during the actual process of *concretization* (Russian: otrabotka). Meaning making (semiosis) proceeds in and through an ongoing movement of thought from the whole to the part and from the part back to the whole, i.e. by a gradual (re)construction of the *initial abstraction* (or the germ-cell as it is called by Davydov). It is only through the abstraction of the parts that the whole can be aggregated on a higher conceptual level. Therefore, according to Davydov cognitive bottom-up as well as top-down processes (conceived of as a gradual transition under the teachers' guidance from a higher to a lower level of abstraction) constitute the units of analysis in curriculum studies. Consequently, from his perspective scientific (or theoretical) knowledge essentially presupposes

- continuity or growth in the spirit of Peirce and Dewey, i.e. the students actually expand their sociocultural horizon
- intersubjectivity, i.e. mutual understanding (cf. Carpay 1999; Wells 1999)
- exteriorization, i.e. meaning making by means of spoken and written texts (re-)produced by the students themselves (cf. Carpay & Van Oers 1999; Wells 1999).

This (re-)production of texts (promoted and sustained by means of educative discourse) keeps things going according to Davydov (cf. Davydov 1999). His (macro-)genetic perspective on an emergent curriculum though appears to have a great family resemblance to Bruner's spiral curriculum (cf. his well-known *Man: a course of study* 1970). In my opinion, the same holds true for Ausubel's use of advance organizers (cf. Ausubel 1960). According to him, we must teach the students e.g. the abstract concept of religion before we can bring them into contact with concrete texts on the doctrines and ritual practices of the various persuasions. Additionally, I note here that Davydov's A/C-teaching format also bears a great resemblance to Gal'perin's concept of orientation on and in the learning task (cf. Arieivitch & Stetsenko 2000; Haenen 1996; 2001; Kozulin 1997). The difference between Gal'perin's and Davydov's approaches to conjoint meaning making and conceptual change, however, is that the latter is chiefly concerned with the rationale and the institutional aspects of a thinking curriculum, whereas the former restricted himself to the actual problem-space confined by the nature of the learning task as such. So Gal'perin's focus was on the parameters of learning activity in and for themselves, whereas Davydov also focused on the institutional aspects of school-based knowledge.

Since there is extensive literature on interindividual cognition and on the search for an orienting framework through which the various outcomes of conjoint meaning making may be integrated in the repertoire of knowledge of the students involved, it seems to me unnecessary to labor this issue here any further. (For more details I refer to Arieivitch & Stetsenko 2000; Haenen 1996; 2001; Kozulin 1997; Wells 1999.) What remains to be mentioned though is that Davydov had not solved two of education's most persisting problems, i.e. the difficulty in achieving the systematic hand-over of the co-responsibility for the learning task from teacher to student, and the apparently inevitable reproduction of educational inequity. In Davydov's experimental schools there is success and failure, although the manifestations of these two phenomena differ significantly from the shape they take in the average (Russian) school (cf. Dušavitsky 1997).

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