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Knowledge for teaching and knowledge to teach: two contrasting figures of New Education: Claparède and Vygotsky

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The debate on knowledge in New Education is generally dominated by two opposed Anglo-Saxon positions held by Dewey and Thorndike. This paper presents another line of division. Claparède and Vygotsky, two representative European figures of New Education are both scientists constructing a theory of psychological functioning, and heavily engaged in school reforms. Their conceptions of knowledge in education are nonetheless contrasted. We demonstrate it in analyzing their work from three points of view: the relationship between education and development; the nature of knowledge to teach; and the kind of knowledge necessary for teacher education. For Claparède, education follows natural development; knowledge to teach has to be useful and linked to everyday life; knowledge for the teacher is essentially knowledge on the child. For Vygotsky, education precedes development; knowledge to teach is systematic, different from everyday knowledge, transforming the relationship to its own psychic processes; knowledge for teachers is knowledge to teach and about teaching. Claparède's approach can be described as abstract negation of the traditional school; he wants a Copernican revolution, a completely different school linked to everyday life. Vygotsky's approach can be characterized as determined negation; he wants to build on the traditional school, maintaining and transforming knowledge organized systematically in formal disciplines.

Keywords: Vygotsky; Claparède; New Education; knowledge; teacher education; education and development

"New Education", that broad educational reform movement that emerged at the end of the nineteenth century and peaked in the 1920s,[1] was far from uniform, either in its position on the role of knowledge to teach and for teaching, or in the profile or indeed the social and institutional affiliations of its protagonists: teachers, researchers, administrators, school founders, etc. In this contribution, we explore the relationship between new education and "knowledge", asking *what role knowledge producers gave to knowledge in the educational reforms of the first decades of the twentieth century*. Drawing our inspiration from Foucault,[2] "knowledge (savoir)" will mean, in

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[1]Rita Hofstetter and Bernard Schneuwly, eds, *Passion, Fusion, Tension. New Education and Educational Sciences – Education nouvelle et sciences de l'éducation (End Nineteenth – Middle Twentieth Century – fin 19e – milieu 20e siècle)* (Berne: Lang, 2006).

[2]Here is the definition proposed by Foucault: "This series of elements, formed in a regular manner by discursive practice and indispensable for building up a science, even though not necessarily meant to give rise to it, can be called *knowledge*". Michel Foucault, *Archéologie du savoir* (Paris: Seuil, 1969), 238 (underlined in the text).

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this text, the series of systematically produced statements or procedures incorporated in circumscribed, discursive, socially constituted and accepted practices. In other words, we refer here to what some call "objective knowledge", as opposed to "detained knowledge".[3] Objectivisation occurs in discursive practices that can take the form of scientific disciplines in the science system and school subjects in the school system.

The question we have just put could not be answered properly, within the limits of this article, by presenting and analysing the main contrasting positions in the field. Instead we have to find the prototypical paradigms that in some way delimit the field of the possible, within which of course many variations can be envisaged. In the literature, two paradigms have been analysed profusely, probably because they appear markedly to determine the Anglo-Saxon debate: the positions adopted by Thorndike on one hand, and Dewey on the other, represent what Labaree calls the administrative and pedagogic versions respectively of *progressive education*, and which are diametrically opposed in their conception of knowledge for teaching and to teach.[4] Although these paradigms and opposing positions have had a lasting influence beyond their original context, they are not really effective for describing the structure of the positions in mainland Europe. We shall outline that structure as it appears in the relevant historical and theoretical literature. It first materialised as a systematically constructed and asserted opposition between, on one hand, the pedagogic theories dominant at the end of the nineteenth century, Herbartianism in particular, and on the other, the tenets of new education that emerged by negation of the classic position, well beyond the actual differences.[5] Both positions continued to develop in various forms, new education positioning itself by definition in a space that it constructed as different, as "new". Most researchers in the field of education came over spontaneously to this camp, defined in opposition to the "old school" and the "old theories", sometimes criticised wholesale: Meumann, Claparède, Decroly to mention the most important. There have been few influential authors in this field who have not based their theories on this demonisation of the past or who have at least recognised the pertinence of some postulates of the old school. Lay, focusing his researches on the act of teaching, seems to have taken such a position "between old and new pedagogy"[6] in Germany; Adams could be said to have done so in England (see here also Aldrich); and in Russia, in the

[3]Jean-Marie Barbier (Ed.), *Savoirs théoriques et savoirs d'action* (Paris: Presses Universitaires de France, 1996).

[4]David F. Labaree, "Progressivism, Schools and Schools of Education: An American Romance," *Paedagogica Historica,* XLI (2005): 275–88. See also Ellen Lagemann, *An Elusive Science: The Troubling History of Education Research* (Chicago: Chicago University Press, 2000) and Thomas S. Popkewitz, "The idea of science as planning was not planned. A historical note about American pedagogical sciences as (re)making society and individuality," in *Passion, Fusion, Tension. New Education and Educational Sciences – Education nouvelle et sciences de l'éducation (End Nineteenth – Middle Twentieth Century – fin 19e – milieu 20e siècle)*, ed. R. Hofstetter and B. Schneuwly (Berne: Lang, 2006).

[5]Rotraud Coriand and Michael Winkler, eds, *Der Herbartianismus – Die vergessene Wissenschaftsgeschichte* (Weinheim: Wissenschaftliche Buchgesellschaft, 1998).

[6]Marc Depaepe, *Zum Wohl des Kindes? Pädologie, pädagogische Psychologie und experimentelle Pädagogik in Europa und den USA, 1890–1940* (Weinheim: Wissenschaftliche Buchgesellschaft, 1993), 229. In order to facilitate reading, we have translated all texts into English.

pedologic debate dominated by Blonski and Vygotsky, the latter adopts a similar point of view, undoubtedly the most developed and penetrating.[7]

Here we propose to examine in depth this latter theoretical contrast in the context of mainland Europe. To do this, we choose to compare the positions adopted by two symbolic figures of the new child science: Edouard Claparède (1873–1940), for pragmatic reasons of access to the sources and knowledge of the social context; and Lev Sémionovitch Vygotsky (1896–1934), for theoretical reasons already mentioned.[8] They share numerous traits, among which was their commitment as scientists to the new child science and their deep conviction that educational reform based on this new science was vital. The first part shows these common points, drawing mainly on the in-depth biographical works available to us.[9]

To clarify the role they assign to knowledge (here understood generically) in educational reform, we have at our disposal everything published by Claparède[10] and a substantial part of the writings of Vygotsky[11] in the works chosen and in many others now available in Russian and other languages. We have examined their works bearing in mind three questions around which the second and third parts of this contribution, devoted to Claparède and Vygotsky respectively, are structured:

- What is the relationship between development and education? This more general question enables us to outline the theoretical background for understanding the role each assigns to knowledge in the development of the child.
- What is knowledge *to* teach? Or: how do these two educational knowledge producers approach, from their science, the role of knowledge to teach and learn in school?

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[7]Feliks A. Fradkin, eds, *Research in Pedagogics: Discussions of the 1920s and the early 1930s* (Moscow: Progress Publishers, 1990), 238.

[8]We mention anecdotally that one of the authors of this article has spent some 20 years studying the work of L.S. Vygotsky, editing and commentating on some of his work in French. See notably Bernard Schneuwly and Jean-Paul Bronckart, eds, *Vygotsky aujourd'hui* (Paris: Delachaux et Niestlé, 1985). Bernard Schneuwly, "Les capacités humaines sont des constructions sociales. Essai sur la théorie de Vygotsky," *Journal européen de psychologie de l'éducation* 1 (1987): 5–17. Bernard Schneuwly, "Contradiction and development: Vygotsky and paedology," *European Journal of Psychology of Education* 9 (1994): 281–92. Michel Brossard and Bernard Schneuwly, eds, "Learning and development: contributions from Vygotsky's theory," *European Journal of Psychology of Education* 9 (1995) (Special issue).

[9]Biographical information on Claparède is found in Daniel Hameline, "Edouard Claparède (1873–1940)," *Perspectives* XXII (1993): 161–73; Carlo Trombetta, *Edouard Claparède: la famiglia, l'infanzia, glie studi, bibliografia* (Roma: Bulzoni, 1976); Carlo Trombetta, *Edouard Claparède psicologo* (Roma: Armando, 1989). And on Vygotsky, in Angel Rivière, *L'œuvre de Vygotsky* (Bruxelles: Mardaga, 1991); René Van der Veer and Jan Valsiner, *Understanding Vygotsky: A Quest for Synthesis* (Oxford: Oxford University Press, 1991); Gita L. Vygodskaja and Tamara M. Lifanova, *Lev Semjonovic Vygotskyj. Leben – Tätigkeit – Persönlichkeit* (Hamburg: Kovac, 2000). For simplicity, we unify the writing of the name "Vygotsky" in the present English text, including the bibliographical references.

[10]Trombetta, *Edouard Claparède*, made an extremely detailed inventory of all Claparède's published manuscripts and writings. These texts can be accessed in various libraries and archives in Genève.

[11]T.M. Chalevitch, "Bibliografia trodov L.S. Vygotskogo" [Bibliographie des œuvres de Vygotsky], *Voprossy psichologii* 3 (1974): 152–60, produced a complete bibliography of the writings of Vygotsky on the 40th anniversary of his death. This bibliography has been republished in several works, the latest in Vygodskaja and Lifanova, *Lev Semjonovic Vygotskyi*, with some additions. Where they exist, we quote translations of Vygotsky's texts into a Western European language.

- What knowledge is required *for* teaching? Or: how do they view teacher training and what role does (scientific) knowledge play in this training?

The fourth section symbolically illustrates the difference between the two protagonists in their relationship to the Rousseauistic tradition of education. The conclusion offers some explanation of the differences, and links the present analysis with others examining a comparable pair of protagonists, in this case Dewey and Vygotsky, in order to open up new possible lines of research.

Two scientists committed to school reform based on scientific knowledge

Both Claparède and Vygotsky were first and foremost researchers working in scientific networks and institutions. At the start of their scientific work, both took a stance as psychologists: one by a masterly criticism of associationism, regarded as pioneering in Europe along with those of Binet and Marbe;[12] the other by an equally masterly criticism – certainly 20 years later – of psychology through an analysis of the crisis it was going through.[13] And both, in their attempts to recast psychology, considered the applied dimension of psychology as the essential driving force for developing the discipline further. Both, moreover, were prompted to transcend a limited view of that application to theorise the relationship between scientific approaches and education. Both attempted to define new areas of research or emerging disciplines, in a complex relationship with psychology: pedology and child science, then experimental pedagogy, "medico-pedagogy" in the case of one; pedology and defectology for the other. Pedology, specifically the science (of the development) of the child, was for both an area for preferential attention. Each, 20 years and thousands of miles apart in starkly different sociocultural contexts, played an important role in developing this discipline. With Meumann, Claparède sought to bring together two rival components of the pedological movement in Europe. In his conception of the relationship between child psychology and pedagogy, he assigned to this science the central role of mediator between psychology and prescriptive approaches to education. Even after the disappearance of the pedological movement in Western Europe after the First World War,[14] Claparède continued to promote scientific approaches to the child and education (child psychology and development; experimental pedagogy; and psychology applied to

[12]Edouard Claparède, *L'association des idées* (Paris: Doin, 1903). For an appraisal of that text, see Jean Piaget, "La psychologie d'Edouard Claparède," *Archives de psychologie* 28 (1941): 193–213.

[13]Lev Semionovitch Vygotsky, *La signification historique de la crise de la psychologie* (Neuchâtel et Paris: Delachaux et Niestlé, 1927/1999). We mention anecdotally that Vygotsky refers on many occasions to the works of Claparède in the context of psychological theorisation, particularly to his theory of consciousness, of forming hypotheses and of the distinction between emotions and feelings. Conversely, Claparède never to our knowledge quoted Vygotsky and seems not to have known him. Moreover, apart from an article on child cultural development published in 1927, and a paper – very badly translated into French – proposed for the Congress of Applied Psychology in Barcelona in 1930, which Claparède attended but not Vygotsky, no texts by Vygotsky were accessible in any language other than Russian; but Claparède apparently was not put off by linguistic barriers, and maintained close relationships with a number of colleagues from Eastern Europe, to which he was also linked through his wife, Hélène Claparède-Spir from the Ukraine whose grandfather was Russian.

[14]Marc Depaepe, "Le premier (et dernier) congrès international de pédologie à Bruxelles en 1911," *Bulletin de la Société Alfred Binet et Théodore Simon* 87 (1987): 28–54.

education by means of psychological tests; etc.), which he saw as essential for tackling the problems of education. Vygotsky, for his part, was one of the principal theorists of the pedology movement in the Soviet Union during its rapid rise with the first Congress of Pedology in 1928, when Krupskaya, a member of the influential Committee of the Peoples Commissariat for Education, attributed an essential role to this discipline in the development of educational systems.[15] He published a series of texts in the principal review of the disciplinary field. As Mecacci notes,[16] most of the articles and works published during his lifetime are in the field of pedology (and defectology), the role and status of which Vygotsky theorised by arguing: "The basis for setting up pedology as an independent science is recognition of the objective reality of the unified process of child development which is its subject matter",[17] child psychology being a branch of this science.[18]

The theoretical positioning of Claparède and Vygotsky in the field of pedology and child science also springs from a deep common conviction: that to improve educational institutions and practices, the new child science had to be deployed. In *An educational science institute and the needs to which it responds*, which is an impressive plea to this end, Claparède says: "Only a strictly scientific and psychological foundation will give pedagogy the authority it needs to win over opinion and force through desirable reforms".[19] And "the salvation of pedagogy lies only in controlled observation and provoked observation".[20] Two kinds of experiments are then mentioned: those that "are aimed at controlling a new pedagogical method, or at producing a special system"; and those, "more psychological, that are aimed at … knowing the mentality of the child", for which he endeavours to show there was a pressing need. With Vygotsky, although he did regard the applied fields as the driving force for the development of psychology,[21] he wrote no such programmatic text. However, he did work ceaselessly on constructing a theoretical framework and setting up empirical procedures that incorporate education and above all teaching as basic concepts. This is the case in his work with handicapped children, in which he proposes procedures in line with a conceptualisation of the question of the specific development of such children; this is also the case in his views on the development of scientific concepts, of the imagination or even emotions in children and adolescents where the question of formal education, in other words the school, is a central concern. Therefore, under different forms, which we shall analyse in more detail when we deal with the question of knowledge *for* teaching (and

[15]Nadezhda S. Krupskaya, "Speech to the first congress of pedologists," in *Research in Pedagogics,* ed. Fradkin (first published 1928), 242–43.
[16]Luciano Mecacci, "Introduzione," in *Vygotskyj: Antologia di scritti a cura di Luciano Mecaccci* (Bologna: Mulino, 1983), 7–35.
[17]Lev S. Vygotsky, "To the question of psychology and pedology," in *Research in Pedagogics,* ed. Fradkin (first published 1931), 325.
[18]The continual need to redefine the frontiers of their field of scientific action – a trait common to both – is also both an indication and an effect of their involvement in diverse social, scientific and professional fields, which are always changing and imposing continual readjustments. Vygotsky even devoted a lesson from his last course 1933–1934 in Leningrad to this. See chapter 1 of the pedology lessons "Pedology as a discipline," in L.S. Vygotsky, *Lektii pedologii* [Lessons on pedology] (Ijevsk: University Press Outmourti, 1996).
[19]Edouard Claparède, *Un Institut des Sciences de l'éducation et les besoins auxquels il répond* (Genève: Kündig, 1912), 19.
[20]Ibid., 27.
[21]Vygotsky, *La signification historique de la crise,* ch. IV.

educating), our two protagonists give a central place in the scientific approaches for the development of institutions and educational practices.

Both weave close links between university as a place of research and teaching and the social and professional fields of education. To this end, they set up networks of collaborators, researchers, practitioners and students, thereby closely linking research and practice, and they founded their institutions in response to that same aim. In 1912 Claparède set up the Jean-Jacques Rousseau Institute which became the "Institut des sciences de l'éducation" (Institute of Educational Sciences), "inventing" at the same time the French name for the emerging disciplinary field; an institute which during the 1920s became one of the leading centres of new education in Europe, indeed one of its incarnations. As for Vygotsky, he began in 1925 by setting up a psychology laboratory for abnormal children which, in 1929, became the Institute of Experimental Defectology; he also helped to develop the Teacher Training Institute at the University of Tashkent and trained teachers at the A.I. Herzen Institute of Leningrad.

Both were heavily involved in the movements advocating scholastic and educational reform. This is evident in numerous facets of their work:

- publications distributed in both scientific and professional networks, lectures and debates at pedagogic events of all kinds, the development of new teaching methods; and
- the adoption of positions in favour of educational reforms promoting teaching methods that gave a more active role to pupils in the learning process; a commitment driven by the conviction that the school was a key instrument for the advent and consolidation of democracy, or in general for elevating human beings and improving society.[22]

Both shared the most advanced ideas of the progressionists of this movement – the weakness of the commitment to democracy by some fringe elements of the movement is well known – to which they allied themselves from the field of science. So the two protagonists display numerous points of convergence: involvement in psychology; definition of a separate scientific field for child research; development of institutions providing a link between research and practice; active engagement in scholastic and educational reform movements. And knowledge plays a central role with both. But what role exactly?

Claparède: functional education – knowledge as a means of thought

The interests of the child and knowledge

The psychology on which Claparède based his approach to educational phenomena displays a series of important characteristics that determine the way he thought about the relationship between psychology and education on one hand, and the forms that education must take on the other. Constructed from a critique of associationism, it is an anti-empiricist and non-mechanical psychology that refuses to see the mental abilities as products of a combination of simple elements. Claparède introduces in his

[22]Edouard Claparède, "L'éducation et la démocratie," *Bulletin de la société pédagogique genevoise* V (1917): 11–19. Lev S. Vygotsky, "The socialist alteration of man," in *The Vygotsky Reader*, ed. R. Van der Veer and J. Valsiner (Oxford: Oxford University Press, 1927/1994), 175–84.

theory explanatory elements such as interest or feelings that constitute general reactions by the organism to given conditions at a given moment, useful to the life of that organism. This functional approach is biological in that the functions are always defined by vital needs of the organism; this also implies that these functions are constant, but can be realised through actions that take different forms depending on the living conditions or changing abilities of the organism.

Claparède transposes this functional theory of psychology to the field of education,[23] thereby establishing, as evoked by the title of one of his books, a "functional education". In it he defines a series of principles at the root of all educational and particularly scholastic intervention – his texts are essentially about schools – the most important being stated as follows: "The action is triggered when it is of a nature to satisfy the need or interest of the moment".[24] Which means that the need and the interest must be created before instruction is attempted and that it is necessary to start from where the child is and to put at the centre programmes and, above all, methods: methods must be created to "capture the interest", because "once the interest is captured, the rest happens on its own, or very nearly does".[25] Play is the favoured means for capturing the interest at school age, Claparède then advocates, in reference to the theories of Groos: "No, the child must develop by himself. The two instruments he instinctively uses to do this are play and imitation."[26] Because, in effect, "childhood is for play and imitation".[27] Or to put it in a more abstract form: "childhood is not an accident, an aberration, but is the *very form* that the development of the being takes".[28] Therefore, education cannot exclude play on the pretext that it would be ineffectual, even counterproductive; on the contrary, it must place play at the centre, the interest of play being, by definition, the only one that is valid during childhood. On the basis of the premises stated, Claparède shows that it is only through play that real effort can be aroused, that interest alone is what enables the child to overcome its defensive reflexes against a difficult unpleasant task. So education must be appealing and the school system "revolutionised from top to bottom".[29]

But what interests are to be considered? How do these interests develop? To answer these questions, Claparède refers to a biological, a natural theory of development. Generally speaking, interesting objects and acts evolve from the simple to the complex, from the concrete to the abstract, from passive receptivity to spontaneity, from indetermination to specialisation, from subjectivity to objectivity, from immediacy to mediacy. From this, it is possible to describe the successive periods of evolution of interests:

(1) Perceptive interests (infancy, first year);
(2) Glossal interests;

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[23]Edouard Claparède, "Conception fonctionnelle de l'éducation," *L'Informateur des aliénistes et neurologistes* (December, 1922): 260–61.
[24]Edouard Claparède, *L'éducation fonctionnelle* (Paris: Delachaux et Niestlé, 1931/2003): 109.
[25]Edouard Claparède, "Réflexions d'un psychologue," *Annuaire de l'instruction publique en Suisse* XVI (1925): 45.
[26]Edouard Claparède, *Psychologie de l'enfant et pédagogie expérimentale* (Genève: Kündig, 1916), 430.
[27]Ibid., 482.
[28]Ibid., 487, italics in the text.
[29]Ibid., 497.

(3) General intellectual interests (the whys);
(4) Special interests: occurring during schooling, this phase is particularly important – also from the point of view of our problem – and follows the fundamental biogenetic law of Haeckel which postulates a parallelism between the evolution of a species and that of the individual, and therefore supports the recapitulation hypothesis. For the special interests, Claparède refers here to Hutchinson who describes the successive appearance of hunting, pastoral, agricultural and commercial interests;[30] and
(5) Social and ethical interests (12 years; adolescence).

At school, these natural interests should be made to coincide with the teaching according to two principles which Claparède sums up thus: "1. Education must not thwart this natural evolution; 2. It must as far as possible help it along."[31]

Now what is the role of knowledge in this idea? The answer is clear and often repeated: "Knowledge serves action",[32] or to quote another expression: "Knowledge must be subordinate to thought[33]; it is not thought that must be subordinate to knowledge."[34] So in Claparède's theory, development is determined in two ways. First, naturally, biologically, through the development of interests; these interests define what is teachable and situations conducive to the exercise of thought. It is thought and exercising it, in other words action, that are at the centre of development; knowledge is subordinate to them. Second, by the development of the child by him/herself, through play and imitation, which are the means for creating situations favourable to action. In this conception also, knowledge has a subordinate role. Claparède affirms moreover that "the importance given to knowledge has the consequence of extinguishing the activity of intelligence"[35] and sometimes even produces a contradiction between thought – the search for a solution to a problem – and knowledge as it exists socially, for example in written form. Knowledge is conceived of as a given thing, inert, that can be picked up in books if necessary, that is there, (too) easily accessible: "gently suck the thinking of others, as it is less taxing than using your own brain".[36] Instead of taking it ready-made, we should construct knowledge, which seems to be possible through searching and experimenting.

No doubt fostered by a spontaneous view of the young child developing naturally in a natural world, this "distrust" of constituted and objectivised knowledge in teaching and development sometimes gives way to another idea, in which constituted knowledge responds to a questioning arising from the interests and needs of the child who can, in his/her own way, improve him/herself from books, dictionaries, encyclopaedias, etc. But the fundamental verdict remains: knowledge serves thought and action which

[30]Ibid., 533.
[31]Ibid., 544.
[32]Claparède, *Education fonctionnelle,* 181.
[33]In his expressions we see the profound influence of pragmatism on Claparède, a disciple of Flournoy, himself a friend of William James. Claparède himself acknowledged his debt to this founder of pragmatism in an article written on the death of the philosopher. As we shall see later in the present text, Claparède was also strongly influenced by another great pragmatist, John Dewey.
[34]Claparède, "Réflexions d'un psychologue," 4.
[35]Ibid., 15.
[36]Ibid., 11.

develop through their own natural logic. Knowledge does not transform thought or modes of action; it is not in itself dynamic.

The school and functional education: a necessary Copernican revolution

Having taken up this position, Claparède goes on to a harsh criticism of the school which, for him, put too much emphasis on knowledge, often pointless, unconnected with the thought and action of the child. In numerous passages of his work, he writes a merciless indictment of the school: passive storehouse of knowledge, formalism, verbiage, pedantic presentation of disciplines. In Claparède's view,[37] Herbart did certainly construct a coherent and complete system of teaching, based moreover on psychology. But by his intellectualism he turned education away from action, stating that the introduction of new knowledge would by itself be a source of interest and a motive for new studies. The school that results from this is described by Claparède thus:

> It crams children with a quantity of knowledge which they do not see ever being useful in facilitating their conduct; it makes them listen without wanting to hear; it makes them speak and write … when they have nothing to say; it makes them observe without first being curious; it makes them reason without wanting to discover anything; it makes them make efforts the school imagines to be "voluntary" without first gaining the acquiescence of their self to the task imposed, an internal assent that would only give this submission to duty diminished moral value. In a word, it dissolves elements whose association is their raison d'être; in breaking their natural link, it kills them, as you kill a flower that you separate from its stem, a stem that you separate from its root.[38]

Imbued with the precepts of Herbart, the school was orientated towards the teacher; its plan was that of the logical order of knowledge. A Copernican revolution was imperative: "The educational system gravitating around the child, no longer the child lying willingly or otherwise in the Procrustean bed of the system, that is the great principle of method that made Rousseau the Copernicus of pedagogy",[39] exclaims Claparède, reiterating the call he had made at the beginning of the century.[40]

Thus, Claparède proposed an education of the child that is realised from the inside, not from the outside: it should consist not of an external action performed by the teacher but of an act of the child him/herself, an act that follows the arousal of internal motives. He sums this up by stating that functional education "does not demand that children do anything they want … rather it demands above all *that they should want to do everything they do*, that they act, not be acted on".[41] Knowing these motives that

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[37]Ibid.

[38]Edouard Claparède, "Introduction. La pédagogie de Mr. J. Dewey," in *L'école et l'enfant*, J. Dewey (Neuchâtel, 1913), 19.

[39]Claparède, *Education fonctionnelle*, 121.

[40]The year 1905 is the date of the first edition of his *Psychologie de l'enfant et pédagogie expérimentale*. In 1912, his important article appeared: Edouard Claparède, "Jean-Jacques Rousseau et la conception fonctionnelle de l'enfance," *Revue de Métaphysique et de Morale* 20 (1912): 391–416 and his programmatic text: Edouard Claparède, *Un Institut des Sciences de l'éducation et les besoins auxquels il répond* (Genève: Kündig, 1912).

[41]Edouard Claparède, "Les nouvelles conceptions éducatives et leur vérification par l'expérience," *Scientia* February (1919): 144.

can trigger action and effort, bringing them into play by placing the child in the appropriate conditions, that should be the aim of education. So Claparède proposes a teaching process comprising three stages: awakening a need by placing the pupil in a stimulating situation; triggering by this need the child's own reaction to satisfy it; acquiring the relevant knowledge for controlling this reaction.[42] Claparède's specific proposals therefore consist of showing how play can function as a powerful teaching aid: it can capture the pupil's interest, since play is the need that characterises, even defines, childhood. We note, however, that, from these postulates, Claparède did not develop a theory of play situations from which a new scholastic advance based on his theory of interests could be made. The realisation of his principles – starting from situations to create a need – essentially takes place by inversion: given school curricula, how can they be transformed into a play situation? How can suitable situations be found for teaching the existing curricula, which can certainly be adapted but which fundamentally follow accepted scholastic principles?

How should we define Claparède's attitude to the role of objective knowledge? We shall merely outline some main themes, which are difficult to elucidate as they do not come from theories produced by the author, but are revealed in remarks and examples scattered throughout his texts. We can identify two ways of posing the problem, which would seem partly contradictory, and which undoubtedly convey a kind of ambivalence. On one hand, we detect a rejection of bookish knowledge which Claparède proposes to replace by immediate experience. The clearest definition appeared in the introduction to Dewey to whose approach Claparède adheres, explaining it in his own way and relating it to those of other educational thinkers such as Kerschensteiner and Ligthart.[43] What must be at the centre of the school and what can arouse interest is manual work carried out together:

> It is what Dewey wanted to place at the centre of school life, and most other branches of learning; in becoming the assistants, they would draw from this situation great advantage for themselves, because it would give them that functional value, that instrumental value that can make them meaningful in the eyes of the children.[44]

Manual occupations constitute "points of departure from which children will be led to realise the historical development of mankind".[45] A genuine opposition is introduced between knowledge and thinking. The essential thing for Claparède was searching; knowledge must not be given. This position can go as far as a plea against reading:

> Reading completely changes the child's attitude; from active, he becomes passive. Instead of experiencing things, he stores words … it is easier to get the child to read a book, to memorise printed pages than to show him things themselves…. By over-developing visual images of words in children, we compete against the development of the verbal auditory memory…. In starting the study of foreign languages, the fact that the children can read is certainly a danger…. Myopia has a certain relationship with reading.[46]

[42]Edouard Claparède, "La psychologie de l'école active," *Intermédiaire des Educateurs* 97 (1923): 369–79.
[43]Claparède, "Introduction. La pédagogie de M.J. Dewey."
[44]Ibid., 25.
[45]Ibid., 27.
[46]Edouard Claparède, "Sur l'âge de la lecture," *Intermédiaire des Educateurs* 4 (1916): 92–96, 95.

Apparently, what begins as a criticism of memorisation taken to extremes ends up as an equally systematic criticism of all "objective" knowledge. The ideal seems to be the reconstruction by the child of all knowledge in a quasi-natural process in work situations. Knowledge, systematised, objectivised, organised in disciplines, appears to hold back thought. It is potentially harmful, especially if it is not reconstructed, rediscovered by the child. Indeed teaching in its classic sense disappears – we shall return to this later. One could say in a way that, after the tabula rasa that, according to Claparède, the child would constitute for Herbart, there follows the tabula rasa of knowledge always reconstructed anew by each child. Here is without doubt the profound truth of the recapitulation of phylogenesis in ontogenesis, a Haeckelian thesis to which Claparède subscribed, as we have seen.

At the same time, however, there exists a less radical version of the view of the school which takes its disciplinary organisation as established and which aims basically to transform the methods of appropriation of knowledge, by proposing play to arouse the need, by transmuting – to use an expression dear to him – audiences into laboratories. Here we are in another relationship. Let us take an example given by Claparède himself: the subject is given, history; the theme is defined by the study plan, the crusades, and it is introduced for example by a film. Thus, to answer the question of why the crusades occurred:

> … it will be up to the pupils to look – to look in dictionaries, history books, special books, for an answer to this question. Whenever they find the answer themselves, they will not only have sharpened their mind by searching, but will also know what the Crusades were.[47]

Other examples follow the same tack of a de facto acceptance of the disciplinary framework but a transformation of the methods. Let us take this other extract: "For the pupil to have a proper understanding of the practical value of these subjects [history, geography, mathematics], he must be made to feel the social needs that have led to the edification of the various disciplines of knowledge."[48] Knowledge here is given and accepted as it is. The main question lies in the adequacy of the method, of the setting for appropriation of the knowledge.

Let us take a closer look at how Claparède conveys these concepts through his reflections on grammar.[49] He defends the theory that language should not be studied "outside the role it is called upon to play in life, in the reality of things". He then goes on to criticise harshly the way in which it was taught in traditional schools, which favoured a purely formal approach, one of categorisation, of rules, of lists and tables. Now, asserts Claparède, "language is not a set of rules, a list of words and a conjugation table, it is the concrete manifestation of inner life".[50] That kind of knowledge is useless, even harmful, and overburdens the memory: "The teaching of grammar as it is carried out and the study of rules are unimportant for teaching children to speak correctly".[51] Measured in terms of utility, grammar is discredited. It is not knowledge that can serve

[47]Claparède, "Réflexions d'un psychologue," 19.
[48]Claparède, "Introduction. La pédagogie de M. J. Dewey," 28.
[49]Edouard Claparède, "N'attribue-t-on pas trop d'importance à l'étude de la grammaire à l'école primaire?," *Bulletin de la Société pédagogique genevoise* 4 (1910): 46–49.
[50]Edouard Claparède, "Principes généraux," in *Inediti pedagogici*, ed. S. Bucci (Perugia: Universitá degli studi, 1911/1984), 249.
[51]Ibid., 217.

action, or if it is, it can do so only marginally. For Claparède,[52] language must above all allow the child to express his (or her) thoughts. He must never exercise his faculty of speaking blankly, as one would work on an empty stomach. From there, he needs to be given the means to improve the way he speaks and writes; by observing the reality he has to convey, by enriching his vocabulary, imitating the teacher, by giving him frequent occasions to speak. Language development is in complete continuity with what comes before: it is by speaking that we develop speech, by creating the need for the action of speaking, while maintaining consistency with the child's possibilities. Learning follows development. The place of grammar, of grammatical knowledge for action, to paraphrase Claparède, is marginal by force of circumstances. First, because it is not psychologically possible to refer to grammar in the action: "To speak correctly he should not need to interrogate his memory constantly.... It is the function of language that he must exercise, and not memory for the rules of grammar."[53] Second, because the questions that grammar can answer are marginal; they are about uncertain cases that could not be decided without grammar (Claparède mentions the difference between "quelque" [some] and "tout" [all]) and of course orthography. For Claparède, grammatical knowledge is of no value in itself to the school and in teaching; it is accessory, non-systematic and non-systematised; it can be given randomly, in function of the action, the latter only defining the course of the teaching.[54]

This position explains why two modes of conceiving of knowledge can coexist with Claparède, as we have seen above. Of course, they are contradictory in so far as the relationship to objectivised knowledge is fundamentally different: ignored in one case, explored as discoveries come to light in the other. However, what unites the two modes is the non-systematicity of knowledge and of its appropriation. What determines the exploration and acquisition of knowledge is the momentary and contingent need or interest of the child. In a way, it could be suggested that there is no place for a theory of teaching and the school. This follows from the theory of reference discussed above: the development of interests follows its natural logic, independently of the knowledge to which it is subordinate; there is no effect from knowledge on interests and development, contrary for example to Herbart's theory.

The teacher: a stimulator trained in psychology

In a conception such as this, the role of the teacher changes considerably from the usual conception. He is no longer a "teacher" according to Claparède, but becomes a

[52]With his collaborator Emmanuel Duvillard, a teacher-researcher, he wrote a course for teaching French, now disappeared unfortunately. An outline of it is found in Emmanuel Duvillard, *Les tendances actuelles de l'enseignement primaire* (Neuchâtel: Delachaux et Niestlé, 1920).

[53]Claparède, "Principes généraux," 245.

[54]It would be interesting here to go into the reasons for Claparède's mistrust of grammar, beyond its utilitarian aim. We have shown elsewhere that one could basically identify at least two reasons, which are also linked. One is a theory of the immediate expression of thought in language; linguistic form is thus minimised; only vocabulary is taken into account. The other is the absence of a theory of expression, as proposed for example by Claparède's Genevan contemporary, Bally, namely the production of language as defined by communication parameters. See Bernard Schneuwly, "La psychologie appliquée à l'enseignement du français: l'exemple de Claparède," *Histoire, épistémologie, langage* XVII (1995): 143–61. Let us look ahead a little: perhaps the fact that Vygotsky had worked extensively on the complex relationship between thought and language and the determination of thought by linguistic form made him more sensitive to the importance of knowledge over language.

"stimulator" and "collaborator".[55] It is not so much the knowledge and erudition of the teacher that counts, but his enthusiasm, Claparède going as far as to suggest, referring to Henri de Roorda, that the ideal would perhaps be that of the "ignorant enthusiast".[56] What is important is creating situations that make the pupils act; knowledge may be sought, in collaboration with the pupils, in search procedures. This also implies a "school made to measure" for each child.[57] The result is a profound transformation of the concept of teacher training, with Claparède postulating the need for a scientific basis for the educator, a basis consisting above all of a thorough knowledge "of the material that he is working with":[58] the child. The teacher's training must therefore be psychological above all in order to adapt the knowledge and processes to each child; and it must be scientific, in so far as it involves active participation in research.[59] What Claparède describes for the Institute he founded can be regarded as his ideal of training: an establishment of higher education where the questions relating to the programmes "can be discussed with that entire independence of mind that universities traditionally have",[60] because "The froth of pseudo-scientism is even more pernicious than the stagnant pool of routine".[61] So the educator must be fortified:

> ... in this idea that only research which is loyal, impartial, calm and unbiased, strict about itself but generous and receptive towards the opinions of others, constantly questioning, a fecund doubt in hypotheses and verifications, firing the mind to search for the truth while distancing it from sterile scepticism, only such a method of truthfulness is capable of opening up the brilliant prospects of the future for us.[62]

Training cannot be limited to psychology, but must include the numerous other disciplines involving children such as medicine, history, philosophy, psychoanalysis, sociology, and even didactics. A very high ideal of training in which knowledge about the child largely dominates: they are the yardsticks by which one measures the training need.

If we analyse in detail the research programme proposed by Claparède, and the disciplinary division he produced, we can detect there a relationship of application of scientific knowledge that could be described as "additive and unidirectional".[63] Claparède clearly distinguishes two areas of investigation, the second based on the first. The first deals with research on the development of the child and on the psychology of the individual (differences between individuals, handicaps), viewed as independent of education and teaching, defining its "natural" scope of action. The second deals with research on the general methods of work in class, taking account of natural factors such as fatigue and rhythm, but also of group and individual work or the effect of examinations, of research on teaching methods in the different disciplines "with

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[55]Claparède, "Réflexions d'un psychologue," 19–20.
[56]Ibid., 20.
[57]Edouard Claparède, *L'école sur mesure* (Genève and Lausanne: Payot, 1920).
[58]Claparède, *Psychologie de l'enfant*, 36.
[59]Claparède, *Education fonctionnelle,* 209.
[60]Provisional programme, March 1912, 6. Fonds général des Archives Institut Jean-Jacques Rousseau.
[61]Claparède, *Un Institut des Sciences de l'éducation*, 44.
[62]Ibid., 44.
[63]Here we take as our basis the text of his programme of 1912, and the extensive biographical and bibliometric analyses outlined in Rita Hofstetter, Genève, vivier des sciences de l'education (Genève: Droz, 2009).

regard to mental age and type", therefore factors defined by the fundamental disciplines. The relationship between the two fields is additive because the fundamental concepts of the two areas do not interpenetrate, but are each defined in their own field; it is unidirectional in so far as the movement of application goes from the first to the second but not the other way. The same relationship of application is proposed for the psychological research methods used in the educational field.[64]

This relationship between the disciplines clearly suggests the central place of psychology: knowledge *for* teaching is above all the psychological knowledge that sharpens the eye of the teacher, that orientates him or her. It is the concrete scientific expression of the Copernican revolution necessary in the school and implies a change even in the very definition of the teaching profession and teacher training.

Here Claparedian thinking is entirely consistent. It represents a programme of radical reform covering all aspects under the banner of what may be called the Rousseauistic line of education. Scientifically demanding, striving towards an ideal of harmonious individual development, sensitive to the democratic orientation of the school, it opens up areas of transformation that recognise and appreciate the stakeholders in the field of education, notably the teachers, who nevertheless will also be the first to question the specific nature of their role in such reform. But that is another story.

Vygotsky: teaching to open the way to development – knowledge as a condition of thought

The higher mental functions: mediatised sociohistorical constructions

Like Claparède, Vygotsky begins with a radical critique of the dominant psychology of his time: the reflexologists and behaviourists on one hand, the subjectivist psychologists on the other. He rebukes the former for their inability to pose the problem of consciousness and the higher mental functions, the latter for conceiving of the functions as purely spiritual and immutable data. And he endeavours to understand, through a causal psychology, exactly how the higher mental functions form and develop, functioning according to new principles. For example he poses the question of how the formation of a concept, voluntary attention or even the conscious emotions evolve:

> Higher functions develop according to completely different laws than the elementary or lower functions. Their development does not occur in parallel with the development of the brain and the appearance in it of new sections or growth of older sections.... These higher functions that are the product of the historical development of behaviour arise and are shaped during the transitional age in direct dependence on the environment that develops during the process.[65]

To understand the nature of these functions, we must reconstruct the genesis, following the adage of Blonski according to which behaviour can only be understood as history of behaviour. In order to determine the role played, according to Vygotsky, by teaching and knowledge in this history, we shall look first at two central aspects of his approach, namely his theory of mediation and that of development. This will enable us subsequently to examine, through the concept of a zone of proximal development,

[64]This paradigm is the basis for what Claparède – one of the first to do so – called "psychopedagogy", which still largely dominates research in the educational sciences today.
[65]Lev S. Vygotsky, "Pedology of the adolescent," in *The Collected Works of L.S. Vygotsky*, Vol. 5 (New York: Plenum Press, 1930/1998), 83–84.

the question of the role of teaching, which we shall then develop in regard to the notion of school form and its effects on development.

As Vygotsky stated, "the central fact about our psychology is the fact of mediation".[66] Just as human work is mediatised, that is to say acts on nature by means of tools, these tools profoundly transforming the nature and form of the work and the relationship to nature, so the human being acts on his own nature with the aid of tools which are signs, defined as "all artificial stimuli created by the human being as a means for controlling behaviour – his own behaviour or that of others"; or "for exercising an action on others, or a means that others use to exercise an action on an individual person".[67] These signs – language above all, but equally all other forms of sign – can be considered as a means to solve mind problems like remembering, comparing, classifying and choosing. Initially these problems are collective problems and to solve them the group develops the means at its disposal. These means profoundly transform the processes of perception, memory, attention and will. They are transformed in the course of history and, at the level of the individual, in the course of ontogenetic development. New functions appear; new relations between functions are made possible.

This understanding of the construction of the functions by semiotic tools fundamentally transforms the view of development, which can be summed up in four main theses:

(1) Development, that is to say, in the Vygotskyan conception, the appearance of new forms of mental functioning, works by *differentiation through the articulation and reorganisation of already existing mental functions*. The formation of concepts, for example, constitutes and necessitates a reorganisation into a new unit, which also transforms the capacities involved, of memory, of attention, of language and of perception. To put it in Vygotsky's terms on the example of concept formation:

> In its [the concept's] formation, all the elementary intellectual functions take part in a specific combination, the central element of this operation being the functional use of words as a means of voluntarily directing the attention, of abstracting, of differentiating isolated traits, of synthesising them and symbolising them by a sign.[68]

There are three dimensions to this first theory: (a) basic functions – for instance oral language, memory, or classification using words – is linked to other functions, thus giving rise to new functions that form true complex mental systems; (b) the new functions (or systems) are therefore differentiations of old ones; (c) the old ones remain, but are transformed by the process of development.

(2) The relationships between functions are all concrete relations between people first; the functions are transposed from the exterior to the interior, the signs being means for acting on others first before being means for acting on oneself.

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[66]Lev S. Vygotsky, "Problema soznanjia" [The problem of consciousness], in *Psychologija grammatiki*, ed. Alexander A. Léontiev and T.B. Riabovoï (Moscow: Isdatjelstvo Moskobskovo Universitjeta, 1968; first edition 1933), 196.
[67]Lev S. Vygotsky, *Storia dello sviluppo delle funzioni psichiche superiori* (Firenze: Riuniti, 1931/1974), 200.
[68]Lev S. Vygotsky, *Pensée et langage* (Paris: Editions sociales, 1934/1985), 204.

(3) The different functions of the mind develop unequally. A central function at a given moment of development – for example oral language which on its appearance irrigates and transforms all functions – gives way to others – for example internalised language or certain forms of monological language associated with writing – that become the central places and means for constructing new mental functions.
(4) Development is neither linear nor cyclical; it is not a simple augmentation of already existing capacities; while it does comprise phases of linear evolution, it is the phases of revolution when new mental functions appear that best characterise it and define its stages. "These revolutionary, abrupt and intermittent changes, of which the history of cultural development is full" should not be ignored.[69]

For Vygotsky, development is a "continuous process of self-propulsion"[70] and not induced from outside by a mechanical supply of new elements. So he attributes to this process a great deal of autonomy. The question that arises therefore is what it is that drives this process. Vygotsky defines it particularly clearly in a programmatic text on pedology:

> The logic of the development process's self-propulsion must be shown.... To reveal the development process's self-propulsion is to understand the internal logic, the mutual conditioning, the links, the mutual cohesion of various factors in the unity and struggle of the opposites involved in the process of development.[71]

But what does "struggle of the opposites" mean here? "The very essence of such development (by evolution and by revolution) is thus the conflict between the evolved cultural forms of behaviour with which the child comes in contact and the primitive forms that characterise its own behaviour."[72] Education lies precisely in the act of continuously creating this conflict. So its function is, in a way, to provoke artificial development of natural processes.

This implies that one cannot conceptualise and study development in general, but that one apprehends specific development as it is manifested within a particular social structure (in the case of our society, the so-called "nuclear" family and the school in particular). This means notably that development can never consist of a recapitulation of human evolution at the level of the individual since human evolution varies depending on social and historical contexts. As regards the school and teaching, this means that, contrary to behaviourism which analyses the pupil independently of his other characteristics, and contrary to the Claparedian and Piagetian approach which observes the child independently of his status as a pupil, one must study "a particular

[69]Vygotsky, *Storia dello sviluppo,* 190.
[70]Lev S. Vygotsky, "Il problema della periodizzazione dello sviluppo infantile," in *La psicologia sovietica 1917–1936*, L. Mecacci (Rome: Riuniti, 1934/1976), 320.
[71]Lev S. Vygotsky, "The diagnostics of development and the pedological investigation of problem children," in *Research in Pedagogics,* ed. Fradkin (first published 1931), 317.
[72]Vygotsky, *Storia dello sviluppo*, 190

child as a pupil".[73] To point out the role of the school in development, Vygotsky defines it as follows:

> ... the fundamental characteristic of teaching is the formation of a zone of proximal development. Teaching thus creates, awakens and nurtures in the child a whole series of internal development processes, which, at any given moment, are only accessible to it in the context of communicating with the adult and of collaborating with fellow pupils, but which, once interiorised, will become the child's own conquest.[74]

In essence, it is the creation of a tension between exterior and interior, the creation of a contradiction that is the basis of all development. The two movements are necessary; on one hand there is the teaching that comes before development, that gives the child as pupil new tools, that gives him new contents, that places him in unknown situations he is unable to resolve alone. On the other hand, and at the same time, there is the fact that this teaching, while defining the direction of development, cannot determine it mechanically, step by step, development being *in fine* always self-propulsion.

The formal disciplines and the knowledge at the centre of the school

So teaching is an essential factor in development. But what to teach? In what school?

Vygotsky's position in this area is twofold. On one hand he criticises the fact that the underlying principles of the school system – and especially the principle of "formal disciplines" – had not been worked out sufficiently and in particular were applied in such a way that they were bound to fail. Vygotsky often refers to this in relation to the old Tsarist school in which memorisation dominated. So he thought that there was still important work to be done in terms of reform to get beyond simple memorisation, on which teaching was still too often based. But he also thought that it was a matter of reinterpreting, in the light of the new knowledge gained, the founding principles of the school system, and especially the principle of formal disciplines, "a progressive idea in itself", one of whose principal theorists was none other than Herbart.[75] The basic idea of formal disciplines is that there exists a kind of learning:

> ... that includes complex groups of mental functions, sets in motion entire extensive areas of child thought and necessarily affects, in the different aspects and different subjects in which it is broken down, proximal mental processes, similar or even identical ... to the formal discipline ... must clearly be one of its fundamental laws.[76]

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[73]Lev S. Vygotsky, "La méthode instrumentale en psychologie," in *Vygotsky aujourd'hui*, ed. B. Schneuwly and J.-P. Bronckart (Neuchâtel et Paris: Delachaux et Niestlé, 1985; written in 1930), 46. This could explain what we noted earlier: another conception of applied science operates with Vygotsky. For him, it was not so much a matter of applying the concepts of a theory in a practical field – for example the theory of play in teaching – as of making teaching itself an object of research, of integrating the phenomenon of teaching in the very basis of the theory of development. This transforms and broadens the theory of development towards a historical perspective; and, conversely, allows teaching to be given the status of a historically particular form of education in line with (artificial) development. Bronckart was soon to realise the consequences for psychology of this dimension of Vygotsky's work by pointing out: "*The school is the place for psychology*, because it is the place for learning and the genesis of the mental functions." (emphasis in original) (Jean-Paul Bronckart, "Vygotsky, une œuvre en devenir," in B. Schneuwly and J.-P. Bronckart, eds, *Vygotsky aujourd'hui*, 19).
[74]Vygotsky, *Pensée et langage*, 112.
[75]Ibid., 254.
[76]Ibid., 257.

This idea is developed as follows:[77] the different disciplines have a common mental basis, which is awareness and mastery (of the appropriate mental functions); this is where it becomes a question of formal disciplines. Thanks to this common basis, learning in each discipline has an effect that goes beyond the limits of its content. The mental functions associated with each discipline – attention, memory, thought, imagination – develop in a process of interaction as a result of teaching and learning the disciplines in school.

So Vygotsky is by no means challenging the disciplinary organisation of the school and pleading for a realignment towards everyday problems associated with the needs and interests of the children, as we have seen with Claparède and generally in the new education movement. On the contrary, he severely criticises new education as it was officially introduced in the Soviet Union, in that it took the form of a "system of school teaching by complexes" organised around practical problems whose solution involved the use of knowledge from different disciplines; this teaching focused "on the yesterday of development, on the particularities of child thought already fully formed. The pedagogues prescribed, with the aid of the system by complexes, reinforcing in the development of the child precisely what he had to leave behind him on entering school."[78] So by giving it a new direction, as well as new means, he defends the need for a disciplinary organisation of school knowledge.

Let us take the example of the school subject of "grammar" also considered, we have seen, by Claparède. Vygotsky admits that it contributes nothing new to the pupil who knows how to conjugate and who has a good grasp of syntactic forms. "But the child learns at school … to become aware of what he does and consequently to use his own knowhow voluntarily."[79] And more generally: "A child who has managed to become aware of case has effectively mastered that structure, which is then transferred to other areas not directly linked to case or even to grammar as a whole."[80] Grammar transforms the relationship to his or her own language: that is the basic principle. And this transformation goes in the same direction as the one that acts on the other disciplines; this is what makes it potentially a formal discipline. And with even more precision: knowledge – here grammatical knowledge – does not function as an auxiliary to another action or thought; it is not accessed for its external utility. Grammatical knowledge itself is a condition of the transformation of the relationship to the processes themselves as well as to the knowledge already there, and this for two interconnected reasons. First, it is a knowledge that generalises the knowledge already there and that integrates the latter in a new, more powerful system; this system contains the other one in that it represents it at a more general level, which gives greater freedom compared with the knowledge already there and enables it to be used more consciously and more voluntarily. Second, entry to the more general systems – which are systems of systematic knowledge derived from scientific or expert systems – requires a systematic teaching that essentially does not follow the needs and motives of the pupil, but the logic of the knowledge itself, taking account, of course, of the zone of proximal development which defines the possible contents and the method by which they are thought.

The path of teaching and learning, then development, therefore, is not from the bottom upwards, from life experience or the empirical to the systematic, but top down,

[77]Ibid., 268–69.
[78]Ibid., 274.
[79]Ibid., 265.
[80]Ibid., 269.

from the general to the empirical, under complex laws, however, that link the two very closely. Knowledge for itself, the systematicity of knowledge and its teaching – which characterises the school discipline precisely – are thus the conditions of development at school age, favouring a fundamental transformation of the mind as a whole towards greater consciousness and voluntary control, as well as an intellectualisation of the mental functions. Stated in an even more general manner:

> It results in one of the central problems of our psychology, namely the psychological clarification of the paths by which the child is led to a polytechnic education, as well as the paths which a polytechnic education must follow, that connect the practical work of the child with scientific knowledge.... The development of thought has thus a central significance for the whole structure of consciousness and for the whole system of activities of the psychic systems. This also goes hand in hand with the idea of an "intellectualisation" of the other functions, that is to say of their transformation due to the fact that thought results at a certain level in the comprehension of these functions, that the child begins to have a rational relationship with his or her mental activities. It follows from this that a series of functions which were hitherto acting automatically begin to act consciously, logically.[81]

The teacher: a knowledge specialist and a teaching professional

This view of teaching and its function for development, in which knowledge organised in disciplines plays a central role, has consequences for the conceptualisation of the teacher, of his or her role and training. At least two elements are put forward by Vygotsky. The first concerns the radical transformation involved in a school moving from memorisation and indoctrination (which according to him is represented by the Tsarist school) to a school that introduces the knowledge of the disciplines. This means first of course that the teacher has a command of the knowledge. But beyond that: given the complexity and newness of the task, the teacher must be able to construct his or her action not on intuition, which implies continuous risk taking, or on enthusiasm, bordering on illusion, but on scientific knowledge. The teaching methods become increasingly complex and numerous and rely on a larger and larger knowledge base. "Thus, what is required from the teacher is enhanced knowledge of the subject, and enhanced knowledge of the methodology of his or her craft."[82]

But the profession also had to change in the sense of a greater sharing of work responsibilities: in the school, in the development of knowledge about the profession and in teaching practice. Not much was known about child development and teaching and there was a gap between the demands of knowledge and the possibilities of meeting them. Here the task was also a collaborative one: to reduce the existing gap from each side, to coordinate efforts in both scientific and practical work. And Vygotsky uses a metaphor for this: "just in the way of the Turkestan–Siberian Railway; when the workers building the railway from opposite sides were approaching a point and, as a result of much work, they linked up the two parts".[83] This coordination is centred on teaching. This means that teaching is not a field of secondary application, but

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[81]Lev S. Vygotsky, *Vorlesungen zur Psychologie* (Marburg: BdWi-Verlag, 1996), 73–74.
[82]Lev S. Vygotsky, *Educational Psychology* (New Dehli: Pentagon Presse, 2006 (first published 1921–1923), 345.
[83]Lev S. Vygotsky, "New developments in pedological research," in *Research in Pedagogics*, ed. Fradkin (first published 1931), 379.

enters into the very definition of the question of the development of the child or that of the handicapped child. And indeed, contrary to Claparède, Vygotsky does not advocate an additive and unilateral approach to application. Where Claparède applies concepts from psychology – for example that of play – to an educational problem, without transforming it into a scientific problem, Vygotsky seizes on the essential practical dimension of the field – here teaching or education – to make it a defining element, a founding concept, of the problem – here by redefining the question of development and learning with regard to teaching, mainly through the concept of the zone of proximal development. The relationship of application, the fact that a pedology discipline for example transforms practices in the field, is based on integrating the practical dimension in the theoretical problem, which inevitably has a significant effect on the manner of theorising development, or the mental functions, i.e. the fundamental concepts of the discipline.[84] Here is the analysis Vygotsky proposed for the main driving force of psychology, which can be read as the programme he devoted himself to: "It is the development of applied psychology that has provoked the reorganisation of the whole methodology [for him this means the definition of the objects of knowledge and the means for knowing them] of our science on the basis of the principle of its practice."[85]

A symbol of the difference: the link to Rousseau and Tolstoy

Both Claparède and Vygotsky reveal the close affinity between Rousseau and Tolstoy, but their analysis of these figures is also an opportunity to point out their own positions, which in their case were contrasting ones. Claparède, an enthusiastic supporter, enlists Tolstoy as a witness at the conclusion of his study on Rousseau: "Rousseau does not age" – and goes even further himself: "Reflecting on his conception of childhood, we shall even say: he is rejuvenated".[86] Vygotsky, for his part, states critically that Tolstoy adhered to the same illusion of the natural goodness of man as Rousseau; and he quotes: "Man is born perfect: that is Rousseau's great principle; and it is a principle that, like a rock, will remain durable and true."[87] The respective positions of Claparède on Rousseau and Vygotsky on Tolstoy are symbolic of their views on knowledge and teaching.

On giving his institute the name "Jean-Jacques Rousseau", Claparède signals an adherence to Rousseauism which he explains in his programmatic articles of 1912.[88] He manages to make someone who became famous for his pamphlet against science

[84]We cannot develop this argument here. A particularly interesting example of this effect is the concept of "environment" as a fundamental concept of the "pedology" discipline. See Vygotsky, *Lektii pedologii*, ch. 4.
[85]Vygotsky, *La signification de la crise*, 243.
[86]Claparède, *Education fonctionnelle*, 125.
[87]Lev S. Vygotsky, *Immaginazione e creatività nell'età infantile* (Roma: Riuniti, 1930/1980), 77.
[88]Claparède, *Un institut des sciences de l'éducation* and "Jean-Jacques Rousseau et la conception fonctionnelle."

and the Academies[89] the inspired precursor of child science who advocates above all knowing the child in order to educate him. But there is much more: in accordance with the laws revealed by science, Rousseau proposed above all that education follows the order of nature, that reason should not be called upon until it has blossomed spontaneously, that nature should be allowed to act: the law of genetic inheritance, declares Claparède. Rousseau defends the necessity to have the child do only what it feels a need for, an interest in; one must therefore create the circumstances that give rise to the need; the law of functional adaptation states Claparède. Rousseau considers that each age has its own perfection, childhood, that of innocence and the opportunity of enjoyment and freedom from care that should not be disturbed but respected: the law of functional autonomy states Claparède. And to sum up his analysis:

> Rousseau wanted to show, on one hand, that these means would be more and more effective the closer we got to the ones nature uses to develop individuals; on the other hand, that thwarting natural evolution was not only futile but even harmful, either because it hindered normal development, or because it turned the child against virtue by presenting it to him at an inappropriate time.[90]

"Whilst observing the cribbing effects of the process of progressing civilization upon human beings, philosophers like Rousseau and Tolstoy could not see any other solution than a return to the integral and pure human nature",[91] postulates Vygotsky for his part. While he recognises the profundity of Tolstoy's work which he comments on by including its essential elements in his own conception of teaching, especially of the arts, and while agreeing with Tolstoy's criticism of the "scholastic" way which prevents development because it forces it where it is not possible, he develops a fundamental critique of the writer's basic principles. In particular, he contests his view that all intervention retards the development processes that take place spontaneously according to the laws of nature and by chance encounter. Above all, he also shows that this view has nothing to do with the actual work of education and teaching that Tolstoy himself did. It is an idealisation of childhood and its endeavours which produces the effect of a kind of perfection and closure that removes the possibility of and necessity for intervention.

However, a deeper analysis shows that, although a child's creative endeavours can effectively be the expression of a profound emotional tension, their power is confined to the child him-or her-self, the creative act being limited to the most elementary and basic forms. Far from being a hindrance or obstacle, the transformation of the child's relationship to its own creative power by knowledge and methods is the condition for

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[89]Witness for example the remark from book III of *Emile*: "Who can deny that those who are learned know a thousand true things that ignorant people will never know? Are the learned thus any nearer truth? On the contrary, the further they progress the further away from it they get. Since the vanity of their judgment outpaces their enlightenment, each truth that they learn comes at the expense of a hundred false judgments. Every one knows that the learned societies of Europe are nothing but public schools for lying; and there are assuredly more errors in the Academy of Sciences than in a whole tribe of Huron Indians. Because the more men know the more they are mistaken, the only means of avoiding error is ignorance" (Jean-Jacques Rousseau, *Emile ou de l'éducation* (Paris, 1762/s.d), 229–30).

[90]Claparède, *Education fonctionnelle*, 124.

[91]Vygotsky, "The socialist alteration," 179. Or: Vygotsky, "For Tolstoy and for Rousseau, the child constitutes the ideal of harmony, and all subsequent education only spoils the child," *Educational Psychology*, 347.

the development of creativity and emotion: "the imagination of the adolescent enters into a close connection with thinking in concepts; it is intellectualised and included in the system of intellectual activity and begins to fulfil a completely new function in the new structure of the adolescent's personality".[92] And it is far from being a harmonious process: one must bear in mind the immense path the child must travel by itself in a stimulating environment created by teaching. From this Vygotsky deduced:

> Once we bear in mind the incredible vastness of this path, however, it becomes entirely understandable that the child will have to enter into a brutal struggle with the world, and that in this struggle the teacher has to have the final word. That is when we get the idea that teaching is like warfare.[93]

Then he put this idea in more concrete terms:

> None of the pedagogics which sugar-coated the "golden time of placid childhood" and sweetened the educational process with rose-colored water lies along our road. On the contrary, we know that the tragedy of childhood is the greatest motive force for education, just as hunger and thirst are the inspirers of the struggle for existence. Education therefore, must be guided in such a way as not to conceal and not to mask the stern features of the true "discontent" of childhood, but to push the child into a confrontation with this discontent in the sharpest way possible and as often as possible, and to force him to conquer it.[94]

Conclusion

Against a common background of substantial involvement in constructing and promoting a scientific approach to educational phenomena and pedagogic practices, and both driven by a conception of knowledge as an essential ingredient in education, Claparède and Vygotsky produced two diametrically opposed concepts of the role of knowledge in education and teaching and for development, in other words of knowledge *to* teach, and of the nature of the knowledge needed *for* teaching. These two theoretical approaches are explained no doubt by the sociohistorical context in which they were produced, not in the mechanical sense of a determination, but in the dialectic sense of their possibility at a given moment and their probability in a given context. In this regard we mention some elements to be examined in much greater depth.

Claparède worked in a social context in which schooling was already highly developed, Geneva having long been known for its pedagogic investment and for its schools, both private and public. At the beginning of the twentieth century, state education was well established and equality in education was widely proclaimed there. The criticism of the traditional school that Claparède took up originated from a network of sociabilities that promoted individual values of education by practising and experimenting with new forms of schooling, directed mainly at a privileged and cultured clientele. Simultaneously moreover, a demand arose for training and education for those marginalised from school – so-called retarded children – for whom educational methods were developed, focusing on practical routines and manual work, and drawing from pedagogic concepts advocating this type of approach. The theories of childhood proposed by psychology were entirely consistent with these criticisms

[92]Vygotsky, "Pedology of the adolescent," 154.
[93]Vygotsky, *Educational psychology*, 348.
[94]Ibid., 350.

and reforms,[95] orientated as they were towards a natural conception of development. An academic discipline, psychology was at the same time, for primary teachers, a form of knowledge that secured their professional standing. It created an objective alliance between various social components that had a lasting effect on the school system and its ambivalent relationship to knowledge, especially at primary level.

Vygotsky developed his contribution in a very different social context: the school system was in part still to be established, and it was duty-bound to include millions of orphaned and homeless children. Vygotsky's work reflected an endeavour to set up school structures capable of integrating them all, especially the physically and mentally handicapped. Collective values of education were championed; there was little room for criticism of the school in the sense of a definition of contents based on the interests and needs of the individual child. To this is added dominant interpretive frameworks that underline the historicity of the human being, reinforced by the phenomenon of a revolutionary context in which change was observed almost in vivo. The development of the child thus appears to follow different patterns depending on the cultural and historical context. Vygotsky's intellectual biography contributes to this. In particular a theory of signs – also elaborated in line with theoretical propositions developed by others – as a possible way of controlling the psychic reactions was established allowing the historicity of the human being to be conceptualised.

In these two historical contexts, both authors proceeded to construct two opposing conceptions that can be interpreted as resulting from two modes of theoretic construction, themselves also linked to these contexts which, without of course explaining them, may at least make them more probable, perhaps even possible: one a mode of construction by abstract negation and the other by determined negation.[96]

The first mode proceeds by opposition, by abstract or general negation, by the definition of a "tout autre", something altogether different from the reality criticised: "The pedagogical edifice must be entirely reconstructed on a new basis".[97] The school is described as entirely negative: ridiculous, declares Claparède, outrageous, incoherent, neglecting education, sterile.... So we must find the "tout autre", the world of good, of the good. It is obviously not by chance that the inspiration is found in Rousseau, himself a theorist of abstract negation, the incarnation of which is *Emile*. This "tout autre", however, remains largely anecdotal and does not take the form of a true theory of teaching and the school. Against the knowledge that was central to the school, an inert lifeless mass, an object of memorisation, Claparède sets the action and experience of the child in which knowledge plays an auxiliary stimulating role. Knowledge by itself does not appear formative; what does, however, is action, play,

[95]See Dominique Ottavi, *De Darwin à Piaget. Pour une histoire de la psychologie de l'enfant* (Paris, 2001).

[96]"Abstrakte Negation" and "bestimmte Negation": this pair of terms is discussed notably in the Marxist interpretation of the Hegelian tradition. We refer here particularly to that of Wolfgang F. Haug, *Bestimmte Negation* (Frankfurt: Suhrkamp, 1973) who interpreted certain forms of revolutionary radicalism as an abstract negation resulting in a postulation of the need for another world, which conceives of what is given as quite fixed, firm, undifferentiated, without contradiction faced with which there is a need for the "tout autre", a completely other world; thus he criticises for example existentialism and the conception of Marcuse. Determined negation, a particular form of the Hegelian notion of "aufheben", sees the object to be transformed as differentiated, contradictory and containing the possibilities to transform itself.

[97]Claparède, *Un Institut des Sciences de l'éducation*, 16.

manual work, susceptible to producing knowledge, detained knowledge. In short, only knowledge constructed by the individual is knowledge known and not stored.

The second mode proceeds by an approach that is contained in embryo in the following sentence by Vygotsky: "It is partly its insufficient elaboration but above all the inadequacy of its practical application to the tasks of modern bourgeois pedagogy that have led the theory of the formal disciplines to theoretical and practical bankruptcy."[98] It is not negation and rejection of the founding conception of a school for all that can overcome its weaknesses, but its theoretical and practical development. This development is achieved by the determination in the greatest possible detail, at the theoretical level, of the role of systematised knowledge systematically presented in the formal disciplines, the school disciplines, in the construction and development of new psychic systems. Knowledge here plays the role of driving force, or at least can play the role of driving force if – and here one recalls the Claparedian criticism – storing, memorising can be displaced as the sole principle of teaching.

So what knowledge is needed for teaching? In one mode, it is child psychology in particular, including a grasp of the processes of learning; on the other hand, concerning what knowledge to teach, the fact of being an "ignorant enthusiast" should not be an obstacle to constructing knowledge. In the other mode, it is mastery of the knowledge and its systematised school form, to which is added the systematic knowledge of the profession in regard to its practices – a largely unexplored area, and one to be constructed collectively. Here again one finds, in another form, abstract negation and determined negation: the teacher not teaching any more versus the teacher as constructor of his or her own profession. The mode by which this knowledge is constructed follows a different logic of application in each case: in one case from psychology to the subordinate disciplines in an additive and unilateral relationship; in the other by construction, in the disciplines, psychology or pedology, of problems integrating practical dimensions at the very core of the concepts, in a reciprocal relationship.

We end with an appraisal by way of an overture. Two texts have recently appeared that, as we have done here with Claparède, compare Vygotsky with another representative of new education, namely Dewey, concluding (or presupposing) that the two authors were basically in agreement. Glasmann asserts, in conclusion to his article, that "Dewey and Vygotsky are extraordinarily close on the importance of everyday activity in the educational process.... At the core of this legacy is the importance of everyday activities for all human beings."[99] The closeness between the two authors compared is here affirmed on the basis of what in fact sets them far apart from each other, namely the central role played by everyday activity in education, an activity that we have seen, according to Vygotsky, must in fact be disregarded in favour of knowledge organised systematically in disciplines as a condition of the development of new psychic functions. Popkewitz criticises the projects of Dewey and Vygotsky affirming their community by the fact that they "bring the new democratic political rationalities into the governing of individual conduct" thus also disregarding the form

[98]Vygotsky, *Pensée et langage*, 255.

[99]Michael Glassman, "Dewey and Vygotsky: Society, experience, and inquiry in educational practice," *Educational Researcher* 30 (2001): 3–14, 12. See for a commentary on the same lines as the present remarks: Margaret Gredler and Carole Shields, "Does no one read Vygotsky's words? Commentary on Glassman," *Educational Researcher* 33 (2004): 21–25.

of knowledge and rationality.[100] We would readily defend the hypothesis that the argument of closeness between Vygotsky and other new education protagonists is the result of disregarding, in the analysis, the place of knowledge; this argument is, in that regard, direct heir to the dominant movement of new education. In other words: the respective positioning that symbolises our two protagonists Vygotsky and Claparède still structures the debate today.[101] An analysis of its history is all the more necessary.

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[100]Thomas S. Popkewitz, "Dewey, Vygotsky, and the social administration of the individual: constructivist pedagogy as systems of ideas in historical spaces," *American Educational Research Journal* XXXV (1998): 535–70.

[101]It would be interesting here also to analyse the model of scientific research proposed by Dewey. We hypothesise that although one can observe a certain proximity between him and Claparède concerning knowledge to teach, Dewey – see John Dewey, *The Sources of a Science of Education* (New York, 1929) – hardly leans towards an applicationist position as held by Claparède, and after him Piaget. It seems to us that he is more a devotee of a third variant which could be called 'a-disciplinary' and which Buyse has named "experienced pedagogy": the experiencing in action of educational solutions.