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HISTORY OF PSYCHOLOGICAL MEASUREMENT. RUSSIAN CONTEXT IN THE 1920S-30S

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Abstract

*The rising of the experimental research at the turn of the 19th century is mostly focused on new objective methods and the same interest is shared by scholars in Russia as in Europe and USA. The historical period we evoke begins when science has just discovered the child as a major object of study. Medicine, law, and then all the young human sciences seize it (Ottavi, 2001) to build knowledge about human development. At the time where boundaries between sciences were not clearly established, all of them were on the way to investigate in the same new field: the child and his development. However, specificities in the development of psychological and neurological disciplines will appear in Russia with the First World War and then, will increase with the huge social changes induced by the October Revolution in 1917. If the history of psychological measurement concerns also adults, in our approach, we focus deliberately on the psychological tests applied to children and closely connected, like elsewhere, to the question of education. The Soviet psychological measurement is mainly linked to pedology and its singular fate (Fradkin, 1990; Etkind, 1992, 1997). Pedology, also called "child study", supposed to be the solution to solve the numerous problems of education in the new socialist society, was also the first science to be officially forbidden in Soviet Union in 1936. Psychological measurement was indeed massively applied to children in various circumstances which we are going to describe further through samples collected in the journal *Pedologija*, the official organ of Soviet pedology from 1928 to 1932. Lev Vygotskij's point of view on the matter will contrast this historical context.*

A new science for a new society

The educational stakes in the 1920s in Soviet Union were of a rarely equaled large scale. After seven years of international conflicts, revolution, civil war and famine (1914-1921), one priority was the reintegration into society of hundreds of thousands of children and teenagers left on their own (*bezprizorniki*), by these sequential events, in a country itself disintegrated, weakened and in search of marks. A project of fast and radical reconstruction had to be started, compatible with the ambitions of the young socialist nation. Pedology served the socio-political plan with expectations of an efficient education policy. In quest of solutions, it afforded this science a direct experiencing to the creation of a "New Man", linking theoretical research on child development to practice in the educational system. Authorities expected from pedology a fast progress to design a child of a new type according to their ideology. A new science calling for new practices, pedology was

probably the discipline that used “objective” psychical and physical measurement on such a large scale. The laboratory for experiments took the size of the nation. The revolutionary situation, the strong social needs for knowledge on the child and perhaps also an overt context for a new discipline are the original components of the educative policy in USSR, during the 1920s. After 1917, all sciences in Soviet Union are reconsidered on the same bases: an objective materialistic dialectical science, fighting against the idealistic, mechanistic roots of traditional science. Education for the new nation must necessarily be distinguished from the tsarist one and from the system in place in capitalistic countries.

A controversial issue

This experimental and pedological adventure in Russia starts mostly with the personalities of Vladimir Behterev (1857-1927) and Alexandre Nečajev (1870-1948) in Petersburg, Gregori Rossolimo (1860-1928) and Mihajil Bernstein (1894-1975) in Moscow. The central place was given to explore qualitatively and quantitatively the child potential. One of the main reasons for this decision, and it is still an interpretation nowadays, was the abusive way the pedologists used the testing. Before the First World War, experimental pedagogy and experimental psychology used to work very closely together and in connection with Western scholars. According to Helene Antipoff, Claparède's Russian assistant in Geneva, before Nečajev, pedagogical psychology (or experimental pedagogy) was a “terra incognita” in Russia, considered like a ridiculous and harmful matter for Russia. For him, a drastic reform in schools was necessary in connection with experimental psychology. The reception of his first book¹ (1901) was much criticized having connected pedagogy with psychology.

An objective science for Soviet pedology

The independent way taken by Soviet pedology became an originality whereas elsewhere, it was incorporated in other sciences. Russian pedologists agreed on the fact that the science of the child development was an objective science as well as biology, thus rejecting the empirical orientation of the first pedologists, in favor of a subjective, introspective science or in the line of Wundt's experimental psychology. Psychological measurement became a trend for child testing at school to evaluate their intellectual abilities, but also often used to compare children according to their cultural environment and family upbringing. Some of the leading pedologists of the early soviet period like Pavel Blonskij (1884-1941) or Mihajil Basov (1892-1931) expressed both their enthusiasm and fascination for testing methods. Blonskij, in the preface of the 1928 book *Tests: Theory and practice*, envisaged a promising future to the method. He claimed that “Tests are more than a method of control; they are an instrument of rationalization of school”. Basov in the same book gave his enthusiastic opinion on the matter: “I think the sometimes sharp criticism of the testing method will bring finally not to the reversal, not towards the abolition of this method, but on the contrary, towards its consolidation and its assertion in the defined borders, where, obviously, its legitimacy and the reason to be applied will be proved”².

Russian contribution to psychological measurement

If Binet's tests were very often used by Russian scholars, Rossolimo, mostly known as a neuropathologist created a method of psychological profiles compared at that time worldwide with Binet's method. His test was also used abroad. He conducted his main research on children with psychical diseases and abnormal behavior, studying age specificities in child behavior. In 1911 he opened in Moscow the first institute of child psychology and neurology working on nervous diseases. He determined a direct correlation between behavior and the development of psychical functions. His profiles' method was mainly a quantitative measurement of the various psychical functions of personality. He itemized 22 functions. The results of the test were put on a graphic, representing a curve of a given profile of personality. However, Soviet pedology was not a homogeneous science, and had difficulties to move from a dualistic point of view. For the two main tendencies which were confronted in their theses, the dichotomy between biogenetical and socio-genetical foundations was obvious. One overevaluated the influence of heredity on development of child, whereas the other neglected it by considering that only the transformation of the social environment allows a radical modification of the development of the child, by adaptation. The socio-genetic orientation was supported by the authorities' ideological point of view. Vygotskij's historico-cultural orientation was very marginal, at that time.

¹ *La psychologie expérimentale en rapport avec l'enseignement scolaire*. (1^{ère} éd. 1 vol. ; 2^{ème} éd. En 2 vol. 1907).

² Our translation.

Experimentation and testing through the journal *Pedologija*

This journal was born in 1928, after the first panrussian congress of pedology, with the support of some major politicians involved in education policy, like Nadežda Krupskaja and Anatoli Lunačarskij. *Pedologija* was published until 1932. The description of the contents of *Pedologija* is not exhaustive in the modalities granted for this article, because the whole magazine over five years counts several thousand pages. Chronicles and thematic directory of *Pedologija* constitute a considerable source of precious empirical and statistical information and allow showing concretely what was measured in researches about child. Many empirical researches were of quantitative nature, founded on the analysis of statistical data. Numbers of them were based on questionnaires, Binet's tests and Rossolimo's profiles. The anthropometrical and psychometrical tests were frequently applied, and reflected the biogenetic and socio-genetic points of view. The examples below were chosen to illustrate the different types of studies elaborated during this short period in pedology.

Ethnographical type study

The multiethnic dimension of USSR opened an emancipation policy for the minorities. It was developed during the 1920 idealistic period, followed by a realistic bureaucratic control after 1930³. In 1922 Russia became the Union of the Socialist Republics, composed by 15 republics and some autonomous territories, the *krajs*. The Soviet policy on nationalities in the 20s and the beginning of the 30s, was placed under the sign of the *korenizatsija*⁴, a short period during which the new political regime tried to reverse the effects of the Russianization undertaken during the Tsarist period on non Russian populations. After 1930, Stalin intensified the Russianization of the minorities, and tried to impose a single culture⁵. In 1930, many scientific expeditions were sent to the Caucasus, Central Asia, Siberia, and Mongolia. The field of scientific research was not limited to ethnography, and opened a field to pedologists in connection with educational psychology. *Pedologija* published a special issue almost entirely devoted to the first research results mainly about women and children of national minorities, (1930, 2). In each case, a Binet-Simon test was applied, sometimes associated to the Rossolimo's psychological profiles test. Anthropometric measurements were also applied to a broad scale with children of the various Republics. Comparative studies with the Russian children were carried out.

Biogenetical type study

S. Kacenelson's and V. S. Brodovskaja's study entitled "The characteristics of the children in the first degree in work school" (*Pedologija*, 1930, 3, 350-368), represents an example of the biogenetic stream of pedology. This is a medico pedological type research, bearing on 1,045 children admitted in the first group of 12 elementary schools (504 boys and 541 girls). The age of the subjects varied from 7 to 10 years. The authors took account of the children social situation; hereditary influences; their physical development; their health condition; their psycho-neurological status (giddiness, speech difficulties, knee jerk, pupil reflex, etc.). The mental age was measured according to Rossolimo's reduced scale. They carried out a compilation of statistics starting from the results of their observations, and drew some of the following conclusions: as the children who enter to the school represent a heterogeneous mass from the biological and social point of view, the composition of the first groups of the elementary school must be only based on one preliminary pedological investigation. In addition, one should not make compulsory teaching starting from seven years of age; however, the seven year old children wishing to attend school could be allowed. For slower children, it was mentioned as essential to create special groups with an individualized teaching.

Sociogenetical type study: Social organization abilities

S. Zalužnyj study (*Pedologija*, 1929 4, 478-489) on child collectives is an example of a sociogenetical type research. Carried out in Ukraine, in 212 elementary and secondary schools, it consisted of testing the class social organization. Each class had to fulfill different tasks successively, such as to elect a delegate for the municipal school conference, to organize quickly small teams for collective works or manage a project of a school festival. According to an official report taken by teachers, marks were attributed to the results on a scale of 5 degrees, the results were showing the progress from class to class: The class, the age, the number of groups tested were the base of an average of marks, an average of variable and an average of time: The coherence of the tests was evaluated by correlation of par and odd tests with the application of the Spearman-Brown's formula. Which deductions can one draw from these tests? The author affirmed that the results gave an account of the children's problems of organization and discipline between them. The children found difficulties for planning

³ For example, the obligation for all national minorities to put down their origin on their identity papers.

⁴ literally: 'rooting'.

⁵ One school, one language.

their work by group; groups were usually formed by genders. The author didn't give any precise result, and remained cautious by concluding that it would be necessary to continue the research to study the problem of the disturbing elements.

Vygotskij's specific point of view

Vygotskij is not very known as a pedologist, however the child development became his main topic after 1927. He didn't share his colleagues' enthusiastic point of view on quantitative methods.

Vygotskij, in several texts, expressed clearly that psychology and its methods didn't satisfy him. In the last years of his life, through pedology, he developed a general science where the theory can't be separate from practice. It is in practice that theory could find a validation. In the *Significance of the crisis in psychology* (1927), Vygotskij's diagnosis was explicit: between an idealistic approach following a subjective way, and a mechanistic approach reducing the psychological phenomena to a biological fact, the question was to find a monist and dialectical way, which takes account of the material base of the psychical processes without reducing them to simple biological processes. One major element of the crisis was the difficulty to articulate theory and practice.

In his text on "Pedology and close sciences" (1931), Vygotskij⁶ analyzed the reason of this stillborn discipline in Western countries. In Vygotskij's opinion:

"Pedology should be based on the objective reality of the unique process of development which is its object. It can't be build on the field of the metaphysical, logico-formal point of view of child development which only allows a mechanical association of the different aspects of development, nor on the field of a dualistic point of view of human nature, closing the way to the study of the real unity represented by the process of child development. It is exactly for this reason that pedology as a particular science is almost dead in the West and in America".

If we follow Vygotskij's reasoning, here, the essential basic unit of pedology is the child, composed of multiple internal systems, in his relationships in a particular environment. By taking the child as a whole, according to Vygotskij, it allows a decomposition per unit, by keeping the characteristics specific to the child which are as well internal (hereditary) and external (social milieu), to reach at last the particular complex phenomena which compose them. The starting point cannot be the understanding of isolated facts. For Vygotskij, it was necessary to start from a synthesis to understand its multiple aspects, and he called in question the validity of the interpretation of results obtained by quantitative methods:

"The element taken separately does not have a value for analysis of a pedological type. For example, to separate hydrogen and oxygen from a molecule, makes lose the characteristics of the unit. Consequently, the core is not the element, but the unit, i.e. the relation of a factor of the milieu with the characteristics of the child. If we find such a unit, it will preserve in it what is present in the development of the language as a whole, i.e. the relationship between factors of the milieu, individual factors, and factors rooted in the characteristics of the child" (1933/34 1996, p. 45).

Vygotskij argued that by the will to show relations between everything, one doesn't explain anything at all anymore. He expressed his mind very clearly:

"But finally, looking for general links instead of a clear picture, it is an absurd confusion which appeared. All was related to all: memory with capacity, intellectual development with the acuity of sensory functions, growth, understanding, the way of eating, and the success in arithmetic" (p. 58).

For the five-year scientific plan, Vygotskij wrote in 1929 a report on the detailed program planned for research concerning national minorities and preparing with Luria an expedition in Central Asia (1931-1932). In this article, Vygotskij was clearly guarded about the use of tests and their compatibility with cultural diversity. They would owe, according to him, being adapted to the specific context of each country, according to its formal and informal system of education. In his opinion, tests in themselves cannot be objective indicators of the intellectual development. He claimed that the standard tests used in pedology do not have a universal value and can sidestep the issue of a research. He conceived the development of the child in an ecological and cultural context, and recommended a field method to study it. The point was to understand "the child as an integral part and natural product of his specific milieu, in which he lives and develops" (p. 370). It is by taking into account these factors that it will be possible to find some universal characteristics of children development. By considering the child cultural environment, his aim is to evaluate the effects of a general system of education⁷ on the development. Luria's expeditions in Uzbekistan to which Vygotskij did not take part for health reasons, aimed to validate this hypothesis of the schooling effects on the higher mental functions (Van der Veer and Valsiner, 1991). The assumption was that a

⁶ All Vygotskij's quotations are our translation.

⁷ Unified in USSR for ten years (1919-1929).

qualitative change was to be produced by education, and to be observable in contexts where the development of the higher mental functions were worked out by other cultural means and led to different results. The first study was based on the observation of adults, the second included children. According to Luria⁸, that field research was carried out by his 14 collaborators team studying 11 main topics, out of 600 people: 1. thought as a function subjected to historical changes (and namely, the process of word usage, deduction, comprehension of metaphors and symbols, logical thoughts, etc.) 2. the structure of individual psychological process (in particular, perceptions: the perceptions of form and color in connection with visual thought, optical geometrical illusions, drawings, the features of remembering, counting and so forth).

For an estimation of child mental development, Vygotskij chose a qualitative method: the instrumental method he was working on through the historico-cultural theory. We can call it instrumental method, says Vygotskij (1928), "as it is based on the discovery of the instrumental functions of the cultural signs of the behavior and their development, based in experiments on double stimulation" (p. 75). "This method is not only the key to understand the higher forms which appear in the development process of the behavior of the child, but it is also an acquisition for the practice, education and secondary education."

The criticisms of pedology 1932-1936

Pedology was the first science whose destiny was determined by a political resolution (4th of July 1936 Decree), proclaimed illegal and considered as a "pseudo science" without any scientific debate. Books censored, authors persecuted. Some contradictory opinions about the pedologist's role were spread around: a great popularity in schools, in their work in cooperation with teachers, to solve problems of learning (Fradkin, 1990), or just at the opposite manipulation, ideology, with no connection with reality (Berelowitch, 1990; Ewing, 2001). The problem with testing can be explained by the incompatibility between stalinian ideology and the tests revealing some individual differences that could be explained only by a heterogeneous social context, and the socialistic environment was supposed to be homogeneous, without different social classes anymore. Fradkin (1990, p. 204) confirmed this thesis and underlined the virulence of the attacks against pedology, which is explained by the incompatibility of all the scientific approaches whose object was the child development. The tests will be forbidden until 1970, (Avanesov, 2000), and pedology has had no official rehabilitation until now.

Conclusion

After 1936, Soviet Human sciences were extremely reduced. Soviet psychology came back on the international stage with the figures of Vygotskij, Luria and Leontev, about 30 years after Vygotskij's death in 1934. Etkind (1992) was concerned with the effects on a population, when a science is forbidden for such a long time. But we can ask the opposite question. Did Psychology and Human Sciences develop since the period we spoke about in countries where they had the opportunity to progress on child development as a support for a better education with quantitative methods?

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⁸ Quoted in Vygotskij, L.S., Luria, A. R. (1930/1993). *Studies on the history of behavior: ape primitive, and child*. Hillsdale: Laurence Erlbaum Associates, p. 15.

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