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On One Expedition for the Study of Cognitive Processes among the Peoples of Central Asia in the Early 1930s

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Abstract: The article is devoted to the unique field research carried out by the outstanding neuropsychologist ("father of neuropsychology") and cultural-historical psychologist Alexander R. Luria (1902-77) and his team in the Soviet Central Asian republics, Uzbekistan and Kyrgyzstan (1931-32), and to its place in world cross-cultural studies. Long before the famous Western works on cultural psychology and anthropology were published in 1950-1970s (J. S. Bruner, M. Cole, P. M. Greenfield, J. Gay, C. Levi-Strauss, D. Price-Williams, S. Scribner, etc.), the Luria research expedition anticipated the main directions and results of future world cross-cultural studies. Unlike the racist theories (widespread at that time) based on a biological interpretation of the cognitive processes of "backward" peoples, this research demonstrated the principal influence of sociohistorical factors, cultural systems, information-coding systems, and ways of intergenerational transmission of knowledge (education) on these processes in different types of societies.

Keywords: Central Asia, cognitive processes, cross-cultural studies, cultural psychology and anthropology, education, graphic thought, logical thought, sociohistorical factors, traditional society, way of thought.

1. Introduction

Unlike the Western psychological schools of the first half of the twentieth century–behaviorism (J. Watson, B. Skinner), introspective psychology (W. Wundt, W. James), Gestalt psychology (M. Wertheimer, W. Köhler), psychoanalysis (S. Freud), etc.–Soviet psychology, from the very beginning, developed on the basis of Marxist social theory.

As early as 1845-46, in *The German Ideology* and later, in *The Critique of Political Economy* (1859), Karl Marx formulated the basic principle of his social philosophy: social consciousness is determined by social being (Marx & Engels, 1955, 1959). In *The German Ideology*, Marx and Engels write (1955: 25): "Consciousness can never be anything else than conscious existence and the existence of men is their actual life-process." For Marx, the forms of cognitive activity are the result and reflection of sociohistorical conditions and development. In turn, the bases of social being and sociohistorical development lie in the economic mode of production. As Marx and Engels write (1955: 19): "The way in which men produce their means of subsistence depends first of all on the nature of the actual means of subsistence they find in existence and have to reproduce. This mode of production must not be considered simply as being the production of the physical existence of

the individuals. Rather it is a definite form of activity of these individuals, a definite form of expressing their life, a definite mode of life on their part. As individuals express their life, so they are. What they are, therefore, coincides with their production, both with what they produce and with how they produce. The nature of individuals thus depends on the material conditions determining their production." This mode, in the end and in general, determines the social structure, the culture, the level as well as the contents of knowledge, and the ways of transmitting knowledge from one generation to another. In other words, the cognitive processes in various societies can be explained as conditioned by the material lives of these societies (i.e., the economic mode of production, and corresponding to it, social life and culture) and by their historical context.

One of the founders of the Soviet psychological school is the outstanding psychologist Lev S. Vygotsky (1896-1934), who applied Marxist social theory to the understanding of cognitive processes (L. Vygotsky, A. Luria, 1930; L. Vygotsky, 1962; L. Vygotsky, 1978). Marxist methodology was the core of Vygotsky's theory. Accepting his theory and its applications for education and children's socialization in various cultural circumstances, many Western scholars overlook this basic detail. As J. Valsiner (1988: 117) writes: "Present-day psychologists' interest in Vygotsky's thinking is indeed paradoxical. On the one hand, his writings seem increasingly popular among developmental psychologists in Europe and North America. On the other hand, however, careful analyses and thorough understanding of the background of Vygotsky's ideas is rare . . . Vygotsky seems to be increasingly well-known in international psychology, while remaining

little understood. The roots of his thinking in international philosophical and psychological discourse remain largely hidden."

At the end of the 1920s and 1930s, Vygotsky and his followers and associates A. R. Luria and A. N. Leont'ev founded the theory of the "cultural-historical" development of the psyche (in Western works this theory is also called the school of Vygotsky, cultural psychology, sociocultural psychology, socio-historical psychology and cultural historical activity theory), which is well-known among psychologists and anthropologists.

In 1929 Vygotsky published an article "On the Question of the Plan of Research on the Pedology of Ethnic Minorities" (1929), in which he criticized the methodology of psychotechnic tests. These tests were carried out in various places, including Uzbekistan (V. Solov'ev, 1929; V. Shirokova-Divaeva, 1927; A. Shishov, 1927; A. Shtilerman, 1928). To verify the ideas of the "cultural-historical" theory (namely, to confirm the role of the sociohistorical process in the forming of psychic processes), Alexander Luria organized a field expedition to Central Asia in 1931-32–to isolated villages in Uzbekistan and the mountains of Kyrgyzstan. The members of this team were P. V. Leventuev, F. N. Shemyakin, A. Bagautdinov, E. Bayburova, L. S. Gazar'yants, V. V. Zakharova, E. I. Mordkovich, Kh. Khakimov, M. Khodjinova, and others. As Luria mentioned in his short article in *Science* (1931: 383-384), the purpose of the expedition was "to investigate the variations in thought and other psychological processes of people living in a very primitive economic and social environment, and to record those changes which develop as a result of the introduction of higher and more complex forms of economic life and the raising of the general cultural level."

The research of Luria's team focused on the cognitive processes among different target groups of local people: 1) illiterate people who for a long time lived in the conditions of an almost natural economy and who never left their native villages; 2) people who attended short training courses and had the experience of working on collective farms as administrators; and 3) people who attended primary school for one or two years and who were actively involved in sociopolitical life, visiting other places, including towns.

Luria presented his subjects with various types of tasks related to perception, classification, generalization, conclusion, argumentation and solving logical problems, imagination, self-analysis, and self-consciousness. The results of the survey showed that traditional consciousness considers these tasks not as pure logical (abstract) tasks but as practical (concrete) ones, as reproductions of familiar, practical situations. In other words, the cognitive processes in this consciousness are intermediated by personal life experiences. However, attending even primary school and actively participating in the life of the new collective farms essentially changed the traditional way of thought.

Later, in 1950-70s Western scholars obtained the same results in cross-cultural studies in other countries of Asia, Africa and Latin America (J. Bruner, R. Oliver & P. Greenfield, 1966; M. Cole, J. Gay & J. Glick, 1968; M. Cole, 1972; P. Greenfield, J. Bruner, 1966; C. Levi-Strauss, 1966). Their research, built on the recognition of the fundamental role of sociocultural factors in the development of thought (its level and content), struck a serious blow to biological interpretations of thought and finally to the racism in which "European" thinking was

initially considered superior to the thinking of the peoples of developing countries.

2. Perception

It is known that classical psychology considered perception a purely physiological/physical process. For Luria as well as for Marxist psychology in general, perception is a process which is also connected to sociohistorical practice and language, as a part of this practice. It includes: 1) analysis and synthesis of the perceived properties; 2) selection of one of many possible alternatives, and 3) making a decision that attributes the perceived object to this or that category. This decision-making depends on historically formed practices and on a system of codes.[1]

In Luria's field research (A. R. Luria, L.S. Gazar'yants, E. N. Mordkovich), the subjects were shown various shades of color (skeins of wool and silk) and asked to name them; then they had to classify these shades of color. The number of categorical names (red, pink, green, yellow) was almost the same among kolkhoz administrators and illiterate women, but the graphic names of shades of color were much richer and varied among the women.

[1] In the 19th century, the connection between the perception of the shades of color and language (the names of the shades of color in different languages) was pointed out by W. Humboldt and in the early of 20th century was studied by R. S. Woodworth, W. H. R. Rivers, and others. Later, it was conceptually expressed in the Sapir-Whorf hypothesis of linguistic relativity (Whorf, 1956).

Table 1 (A. Luria, 1974: 41).

The number of graphic names of shades of color (%)

Groups	Number of respondents	Graphic names
Women (housewives)	11	59.5
Students of short-term courses for working in nursery schools	15	30.5
Administrators (men)	16	16.7
Students at teacher-training schools	10	16.3

When the subjects were asked to classify the shades of color, kolkhoz administrators and students easily divided the skeins of wool and silk into a few groups with categorical names. The explanations of the classifications were also categorical ("It's the same but lighter"). In the case of women, they were surprised at the proposal to classify the shades of color ("There are no similar colors here," "They cannot be put together," "They are different; this is like calf dung and this is like a peach") and often refused to carry out the proposed task.

Table 2 (Ibid.: 43).

The classification of the shades of color (%)

Groups	Number of subjects	Refusal to classify	Making rows of shades of color	Classification according to basic colors

Women (housewives)	11	18.2	27.3	54.5
Students of short-term courses for working in nursery schools	15	0	6.3	93.7
Kolkhoz administrators (men)	16	0	5.8	94.2
Students at teacher-training schools	10	0	0	100

Analogous results were obtained in the perception of geometric figures. The most culturally developed group–the students at teacher-training schools–gave the proposed geometric figures categorical names (circle, square, triangle, etc.). Incomplete figures (with incomplete lines or pictured by discrete elements [dots, crosshatch]) were called "something like a circle", "something like a triangle". In other target groups, especially among women, the geometric figures were named as objects – plate, sieve, bucket, watch, moon, mirror, door, house, stars, stirrup, bracelet, earring, beads, road, frame, coin, mountain, window, etc.

Table 3 (Ibid.: 48).

Characters of geometric figures' names (%)

Groups	Number of subjects	Object names	Categorical names
Women (housewives)	18	100	0
Students of short-	35	85.3	14.7

term courses for working in nursery schools			
Kolkhoz administrators (men)	24	59.0	41.0
Students at teacher-training schools	12	15.2	84.8

3. Classification, abstraction, and generalization

Luria's research identified the specifics of the procedure of classification among the investigated groups. As is known, classification is a form of information coding, a mode of generalization in which things are selected on the basis of essential properties and are unified as a particular.

In Luria's field research the subjects were presented with four things and asked to unify some of them as a group on the basis of a common property (to name them by one term, that is, to make a generalization). And the objects for classification were selected so that they could be united by two principles – according to logical or practical principles.

The subjects were shown pictures of the following items:

– hammer, saw, spade, log
– glass, saucepan, bottle, eyeglasses
– tree, rose, ear of wheat, bird
– gun, dagger, bullet, bird
– knife, saw, hammer, wheel
– eye, mouth, ear, finger

– knife, saber, bayonet, gun.

The subjects were also shown pictures of two groups of items: “horse, sheep” and “camel, house, bucket” or “tree, ear of wheat” and “rose, bird, house,” etc. They were asked to select one item from the second group that corresponded to items in the first group.

All representatives of the “illiterate” group replaced theoretical categorization with familiar practical situations.

For example, in the case of “glass, saucepan, bottle, and eyeglasses” one subject said:

“Which one doesn't belong here—I don't know . . . Probably the bottle doesn't belong?! You can drink tea from a glass; it is useful and eyeglasses are also useful, but in a bottle there might be vodka, which is harmful.

Interviewer: Is it possible to say that eyeglasses don't belong here?

“No, they are also a necessary thing. I think that the bottle doesn't belong here, for it is harmful!”

Interviewer: But is it possible to name all three things by the word “kitchenware”?

“I think that there is vodka in the bottle, that's why I didn't want to choose it... but if you want . . . but the fourth thing–eyeglasses–is also necessary: if somebody cooks something, it is necessary to see, and if the person has bad eyes, he needs eyeglasses . . .”

Interviewer: But it is impossible to name the eyeglasses "kitchenware"?

“If somebody cooks something on a fire, without eyeglasses, he cannot do it; it will be impossible to cook.”

When another subject was shown pictures of "tree, ear of wheat" and "rose, bird, house" and was asked to select one item from the second group that corresponded to items in the first group, he selected "house" and explained: "The house must be near a tree and a flower."

Interviewer: Really does the house look like a tree?

"If you put the rose here, it will be not useful. But if you put the house here, a man will live here; it will be nice" (Ibid.: 69-86).

Any attempt of the interviewers to point out the categorical principle of classification ("One man said that . . .") was met with protest ("It is not correct"; "Only a stupid man can say like that"; "Maybe he is crazy"; "He does not understand anything").

If in the first target group categorical generalization was always replaced by a reproduction of a practical visual situation [2] and the subjects rejected any attempt at categorization, in the second (intermediate) group the situational character of thought was also dominant, but the subjects could understand and apply the logical method of generalization. Admittedly, the categorical operations were inconsistent; the subjects very often returned to the visual-practical method of unifying items. Sometimes both methods co-existed as contradictory but natural for them. And in the third group the situation was absolutely different. The subjects confidently demonstrated a capacity for verbal-logical thought, for abstract and categorical generalization.

[2] Several decades later M. Cole and S. Scribner got the same results among the Kpelle in Liberia. Their subject unified net, saucepot, pepper, okra, peanut and explained the principle of unification: "Net – to catch fish, and peanut and okra are boiled in the saucepot" (Cole, M., Scribner S., 1977: 150).

The difference among the subjects of the three target groups can be seen in the following table (Ibid.: 88):

Table 4.

Groups	Number of subjects	Visual-practical classification	Coexistence of both classifications	Categorical classification
Peasants in remote villages, illiterate	26	21=80%	4=16%	1=4%
Collective farm administrators, semiliterate	10	0	3=30%	7=70%
Youth, after 1-2 years of regular study in school	12	0	0	12=100%

4. Inference and conclusion

One form of logical thought is the syllogism, a deductive conclusion, described for the first time by Aristotle in his *Prior Analytics*.

A categorical syllogism consists of three parts: 1) major premise; 2) minor premise; and 3) conclusion. The classical examples of categorical syllogisms are the following:

All humans are mortal (major premise)

All Greeks are humans (minor premise)

All Greeks are mortal (conclusion)

Or:

All humans are mortal (major premise)

Socrates is a human (minor premise)

Socrates is mortal (conclusion)

In symbolic form, categorical syllogism is written as:

All M are P

All S are M

All S are P

To determine the basis for drawing conclusions, the subjects were presented with two types of syllogisms: in the first type, the content of the syllogisms was taken from the practical experience of the subjects, while the second type did not include that kind of experience. A conclusion could be drawn only on the basis of logical inference.

The subjects were given the following syllogisms:

- Precious metals don't rust. Gold is a precious metal. Does it rust or not?
- Hares live in big forests. There are no big forests in cities. Are there hares in cities?
- White bears live only where it is very cold and snowy. Silk cocoons exist only where it is very hot. Can silk cocoons grow where white bears live?
- Books are made from paper. In Japan paper is made from silk. What material is used in Japan to make books?
- Cotton grows only where it is hot and dry. In England it is cold and damp. Can cotton grow in England?

– In the far north, in snowy areas, all bears are white. Novaya Zemlya is in the far north and there is always snow. What color are the bears?
– There are no camels in Germany. City B is in Germany. Are there camels in this city?

Results of the survey showed that subjects of the first target group did not perceive a syllogism as a system. For them all parts of the syllogism were isolated phrases.

As a rule, many subjects refused to draw logical conclusions if the content of the major premise was not based on their personal experience. They argued that they had not been "there" (in England, Japan or in countries with snow, etc.), so it would be better to ask people who had been "there"; in other words, they indicated that they didn't want to lie ("They will not talk about something if they did not see it"). They ignored the major premise and replaced it with their own arguments ("Bears can be various; they may be black, red, or yellow"; "The world is big and anything is possible").[3]

On the base of these results, Luria formulated three reasons for such thought. The first reason is a distrust of the major premise. The second is that the premises are perceived by the subjects as local or particular information but not as something that has a universal character.

[3] M. Cole and S. Scribner got the same results among the Kpelle in Liberia. Their subject was asked to solve the following syllogism: "Spider and black deer always eat together. Spider eats. Does deer eat?" His answer was as follows: "The black deer always all day goes in the forest and eats green leaves; then it takes a little rest and stands up again to eat" (Cole, M., Scribner S., 1977: 198).

And the third reason is that the syllogism did not seem to the subjects to be a system but rather three isolated sentences.

Unlike the first group, the subjects who had some education very quickly mastered the syllogisms. Table 2 demonstrates how the target groups solved the syllogisms (Ibid.: 120):

Table 5.

Groups	**Decision**	**Syllogisms connected with experience**		**Syllogisms not connected with experience**	
		Don't solve	Solve	Don't solve	Solve
Peasants in remote villages, illiterate (15 respondents)	Direct	6=40%	9=60%	13=85%	2=15%
	After prompting ("From your words it is possible to conclude")	–	6=40%	8=60%	4=30%
	Total	0	100%	9=60%	6=40%
Youth, members of collective farm administrators, who	Indirect	0	5=100%	0	5=100%

passed short-term training (15 respondents)					

5. Argumentation and solving problems

The subjects were given elementary mathematical problems to solve:

- The distance from village A to village B is 5 km and from village B to village C, 3 km. How many kilometers is it from village A to village C?
- From village A to village B a man walks for 3 hours and from village B to village C, 2 hours. How many hours does it take for him to go from village A to village C?
- From village A to village B a man walks for 3 hours and a bicyclist rides three times faster. How much time does it take for the bicyclist to go from village A to village B?

As in the surveys on classification and inference, the subjects of the first target group could not solve the problems because those problems were not connected to their personal experience. They named various figures that were not a result of calculation but based upon their assumptions (“I guess . . .”; “Maybe . . .”). Very often they responded that they had never used a bicycle or never gone to the mentioned village, so it would be better to ask a person who had a bicycle or had visited that

village. Nevertheless, when the subjects were asked to solve this problem using familiar material (calculation with money or pieces of bread), they solved it very easily.

The results of this survey can be seen in the next table (Ibid.: 137):

Table 6.

Groups	**Decision**	**Problems related to personal of experience**		**Problems unrelated to personal experience (creating conflict)**	
		Did not solve	Solve	Did not solve	Solve
Peasants in remote villages, illiterate (16 respondents)	Direct	4=25%	12=75%	13=81%	3=19%
	After concretization of conditions	0	16=100%	12=75%	4=25%
Youth, who passed short-term training in the school (7 subjects)	Indirect	0	7=100%	0	7=100%

6. Conclusion

Even though the survey in Central Asia was carried out in 1931-32, the book containing its results was published only in 1974. As M. Cole (1979) noted, this work, begun with such high hopes and high ideals, led to consequences that were far more dangerous and complex than anyone at the time had anticipated.[4]

In the USSR Luria's report was condemned, mainly because of ideology. The working materials of the expedition had to be turned over to the Moscow Control Commission of the Workers' and Peasants' Inspection which examined the work of the Institute of Psychology from 1932 on. And in 1934 P. Razmyslov, in the article "On the 'cultural-historical theory' in psychology" of Vygotsky and Luria" (1934: 83) summarized the Commission's opinion of Luria's "Uzbek" expedition: "This pseudo-scientific, reactionary anti-Marxist theory concludes that, in practice, policy in the USSR is made by primitively thinking people and classes incapable of any abstract thought." In response to these critics, Luria had to write a letter in self-defense to the Central Committee of the Communist Party. And soon he had to leave the Institute of Psychology. His scholarly interests changed to clinical psychology.

Only the American *Journal of Genetic Psychology* published short annotations about this expedition in the late 1960s.

But after publication it in 1974 in the USSR and in 1976 by Harvard University Press (A. Luria, 1974; A. Luria, 1976), Luria's book has been widely cited in many works on psychology and cultural

[4] As mentioned above, A. R. Luria published only one small article in *Science* (1931).

anthropology. Leading publishing houses (Harvard University Press, Oxford University Press, etc.) have published books about Luria and his research (M .Cole, & S. Cole, 1979; T. Akhutina, J. Glozman, L. Moskovich, D. Robbins, (2005); A. Luria, 2005; A.-L. Christensen, E. Goldberg, D. Bougakov, 2009). As M. Cole (2005: 41) writes: “Luria was, and remains, a psychologist for all seasons. His creative life represents the single most sustained and successful attempt to implement the basic tenets of meta-psychology, which includes culture as a fundamental constituent of human nature."

References

Bruner, J. S., Oliver, R. R. & Greenfield, P. M. (1966). *Studies in Cognitive Growth*. N. Y.

Cole, M., Gay, J. & Glick, J. A. (1968). A Cross-Cultural Investigation of Information Processing. *International Psychology*, 3.

Cole, M. (1972). Culture and Cognition. In B. Maher (Ed), *Introductory Psychology*. N. Y.

Cole, M., Scribner S. (1977). *Kul’tura i myshlenie*. Moskva.

Cole, M., & Cole, S. (Eds.) (1979). *The making of mind: A personal Account of Soviet Psychology*. Cambridge, MA: Harvard University Press.

Cole M. (2005). A. R. Luria and the Cultural-Historical Approach in Psychology. In T. Akhutina, J. Glozman, L. Moskovich, D. Robbins (Eds), *A. R. Luria and Contemporary Psychology.*

Festschrift Celebrating the Centennial of the Birth of Luria. Nova Science Publishers, Inc.

Greenfield, P. M., Bruner, J. S. (1966). Culture and Cognitive Growth. *International Journal of Psychology*, 1.

Christensen Anne-Lise & Goldberg E., Bougakov D. (Eds.) (2009). *Luria's Legacy in the 21st Century.* Oxford University Press.

Marx K., Engels F. (1955). *Sochineniya*. T. 3. Moskva: Gosudarstvennoe izdatel'stvo politicheskoy literatury.

Marx K., Engels F. (1959). *Sochineniya*. T. 13. Moskva: Gosudarstvennoe izdatel'stvo politicheskoy literatury.

Levi-Strauss, C. (1966). *The Savage Mind*. Chicago: The University of Chicago Press.

Luria, A. R. (1931). Psychological expedition to Central Asia. *Science*. N1920.

Luria, A. R. (1974). *Ob istoricheskom rasvitii poznavatel'nyh protsessov.* Moskva: Nauka.

Luria, A. R. (1976). *The Cognitive Development: Its Cultural and Social Foundations*. Harvard University Press.

Luria, A.R. (2005). *Autobiography of Alexander Luria: A Dialogue with the Making of Mind*. Lawrence Erlbaum Associates, Inc.

Razmyslov P. (1934). *O "cul'turno-istoricheskoy teorii psihologii" Vygotskogo i Luriya* // Kniga I proletarskaya revolutsiya. № 4.

Solov'ev V. K. (1929). *Godichny opyt ispytaniya obshey odorennosti uzbekov I metodocheskiy analiz serii VSU RKKA* // *Psihotehnika I psihofisiologiya truda.* № 2-3.

Shirokova-Divaeva V. P. (1927). *Opyt primineniya indeksa Pin'e v otnoshenii uchenikov korennogo naseleniya UzSSR* // Meditcinskaya mysl' Uzbekistana. № 2.

Shishov A. (1927). *Pokazatel' Pignet v pedometricheskoy praktike* // Meditcinskaya mysl' Uzbekistana. № 5.

Shtelerman A. Materialy psihologicheskogo issledovaniya uzbekskogo shkol'nika St. g. Tashkenta po pereredaktirovannomu kratkomu Rossolimo // Meditcinskaya mysl' Uzbekistana. № 4.

Valsiner, J. (1988). *Developmental psychology in the Soviet Union*. Brighton, Sussex: Harvester Press.

Van der Veer, R., & Valsiner, J. (1991). *Understanding Vygotsky. A guest for synthesis*. Oxford: Basil Blackwell.

Vygotsky, L. S. (1929). K voprosu o plane nauchno-issledovatel'skoy raboty po pedologii natsional'nyh men'shinstv. *Pedologiya.* 1929. № 3.

Vygotsky, L. S. (1934). *Myshlenie i rech'.* Moskva: 1934.

Vygotsky, L. S. (1962). *Thought and language*. Cambridge: The MIT.

Vygotsky, L.S. (1978). *Mind in society*. Cambridge, MA: Harvard University Press.

Vygotsky, L. S., Luriya, A. R. (1930). *Etyudy po istorii povedeniya.* Moskva.

Wertsch, J. V. (1985). *Vygotsky and the social formation of mind*. Cambridge, MA: Harvard University Press.

Whorf B. L. (1956). *Language, thought and reality*. New York: Wiley.

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