

ИННОВАЦИОННЫЕ АСПЕКТЫ НАУЧНОЙ И ПЕДАГОГИЧЕСКОЙ
ДЕЯТЕЛЬНОСТИ И.П. ПАВЛОВА

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Формирование и развитие научных идей Павлова прослеживается в историко-объективном материале Павловской школы.

Иван Петрович Павлов был блестящим организатором коллективной научной работы. Его новшество было представлено в знаменитых «Павловских средах» (1922).

«Павловские среды» – это не только документ мыслительного процесса физиолога о высшей нервной системе в ее высшей фазе развития и информационный комплекс его научного учения – это новый метод научного творчества – «коллективное мышление».

Ключевые слова: Иван Петрович Павлов, Павловские среды, педагогическая деятельность, научные кадры, деятельность научного коллектива.

INNOVATIVE ASPECTS OF I.P. PAVLOV'S SCIENTIFIC
AND PEDAGOGICAL ACTIVITY

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Formation and development of Pavlov's scientific ideas are traced in the historical objective material of Pavlov's school.

Ivan Petrovich Pavlov was a brilliant organizer of collective scientific work. His innovation was represented in famous «Pavlov's Wednesdays», organized in 1922.

«Pavlov's Wednesdays» is not only the document of the physiologist's thinking process about the higher nervous system in its highest phase of development and informative complex of his scientific doctrine – it is a new method of scientific creativity – «collective thinking».

Keywords: Ivan Petrovich Pavlov, Pavlov's Wednesdays, pedagogical activity, scientific personnel, activity of scientific collective.

I.P. Pavlov was a doctor, naturalist, teacher, the Nobel prizeman on physiology and medicine (1904). He transformed physiology dramatically, enriched biology, medicine, psychology, pedagogics and other sciences of a man. Up to his life mission he was not only a great physiologist but also a teacher who determined strategic direction of development of a broad range of problems connected with the development of a man, his education and upbringing.

I.P. Pavlov gave physiologists, doctors and biologists strictly scientific, objective method of studying the most important physiological functions of an organism, established the main regularities of physiology of blood cir-

ulation, digestion, trophy nerve supply. Pavlov's scientific achievement was his doctrine of higher nervous activity embracing the organism in whole, in its unity with the environment.

Despite a broad range of literature about Pavlov's life and scientific legacy his activity has not yet been historically studied.

In all times unknown and unpublished documents from different archive funds attracted attention of specialists. Protocols, shorthand records, lectures, speeches, drafts, sketches help us to know variants of solutions to problems, scientific way of a scientist.

Protocols, reports, shorthand reports, articles, original autobiographic I.P. Pavlov's speech-



es became objective materials, primary sources. They got the name «Pavlov's Wednesdays».

Since 1922 «Pavlov's Wednesdays» are a rich documentary material, reflecting the process of I.P. Pavlov's scientific activity in the form of lively talks with his students. Coworkers of Pavlov's labs got together weekly on Wednesdays to talk over experimental work, to coordinate further steps of study. I.P. Pavlov repeatedly stressed the importance of such meetings because they helped to create new ideas. It was a new form of pedagogical organization of «collective thinking» as Pavlov called it. He paid much attention to the youth's world outlook, their professional, methodological upbringing.

Up to I.P. Pavlov there are two ways how to state scientific views. One of them is official which takes place when the reports of meetings are published: here everything must be considered, formulations must be absolutely strict, the author is responsible for every word. Another way is unofficial, «domestic», connected with the discussion of facts and ideas among coworkers: here you can fancy, you can express any ideas even if you refuse from them afterwards. This unofficial way of scientific creativity was called «collective thinking» and was recorded as «Pavlov's Wednesdays».

Although analyzing «Pavlov's Wednesdays» it is clear that it is not his final word but his discourse, his contemplation aloud, we can see the process of Pavlov's expectations on this or that question till the final doctrine.

All the work of «Pavlov's Wednesdays» was concentrated on the creation of active scientific position of listeners.

Wednesday. 12 November 1930. [Pavlov's Wednesdays. Minutes and shorthand reports of physiological talks. Publishing House of AS USSR. 1949. Vol. 1. P. 1.92]

«A lot of visitors took part in the conversation. Ivan Petrovich expressed the following remark about the talk in general: people do not often seek for making some conclusion, everyone tries to say something on his own and all these contemplations do not reach the aim. That is why Ivan Petrovich offering his coworkers to express themselves at «the Talks» does not advise them to speak if the idea does not lead to any aim and recommends not to repeat the ideas».

Wednesday. 7 January 1931. [Pavlov's Wednesdays. Minutes and shorthand reports of physiological talks. Publishing House of AS USSR. 1949. Vol. 1. P. 108]

«Ivan Petrovich points out the necessity of using the following method of thinking: not to follow the pattern when proposing an idea you need to assume the opposite even if this opposite idea seems to be a nuisance; you need to give more objections and check them, this checking can give valuable proof and new valuable facts. To check his research a famous physics Faraday made so strange experiments that he had to lock himself in his study in order other people did not think he is a fool».

The activity of «Wednesdays» have several steps.

On the first step Pavlov was the subject. He proposed a topic to listeners. Fundamental principle of Pavlov's scientific activity was consistency in actions. I.P. Pavlov did not suppress the initiative of his students and coworkers. That is what he wrote in his «Letter to the Youth»: «Do not let the pride take control over you. It deprives you of good advice and friendly support. You will lose objectiveness. In the collective that I lead the atmosphere is the most important thing. We are all harnessed in one general deal and everyone pulls it up to his strength and abilities».

It is often difficult to sort it out – what is «mine» and what is «yours» but it helps to promote our general deal». [Pavlov I.P. A Letter to the Youth. Full collection of works. M L. Publishing House of APS USSR. 1951. Vol. 5. P. 23]

Summarizing 34 years of his study of conditional reflex I.P. Pavlov in 1934 applying to his students and coworkers pointed out that «physiology has been enriched with many conjectures and conclusions which were made by them».

It became possible because workers of the lab were not just mechanical executors but they were active subjects of scientific activity, as he said everybody worked not only with their hands but with their heads and he was the main conductor and manager». [Pavlov's Wednesdays. Minutes and shorthand reports of physiological talks. Publishing House of AS USSR. 1949. Vol. 1. P. 561]

The students were under so great influence of their teacher that they started to absorb the spirit of activity, creative burning that was typical of Pavlov. All these things became possible because they invented this unusual way of collective thinking. Unique Pavlov's «Wednesdays» were the first finding of this kind.

It was an absolutely new form of scientific work – collective thinking. It was Ivan Petrovich who introduced them. Reporting about the progress of experiments he never said «I» did, «I» watched, but always – «we» did, «we» watched. It created a unique spirit of Pavlov's laboratories, creative atmosphere when up to his words «everybody gives something from his own and breathes it all».

Applying to young scientists he remarked that in science it is necessary to do rough work, to study and compare the given facts.

He said, «No matter how imperfect the bird's wing is it will never be able to raise the bird up to the sky without leaning on the air. Facts are the air for a scientist. You will never fly without them. Without them your «theories» – are attempts in vain. [Pavlov's Wednesdays. Minutes and shorthand reports of physiological talks. Publishing House of AS USSR. 1949. Vol. 2. P. 22-23].

I.P. Pavlov managed to make a collective of confederates, where any worker's skill was noticed and any reasonable proposal was admitted. His only measures for a man were the desire and ability to work. He understood pretty well that the progress of science lies in collective work.

The level of organizing the scientific work of I.P. Pavlov and his students is revealed at debates on «Wednesdays», when they discussed the essence of method of the scientific research, its ties with the philosophical questions.

Principles used by I.P. Pavlov in scientific research:

The most important principle for him was the principle of determinism (every reason has its result). Secondly, the principle of analysis and synthesis (anything can be divided into parts which are possible to put together again). The third principle is degree of structure which Pavlov regarded as location of actions, strength in the space under the influence of structure.

At «Pavlov's Wednesdays» Ivan Petrovich expressed «the desire to connect their laboratory achievements with human clinic». That's how in 1832 there appeared protocols, shorthand reports of «Pavlov's clinic Wednesdays» in nervous and psychiatric clinics which are not known to the broad range of scientific society. [Pavlov's Wednesdays. Minutes and shorthand reports of physiological talks. Publishing House of AS USSR. 1949. Vol. 3. P. 159]

Pavlov took up the works in clinic to study the physiological mechanisms of large hemisphere's cortex of the human brain. In 1932 he put the aim «to study psychopathic syndromes and mental diseases».

«Pavlov's clinic Wednesdays» have great methodological interest. They represent the example of I.P. Pavlov's scientific thinking in clinic, the example of combination of an experiment and clinic, physiological theory and medical practice.

Pavlov's clinic meetings are an example of free scientific discussion. Foreign guests took part in these discussions, as well as clinicians, psychiatrists and neuropathists. The organization and spirit of «Pavlov's Wednesdays» were not like scientific meetings or conferences. They were more like the exchange of minds among the confederates.

Pavlov's clinic Wednesdays represent the material of movement of lively scientific idea born in discussion of initial fundamental doctrines and theories which combine the data of clinical observations and experiments. Besides, shorthand records of these meetings contain the material of I.P. Pavlov's biography.

To understand Pavlov's correlation of physiological theory and clinical practice it is important to see the organic connection of these two scientific lines. Not only physiological experiment and its conclusions are the basis for understanding pathological process and influence on it but pathological process in its turn is the basis to understand physiological processes.

For Pavlov pathological process and normal process are connected phenomena.

A prominent scientist he combined work in his laboratories and in clinics. The result of these attempts is his remarkable excursions into

the sphere of neuropathology and psychiatry. As a result of this simple but rather creative work with his coworkers – physiologists and clinicians – I.P. Pavlov published a series of remarkable excursions into the sphere of neuropathology and psychiatry. Among these works: 1 – «A Tentative Excursion of Physiologist into the Sphere of Psychiatry» (1930); 2 – «On human and Animal's Neurosis» (1932); 3 – «An Attempt of Physiological Understanding of Symptomatology of Hysteria» (1932); 4 – «The Feeling of Acquisition» and Ultraparadocsal Phase» (1933); 5 – «An Attempt of Physiological Understanding of Obsessive Neurosis and Paranoia» (1933); 6 – «Types of the Higher Nervous Activity in Connection with Neurosis and Psychosis and Physiological Mechanism of Neurotic and Psychological Symptoms» (1935).

«Pavlov's clinical Wednesdays» were published in three volumes: I – shorthand reports 1931-1933, II – shorthand reports 1934, III – shorthand reports 1935-1936.

Since the first meeting physiologists regarded clinical cases of hysteria, neurosis, neurasthenia, neurosis of obtrusiveness, neurosis of fear, psychasthenia, paroxysmal sleep, agoraphobia, depressive states, aphasia, schizophrenia, alcoholic paranoia, epilepsy, dementia and many other illnesses.

Discussing nervous and soul's illnesses I.P. Pavlov assumed that it was absolutely correct to interrogate patients and «divide them into two categories to find out whether they belong to intellectual or to artistic type. There is a ground to presume that dividing these neurotic forms into psychasthenia and hysteria is based on it. Probably psychasthenia is typical of people of intellectual type, and hysteria is characteristic of people of artistic type». [Pavlov's Wednesdays. Minutes and shorthand reports of physiological talks. Publishing House of AS USSR. 1949. Vol. 3. P. 86]. I.P. Pavlov and his opponent-colleagues discussed these revelations giving examples from their observations and experience of other authoritative people.

I.P. Pavlov was convicted that physiology of the higher nervous system had great future. Speaking at the meeting in the nervous

clinic on 30 May 1934 the scientist said: «this conviction appeared when we transformed our physiology on animals in the lab into pathology of nervous system with some elements of treatment, therapy. Thus we can see that we have power over nervous phenomena. So it is quite clear that we felt the desire to connect these laboratory achievements with the human clinic. That's why I visit nervous clinic and psychiatric clinic as well». [Pavlov's Wednesdays. Minutes and shorthand reports of physiological talks. Publishing House of AS USSR. 1949. Vol. 3. P. 150].

The leading principle in I.P. Pavlov's research was «nervism» as he called it. «Nervism is a physiological line that tries to spread the influence of the nervous system on a greater amount of organism's activity», he said. [Pavlov's Wednesdays. Minutes and shorthand reports of physiological talks. Publishing House of AS USSR. 1949. Vol. 2. P. 142].

Following this principle I.P. Pavlov made a conclusion that nervous system plays leading role in regulation, functioning of an organism as a whole system.

Thus we can make a conclusion that I.P. Pavlov and his collective managed to connect natural science and philosophical methods. I.P. Pavlov understood complexity of searching the truth that's why he paid much attention to the scientific creative work.

Pavlov's scientific work has three phases: theoretical, practical and developing new results.

In the structure of explorative-theoretical phase there was directly theoretical work that was performed on the level of formal and informal ways of communication between I.P. Pavlov and physiologists, psychologists, doctors (for example, talks, «Wednesdays», discussions, conferences, writing of scientific works, correspondence and so on).

On this phase they worked out theoretical doctrines, hypothesis and so on.

Experimental-practical phase included experiment directly. They verified theoretical doctrines. They worked out results which demanded further grounding. The main elements of this phase were observation (passive and active), vivisection, chronic experiment.

The third phase – developing the gained results – is the stage of mastering the new results, which enriched not only the scientists of I.P. Pavlov's laboratory but the whole physiology. The main role belonged to practice, experiment.

Including the work of «Pavlov's Wednesdays» I.P. Pavlov managed to create professional scientific collective. Its characteristic feature was sense of purpose, regularity, periodicity, consistency.

Wednesday. 4 October 1933. «I.P. Pavlov. In the laboratory, gentlemen, there must be two types of behavior. From the one hand, when you claim something for sure and want to release in circulation as scientific material, you must be strict, persistent, check constantly your facts, ask others to notarize them, exclude any doubts for yourself. It is clear because to let frivolity enter the science is a great sin. From the other hand, when we regard the final result of work which we must publicize for the whole scientific world it is necessary to be cautious.

But at the same time in the same laboratory you must notice everything, every trifle. You should keep everything in your mind – it can be needed. Probably, this «trifle» is an indication of something important.

«Pavlov's Wednesdays» were structural element of the scientific organization of the scientists' collective. In modern literature they do not pay much attention to this aspect of Pavlov's activity.

Pavlov's Wednesdays performed several functions:

Firstly, it is methodological function which is closely connected with the growth of professional mastership. A real scientist always needs new knowledge. Pavlov said, «Never

think that you know everything. No matter how highly estimated you are, always have courage to say: I am illiterate». [Pavlov I.P. Full collection of works. M, L. Publishing House of APS USSR. 1952. Vol. 5. P. 375]. The needs of professional mastership help a scientist to be on the forward line. His research should be aimed to solve practical tasks.

«Pavlov's Wednesdays» performed educational function too. The students learnt a real attitude to the scientific duty on their teacher's example. The educational effect increased because the number of participants of the physiological and clinical talks increased too. «Wednesdays» promoted the students' scientific outlook.

«Wednesdays» became one of the forms of Pavlov's school work.

Scientifically organized «Wednesdays» played significant role in creation of methodological, psychological premises that promoted creative activity of the subjects of the science. It became the ground for creation the whole range of scientific courses, upbringing of I.P. Pavlov's students and followers. I.P. Pavlov managed to organize and run the scientific collective. It is significant that collective nature was an element of the scientific work («collective thinking»). I.P. Pavlov's clinical physiological views made the basis of clinical course in physiology that found its embodiment in famous «Pavlov's clinical Wednesdays». Pavlov put strong abutments of the bridge between experimental physiology and clinical physiology. Pavlov saw the necessity for a clinic to have a deep contact with experimental physiology, and for physiology – to use clinical harmless experiment.

Дополнительная информация [Additional Info]

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