

AL-FARABI KAZAKH NATIONAL UNIVERSITY

---

A. T. Kamzanova

# CURRENT TRENDS IN PSYCHOLOGY

*Educational manual*

Almaty  
«Qazaq university»  
2017

UDC 159.9 (075.8)

LBC 88.4 я 73

K 18

*Recommended for publication by the decision  
of the Academic Council  
of the Faculty of Philosophy and Political Science,  
Editorial and Publishing Council of Al-Farabi Kazakh National University  
(Protocol №5 dated 11.07.2017);  
Educational and methodical association on groups of specialties  
«Natural sciences», «Engineering and technology»  
of Republican educational-methodical council on basis  
Al-Farabi Kazakh National University  
(Protocol №2 dated 29.06.2017)*

**Reviewers:**

Doctor of psychology sciences, Professor **O.Kh. Aimaganbetova**

Doctor of psychology sciences, Professor **M.A. Perlenbetov**

Candidate of psychology sciences, Associate professor **A.A. Kasymzhanova**

**Kamzanova A.T.**

K 18 Current Trends of Psychology: educational manual /  
A.T. Kamzanova. – Almaty: Qazaq university, 2017. – 120 p.  
**ISBN 978-601-04-2890-4**

The textbook presents the author's vision of master degree's specialization discipline «History, condition, and development tendency of modern psychology» from the viewpoint of the competency approach, which examines current trends in psychology in connection with its historical background. Particular attention is paid to psychological problems and phenomena taking place in the worldwide psychological science, discuss trends in psychology in terms of computer technologies development.

The textbook is intended for students of psychology department, PhD students, professors, researchers, as well as for practicing psychologists.

Published in authorial release.

**UDC 159.9 (075.8)**

**LBC 88.4 я 73**

ISBN 978-601-04-2890-4

© Kamzanova A.T., 2017

© Al-Farabi KazNU, 2017

# CONTENT

<b>Foreword</b> .....	6
<b>1. The Main Stages of Development of Modern Psychology</b> .....	8
<b>1.1.</b> The Role of the History of Psychology for Modern Psychologists .....	8
<b>1.2.</b> Reflection of the Philosophical Origins of Psychological Knowledge in Modern Psychology .....	9
<b>2. Models of Subject of Psychology: the Emergence of Psychology as a Science</b> .....	20
<b>2.1.</b> Isaac Newton and Charles Darwin: Mechanical and Evolutionary Determinism .....	20
<b>2.2.</b> W. Dilthey and Descriptive Psychology .....	22
<b>3. History of Measurement in Psychology and Modern Statistical Analysis</b> .....	26
<b>3.1.</b> The history of Quantitative Methods in Psychology .....	26
<b>3.2.</b> Modern Statistics in Psychology .....	28
<b>3.3.</b> The Problem of Scientific Truth in Psychology: Statistics and Probability .....	31
<b>4. Psychophysiology and Psychology: the Origins and Development</b> .....	34
<b>4.1.</b> Brain and Mind: The Origins of the Problem.....	34
<b>4.2.</b> Modern Neuroscience: Achievements and Prospects.....	36
<b>5. Psychology of Behavior: Classical Ideas in Modern Psychology</b> .....	40
<b>5.1.</b> I.M. Sechenov, I.P. Pavlov, V.M. Bekhterev: Reflexes of Behavior .....	40
<b>5.2.</b> J. Watson, B. Skinner: Behaviorism and Modern Subject of Psychology .....	41
<b>5.3.</b> Behavioral Science in the Modern Psychology.....	42
<b>6. The Ideal Experiment in Psychology: Opportunities and Perspectives</b> .....	45
<b>6.1.</b> A Classic Experiment: History of Formation.....	45
<b>6.2.</b> Modern Psychological Experiment in the XXI Century .....	46

<b>7. Method of Modeling and Experiment</b> .....	51
7.1. The Meaning of the Modeling Method in Experimental Psychology .....	51
7.2. Modeling of Psychic Reality in Psychological Science .....	54
<b>8. Computer Technologies in Modern Psychological Experiment</b> .....	58
8.1. History of Computerization of Psychological Research.....	58
8.2. Modern Computer Software in Psychological Experiment .....	59
<b>9. Modern Psychodiagnostic Tools</b> .....	66
9.1. The History of Psychodiagnostics.....	66
9.2. Modern Psychodiagnostics in CIS Countries: Problems and Ways of Solution.....	68
9.3. The Main Achievements of Western Psychodiagnostics .....	70
<b>10. Personality Psychology: History and Perspectives of Development</b> .....	73
10.1. Theories of Personality: The Foundations of Development and Classification.....	73
10.2. The Modern Personality Psychology: Condition and Development Trends .....	74
<b>11. Modern Cognitive Psychology</b> .....	79
11.1. The History of Cognitive Psychology .....	79
11.2. Current Researches in Cognitive Science .....	82
<b>12. Organizational Psychology: Current Trends and Experimental Studies</b> .....	88
12.1. The History and Development of Modern Organizational Psychology.....	88
12.2. Modern Trends in Organizational Psychology.....	89
<b>13. Cultural-Historical Concept Of L.S. Vygotsky and Theory of Activity in Modern Psychological Science</b> .....	93
13.1. L.S. Vygotsky, A.N. Leontiev and Foreign Psychology in XX and XXI Centuries .....	93
13.2. Features of Development of The Theory of Activity in the XXI Century: The Explanatory Possibilities and Prospects of Development .....	95
<b>14. Psychology and Practice: Current Trends In International Psychological Science</b> .....	99
14.1. Clinical Psychology: The History And Development Trends In Modern Science .....	99
14.2. Modern Psychological Counseling: Trends And Training Standards .....	103

<b>15. Psychology Of The XXI Century: A Look Into The Future</b> .....	107
15.1. Education Of Professional Psychologist In Modern Conditions: The Universal Training Or Specialization .....	107
15.2. Modern Ethic Standards In Psychology .....	113
15.3. Horizons Of Psychological Science Development In The XXI Century .....	116
<b>Conclusion</b> .....	118

## FOREWORD

The textbook is devoted to consideration of current actual theoretical and applied issues of Psychology in relation with its difficult but at the same time a fascinating historical development. Formation of current psychological experiments, psychological tools and theoretical explanations directly connecting with its historical background knowledge. There are no textbook in Kazakhstan, which describe current psychological research directions in the western theoretical and applied psychology, especially in its American and European representation. Due to this Kazakhstani psychological science face with difficulties in integration processes with current foreign psychology. Regarding this in this textbook not only analyzed foreign and domestic psychological science, but also discussed similarities and differences in scientific approaches, experimental studies in order to understand the subject of psychology. Also, there was included branches of current foreign psychology, foreign psychological organizations, scientific journals, and others in order to provide opportunities for the reader to find more information about these sources in a variety foreign resources.

Current worldwide psychological science and psychological practice, which are represented professional competence of modern psychologists, gives to students a systemic understanding about dependences between certain professional competencies and area of specialization. Moreover, it will motivate students to systematize the knowledge about methodology of development of psychological science, which are a basis of any professional competence.

The discipline «History, condition, and development tendency of modern psychology», which determined this textbook associated with the name of the doctor of psychological sciences, professor S.M. Jakupov who at the first time developed and implemented the basic course in the master degree education program of «Psychology» at the al-Farabi Kazakh National University. Author of the textbook was lucky to be under the guidance of the doctor of Psy-

chological science, Kazakhstani scholar of Psychology, who during his life has made huge contribution to Kazakhstani Psychology. S.M. Jakupov was a lecturer and I gave seminars of the discipline. Since 2012 author of the textbook have been giving this discipline in English and Russian languages for master degree students of the department of «Psychology» at the Al-Farabi KazNU.

Many years in teaching various branches of psychology at the al-Farabi Kazakh National University, constant cooperation with foreign professors from the leading foreign universities, analysis of foreign scientific literature and scientific journals allow the author to define the unity of the semantic content of Domestic Psychology and Western Psychology.

All content of textbook is constructed in a logical sequence with the basic stages of Psychology development and support the discipline «History, condition, and development tendency of modern psychology», which include in Master degree educational program of Psychology at the al-Farabi Kazakh National University.

After each chapter of textbook was included checklist, list of main and recommended literature, which include current foreign resources such as psychological handbooks, scientific articles, web resources etc.

# 1

---

## **THE MAIN STAGES OF DEVELOPMENT OF MODERN PSYCHOLOGY**

### **1.1. The Role of the History of Psychology for Modern Psychologists**

The main role of history of psychology is studying the historical development of psychology. However, the second part of its importance for psychologists is to understand how historical knowledge about psychology consistently effect on our present understanding of subject of psychology and its importance for modern science. In this case, it is necessary to understand a role of studying the history of psychology. Nowadays, most students are interesting only in modern trends of psychology and ignoring scientific knowledge about connections modern psychology with its historical roots. Situation is similar with practical psychologists, who often believe that the history of psychology is not important for practice. Regarding only knowledge of methodological and theoretical foundations of psychology, it is possible to interpret psychic reality.

Psychology passed a long way before becoming a science. It should be noted, that a model of psychology's subject formed by different scientists for a long time. Numerous scientists continue to develop theories and concepts as a scientific potential of psychology. Systematic understanding of the scientific foundations of psychology, the logic of its development as a science, its current state and further development trends open up limitless possibilities for psychologists regardless of their specialization and scope of professional interests.

The purpose of each chapter of this textbook is to make comparative analysis of the impact of historically significant psychological



ideas on modern theories and research in psychology. There are scientific positions, which help to make comparative analysis between history of psychology and its current states:

1. The history of psychology as the evolution of ideas about the subject of psychology.
2. A variety of modern psychological schools as a reflection of contradictions in the history of psychology.
3. Connection of history of psychology with the nowadays problems.

Let us start with you our analysis of the history, status and trends of psychology and philosophical perspectives of development of psychological thought.

## **1.2. Reflection of the Philosophical Origins of Psychological Knowledge in Modern Psychology**

The history of psychology can be described as a science, which has a long past historical background. It is well known that psychology goes back to the philosophical ideas of ancient scholars of Egypt, Greece, Rome, and others. A huge time-line until the 19th century allowed scientists to develop a set of psychological problems and theories<sup>1</sup>. However, despite such a long time of the science development, a forming the subject of psychology was achieved only two centuries ago. Let us consider the origins of psychological thought, before determining the reason for the later development of psychology as a science.

### *The contribution of ancient scholars in psychology development*

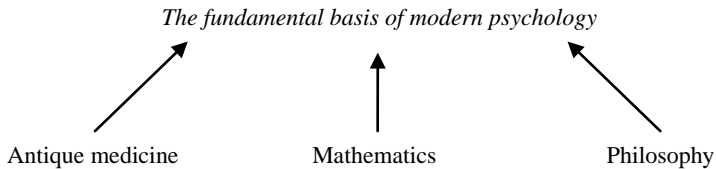
Doctors and philosophers of antiquity thought about the nature of the mind, senses and perception, memory and learning. Their ideas and scientific contribution being preserved for thousands years to form the fundamental basis for the modern psychological science. Today, their ideas are reflected in the modern psychological con-

---

<sup>1</sup> Martsinkovskaya T. History of Psychology: a textbook for students. 8 th ed. – M: Publishing Center «Academy», 2008. – 544 p. (in Russian)

cepts, which undoubtedly shows that the traces of their ideas are stored in this stream of thought of modern scientists.

It is known that psychology has been studied for thousands years, and stages of study was not in systematic way. However, this does not diminish the importance of ancient scholars' ideas for modern psychological science. It should be noted that the present state of psychology, its main theoretical and psychological problems, practical aspects have been identified long before as psychology became a science:



Let us now consider the originality of the fundamental bases of modern psychology. For example, a comparative analysis of the historical determination of modern scientific directions in psychological science by ancient medicine (see Table 1). Table 2 provides a comparative analysis of relationship between mathematical ideas in antiquity with modern statistical methods in current psychology. Table 3 shows the main philosophical ideas that became the fundamental basis of the classical psychology.

It should be noted, that the above presented tables show the ideas of the most prominent scholars of antiquity. They along with many other scientists have made a significant contribution to the establishment and development of psychology.

Thus, regarding to ideas of philosophers, physicians and mathematicians of antiquity, there are a lot of scientific approach have been developed in scientific psychology.

It is very important to know main connections between main dominant schools of psychology and classical psychological theories and concepts (Table 4).

It is significantly important to understand the main connections of current psychological branches with historical one in order to define methodological basis of psychology.

Table 1

Antique medicine and modern psychology: from the beginnings to the present

Period of time	Representatives of antique medicine	The main ideas	Relation with modern psychological science
1 V century BC	2 Alcmaeon of Croton	3 1. The basis of physiology in psychological study of behavior (nerve channels and their way to the brain; the brain as a basis of thinking, the senses are connected to the brain) 2. The human body is a microcosm 3. Thinking is different from sensations 4. Health is the balance of power in the body 5. Medicine, as a rational science, based on observation	4 The foundations of modern knowledge in areas such as: 1. Neuroscience and cognitive science 2. Neuronal humoral regulation of behavior 3. Classification of mental processes and how they differ from the thinking processes 4. The modern systematic approach to health psychology
About 460-377 years BC	Hippocrates	1. The brain is the center of mental processes 2. Humoral types of personality 3. healing methods to restore the natural balance of the body: relaxation, exercise, diet, music, chat with friends 4. Spiritual qualities depend on the body, the right side of the brain controls the left side of the body and vice versa 5. The physical causes of mental illness 6. Determined the symptoms of melancholia (depression), mania, postpartum depression, phobias, paranoia and hysteria 7. Oath of Hippocrates	The foundations of modern knowledge in areas such as: 1. Neuroscience and cognitive science 2. Modern psychology of individual differences 3. Modern methods psychological prevention 4. Psychosomatics 5. Medical psychology and psychopathology 6. The classification of mental disorders (International Classification of Diseases ICD-10; Diagnostic and Statistical Manual of Mental Disorders (DSM- IV)) 7. Introduction to Psychology and Medical Ethics: Code of Ethics for psychologist

1	2	3	4
About 200 or 217 years	Galen	<ol style="list-style-type: none"> <li>1. Sensory and motor nerves differ from each other</li> <li>2. Nerves provide voluntary movements and are presented in all organs</li> <li>3. Classification of the brain: brain and spinal cord</li> <li>4. The dependence of organism from the nerve system</li> <li>5. Treatise «Passion and delusion of the soul»: methods of treatment of soul diseases. Affects as causes of disease, they can be controlled by individual understanding and self-control.</li> <li>6. Description for therapeutic relationship</li> </ol>	<p>The foundations of modern knowledge in areas such as:</p> <ol style="list-style-type: none"> <li>1. Ideas about reflexes</li> <li>2. Neuropsychology and psychopathology</li> <li>3. Modern psychotherapy and treatment mental disease</li> <li>4. Modern problems of human self-regulation</li> </ol>

Table 2

**Ancient mathematics and modern psychology**

Period of time	Representatives of antique medicine	The main ideas	Relation with modern psychological science
VI century BC	Pythagoras	<ol style="list-style-type: none"> <li>1. Criteria for evaluating a personality by mathematical laws of harmony, honesty, etc.</li> <li>2. The essence of objects is determined by the numerical expression</li> <li>3. Mathematics as a Language of Science</li> </ol>	<ol style="list-style-type: none"> <li>1. The importance of quantitative data in modern scientific research and knowledge about psychic reality</li> <li>2. Modern mathematical modeling of the psyche</li> <li>3. Natural-scientific approach in psychology</li> </ol>

Table 3

The ancient philosophers and modern psychology

Period of time	Representatives of antique medicine	The main ideas	Relation with modern psychological science
1 About 460-370 years BC	2 Democritus	3 1. The idea of consciousness as a matter: the body and the soul are composed of atoms 2. The soul is the source of activity of the body 3. Cognitive process consists of two stages – the feeling and thinking 4. Feelings contribute to the emergence of illusions and perceptual errors 5. All contact sensations, including the visual and auditory 6. Primary and secondary qualities of objects. The secondary qualities of objects invented by a man do not allow properly and adequately explore the world 7. The mind is the result of experience, which is associated with the movement of atoms 8. Emotions run by behavior (relate with this idea Epicurus developed the theory of hedonism) 9. In the world everything happens by a reasons and are predetermined 10. Education enables a person to think, say and do, as well as develops the moral principles	4 1. Modern phenomena of sensation and perception 2. The concept of emotional regulation of behavior and activity 3. The principle of determinism in psychology 4. Basis of educational psychology

1	2	3	4
<p>About 469-399 years, BC</p>	<p>Socrates</p>	<ol style="list-style-type: none"> <li>1. Idealistic view: the soul as a mental quality is a source of reason and morality</li> <li>2. Human activity guide by his knowledge</li> <li>3. The existence of absolute truth, which is learned through meditation</li> <li>4. The initial presence of the unconscious knowledge about truth, and individual has to make it aware</li> <li>5. Knowledge is recorded by words and concepts</li> <li>6. Thinking relates with words</li> <li>7. Achieving knowledge – it is an action which has the ultimate goal to develop the mind and to know the truth</li> <li>8. Dialogue learning and problem-based learning</li> </ol>	<ol style="list-style-type: none"> <li>1. L.S. Vygotsky: The concept «Speech and thinking process»</li> <li>2. The activity approach in psychology: activity structure «need-motive-goal-action-result»</li> <li>3. The concept of need-motivational sphere of personality</li> <li>4. The modern concept of dialogic learning process, in particular the concept of co-dialogic cognitive activity</li> </ol> <p>S.M. Jakupov</p>
<p>About 428-348 years, BC</p>	<p>Plato</p>	<ol style="list-style-type: none"> <li>1. Objective idealism</li> <li>2. «World-Soul» are concepts as a model for real objects</li> <li>3. The idea of qualitative differences between the human soul and other living creatures' soul.</li> <li>4. Any object is a carrier of ideas</li> <li>5. The idea of human freedom: the practical activities and voluntary behavior in connection with the comprehension of their causes</li> <li>6. The individual consciousness is a part of public consciousness</li> <li>7. The concept «Structure of the soul» (comparison of the soul with a chariot drawn by two horses: conflicting and passionate longing of</li> </ol>	<ol style="list-style-type: none"> <li>1. The idea of the structure of personality and intrapersonal conflict in psychoanalysis</li> <li>2. Objectivity as a system-forming factor in the theory of activity</li> <li>3. The Theory of Activity: the struggle of motives, semantic structure of Activity</li> <li>4. The concept of internalization of social consciousness in social psychology: social consciousness =&gt; large groups =&gt; small groups =&gt; personality</li> <li>5. L.S. Vygotsky and J. Piaget: the formation of concepts</li> <li>6. The concept of L.S. Vygotsky: the</li> </ol>

1	2	3	4
		<p>the soul with an important sensible regulating part)</p> <p>8. The identification of thinking and inner speech</p> <p>9. Determine the stage of formation of knowledge: sensation – memory – thinking and speech</p> <p>10. Memory as a separate mental process in the formation of human experience</p> <p>11. A study of any concept genesis</p> <p>12. The concepts are the product of thinking</p> <p>13. The process of logical thinking: learning process as a copy of objects</p> <p>14. Knowledge of the truth and its realization through intuitive thinking characterized as instant and creative process (in this case, as the reproductive process)</p> <p>15. Positive and negative impacts of art on a feelings</p> <p>16. Psychological assessment of child abilities and skills</p> <p>Role of observation and a self-report in order to assessment of professional abilities</p>	<p>concept of inner speech and thinking</p> <p>7. The modeling method in psychological experiment and current computer technology</p> <p>8. intuitive thinking and concept of insight in Gestalt Psychology</p> <p>9. Modern music psychotherapy</p> <p>10. Organizational psychology (personnel selection, personnel evaluation, psychological testing of abilities, etc.)</p> <p>11. Creativity Psychology</p> <p>12. Classification of psychological methods</p> <p>13. Classification of mental processes in Psychology</p> <p>Psychology of abilities and giftedness</p>
384-322 years, BC	Aristotle	<p>1. Natural-scientific approach in psychology, biology and medicine as the basis of knowledge about psyche</p>	<p>1. Biogenetic law in psychology</p> <p>2. Phylogenesis and ontogenesis in psychology</p>

1	2	<p>2. The idea of evolutionary development of the psyche</p> <p>3. A soul is inseparable from the body</p> <p>4. At birth time human mind is clean</p> <p>5. The idea of genesis: the development of three components of the soul (plant, animal and rational soul)</p> <p>6. The idea of connection between higher life forms with elementary one</p> <p>7. Relation between individual organism and environment</p> <p>8. The concept of «nous» (universal mind), which is constantly changing and is enriched by new knowledge</p> <p>9. Feelings and associations as the main stages of knowledge: the importance of active sensory experience (feeling and perception) in the formation of knowledge; memory level relate with primary processing of information, keeping them in the form of representations and circuits that can be further processed by imagination</p> <p>10. Association as a mechanism of mental life and cognition, while the strength of the association depends on the frequency of the experience</p> <p>11. Logic operations from the particular to the general are considered as operations of formation of concepts</p>	4
			<p>3. L.S. Vygotsky: concept of internalization</p> <p>4. The concept of the collective unconscious</p> <p>5. The origin of the psychological school of associationism in the XVIII century.</p> <p>6. Basis of computer metaphor in psychology</p> <p>7. Modern classification of logical and intuitive thinking, the concept of creative thinking</p> <p>8. Modern concepts in the field of early childhood development</p> <p>9. Ideas about character formation in psychology</p> <p>10. Modern classification of emotions and emotional states</p> <p>11. The idea of catharsis in the theory of S. Freud</p> <p>12. The theory of evolution Charles Darwin</p> <p>13. Basis of Behavioral Science</p>

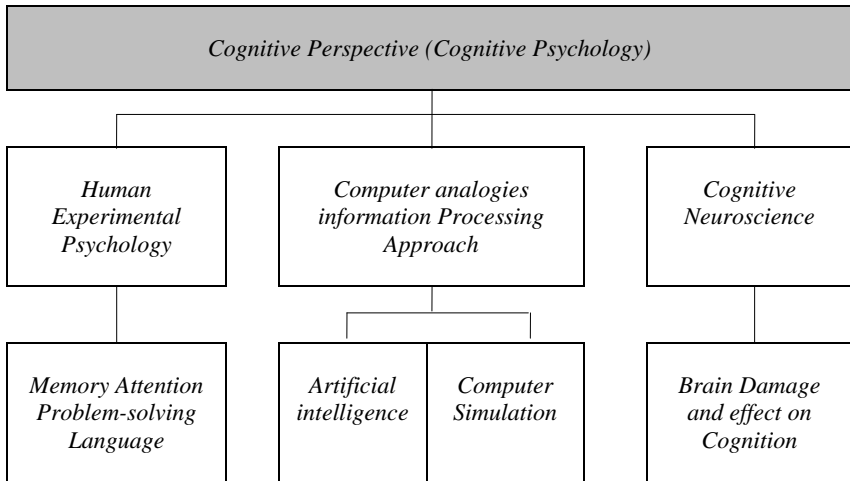


1	2	3	4
		<p>12. Creative thinking as a subjective experience  13. Early education of children as a condition of the development of their creativity and observation  14. Individual approach in training and education are necessary for children moral development  15. Theoretical (accumulation of knowledge) and practical (manual behavior) thinking  16. Role of will in regulation of behavior  17. Classification of emotions: feelings and affects, the problem of their regulation  18. The role of positive and negative emotions in the formation of behavior  19. Feelings and art in improving of learning process  20. Catharsis and affect (emotional stress)  Emotions relate with motivation</p>	

In order to make methodological analysis, for example, of cognitive perspective it was drawn table 5 which continue the table 4. In addition, Boxes in table 4 and table 5 was colored in gray in order to define exact root of analysis of methodological basis of cognitive perspective.

Table 5

**Cognitive Perspective further development**



Regarding to methodological understanding of any psychological branches it will be possible to conduct correct psychological experiment, choose appropriate methods, analyze psychological data and interpret psychological results by theoretical background knowledge.

Thus, history of psychology determines current trend of psychological knowledge in connection with other scientific approaches. In order to design psychological experiment or psychological research it is necessary to be aware about theoretical background knowledge and methodological basis of scientific hypothesis which relate with researcher's interests.

**Control questions**

1. Why knowledge about history of psychology is important for professional activities of psychologists?

2. Identify the main development stages of psychology in connection with historical one.
3. What is the role of philosophical ideas of antiquity in the modern psychology?
4. Why psychologists have to know methodological foundations of psychology?
5. What is the fundamental difference between the philosophical and psychological ideas of understanding of psyche?
6. Explain main differences between psychological, philosophical and medical knowledge about psyche.

**Main literature:**

1. Zhdan A.N. History of Psychology: from antiquity to the present: the textbook for students of psychological faculties of universities. Third Ed., revised. – M.: Russian Pedagogical Society, 1999. – 512 p.
2. Yaroshevskii M.G. The history of psychology from antiquity to the mid-twentieth century. Tutorial. – M.: Academy, 1996. – 416 p.
3. Martsinkovskaya T. History of Psychology: a textbook for students. 8th ed. – M.: Publishing Center «Academy», 2008. – 544 p.

**Additional literature:**

1. A psychological dictionary / Ed. Meshcheryakov B.G., Zinchenko V.P. – SPb.: Prime Evroznak, 2007. – 672 p.
2. Galperin P.Ya. Psychology Lectures: Textbook for university students. – M.: Higher School, 2002. – 400 p.

# 2

---

## **MODELS OF SUBJECT OF PSYCHOLOGY: THE EMERGENCE OF PSYCHOLOGY AS A SCIENCE**

### **2.1. Isaac Newton and Charles Darwin: Mechanical and Evolutionary Determinism**

It is well known that the formation of psychology as a science related with the name of W. Wundt. However, it should be noted that the conditions of formation of psychology as a science were laid before the classic event, which associated with the opening of an experimental laboratory in the 19th century. Modern Times Science, and in particular the ideas of Newton, laid down in the eighteenth century. Newton's idea had a fundamental influence on the development of scientific bases of Psychology. Newton formulated the rules of philosophical reasoning and this ideas are still relevant to the modern psychological science:

- 1) knowledge about deterministic phenomena;
- 2) the importance of experiment,
- 3) principles of pilot experiment where human sensory system is an important and a major source of knowledge;
- 4) Scientific ideas are derived inductively.

All of the above ideas of Newton are the basis of the principles of the scientific method in the modern psychological research.

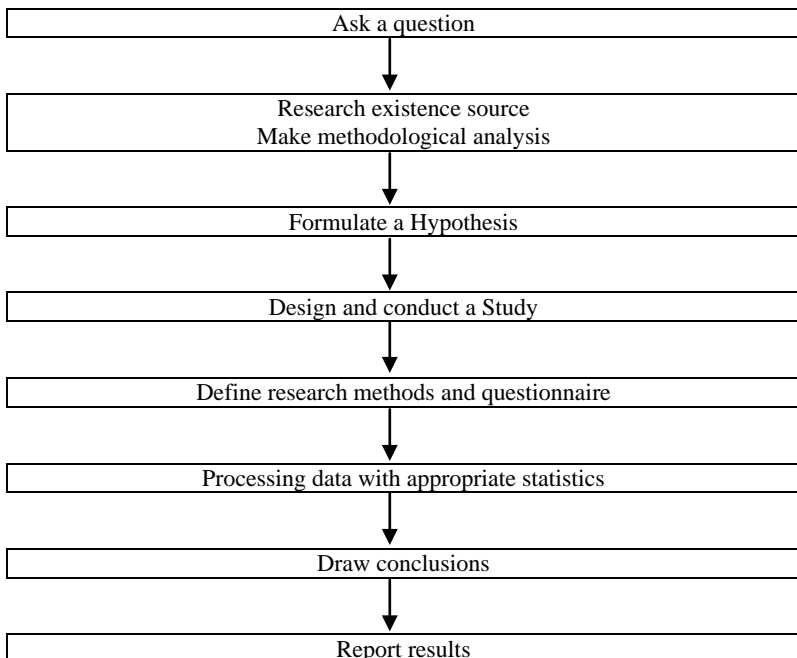
Newton's explanation of the possibility of the entire physical universe through the knowledge of the laws and the availability expressing mathematical form by limited number of data are also important for psychology. Statistics are essential in explaining and predicting the psychic reality in modern psychological experiment. Undoubtedly, Isaac Newton's ideas significantly influence on scientific formation of psychological experiment in which behavior can be determined by different variables.

Thus, ancient scientific picture of the world was changed in the eighteenth century. This changes characterized by anthropocentrism of Newtonian scientific picture of the world of mechanical determinism, which undoubtedly created favorable conditions for the development of scientific bases of psychological knowledge with philosophical basis.

Newton, relegating anthropocentrism ideas of antiquity, yet continued to adhere to after many ancient teachings of the Divine idea of creating a mechanical universe. Charles Darwin's publication «Origin of Species» in 1859 formulated a theoretical model of evolution, which clearly contradicted the classical religious knowledge of that period, and intensified the debate about the fundamental nature of human. Psychological laboratory of Wundt was established in the midst of these discussions, just eight years after the publication of work by Darwin on the origin of man in 1871.

Table 6

### Design of Psychological Research



Thus, Isaac Newton and Charles Darwin's ideas contributed the historical revolution of scientific knowledge. This scientific revolution defined the modern duality of psychological science, which on the one hand adheres Newtonian science approach to the quantitative methods of research, and on the other hand, descriptive psychology with qualitative methods of scientific knowledge.

Quantitative methods of research determined current design of psychological research (table 6).

Thus, current psychological research design reflects main Newton's idea of Quantitative methods of research. Any current psychological research design in the same way, which have been shown in the table 6.

The duality of the psychological science has been identified a subject of psychology. Scholars of antiquity, the Middle Ages and the Renaissance periods established a philosophical descriptive method to get knowledge about soul consciousness. However, during New time this approach was replaced by a hypothetical, scientific explanatory approach of human behavior study through quantitative mathematical data of a scientific experiment. Thus, there was two models of scientific explanation of human cognition in psychology. Newton's approach is the first one in psychology, which became popular in a late nineteenth century. Nevertheless, such scholars as W. Dilthey and E. Spranger continued the idea of a qualitative analysis of the human mind because of necessity understanding human inner world.

## **2.2. W. Dilthey and Descriptive Psychology**

Study of the human mind and consciousness was became main provisions for W. Dilthey and E. Spranger. Let us consider briefly the basic ideas of narrative psychology:

1. Priority ideographic knowledge about unique types of individuals.
2. The scientific facts are inside of subjective mental life.
3. The spiritual life is determined by emotions and values.
4. The individual is seen as a fundamental component of the differential psychology.

According to W. Dilthey the explanation of human action is fundamentally different from the study of the external manifestations of his behavior because this give possibility to know individual's inner psychological world. However, at the same time they do not deny the physical world, because psychological world can not exist without it.

Consider the basic positions of the two models of knowledge in psychology, which in the modern psychology considered in unity:

<b>Natural-scientific psychology</b>	<b>Descriptive psychology</b>
Real world	The perceived world
The objective world	The subjective world
Experiment	Method of ideographic analysis
Quantitative approach	Qualitative approach
Statistical methods	Non-statistical methods

Thus, duality of scientific models in psychology was determined by dividing the scientific methodology to ideographic and nomothetic ways. Modern psychologists, as well as Wundt in his time, faced with the methodological problem of limited nomothetic explanation of the human psyche. In this case, it was necessary to preserve the integrity of psychology by avoiding gap between science and the humanitarian paradigms of scientific knowledge. For example, in modern psychological dictionaries included a definition of the psyche as a consciousness and behavior, where professional-scientific approach combining two completely different models of psychological thought. The problem of the dual model of the subject of psychology has found its solution by V.A. Hansen (1927-1997) system approach of psychology in the past century. Such scientists as J. Brewer and A. Hunter continued to develop this approach in multi methodological Western psychological science by publishing in 1989 the book «Multimethod Research: A Synthesis of Styles». This paradigmatic approach developed mix methodology in Western psychology. There started to publish for example, «Journal of mixed methods research» (the English publisher SAGE), held annual the-

matic congresses of mixed methods international Congress Association (MMIRA) ets. It should be noted, that in the classic Soviet psychology this type of research with qualitative and quantitative data referred to complex research.

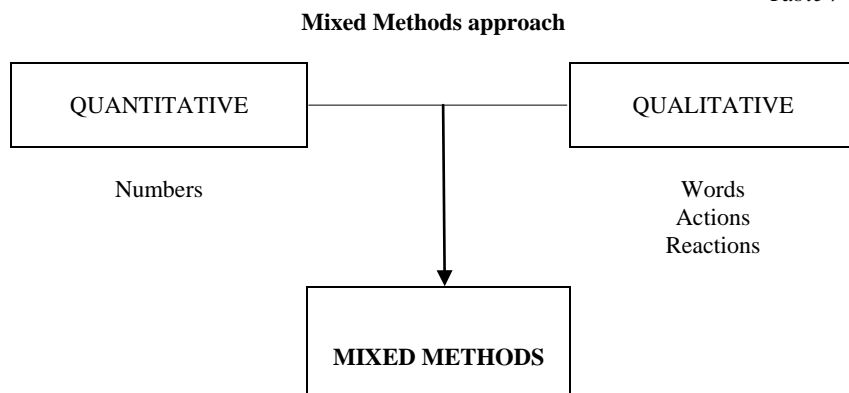
Thus, so-called «Mixed Methods» paradigm have been developed as a new trend in foreign psychology, which means:

1. The use of more than one method of data collection.
2. Including qualitative and quantitative data in a psychological research.
3. Data analysis from the various theoretical positions ets.

Johnson, R.B., Onwuegbuzie, A.J., Turner, L.A. in 2007 introduced 3 types of experiment design, which can be attributed to the so-called research using mixed methods:

1. The quantitative approach, which involves quantitative research with qualitative data.
2. Qualitative approach, which involves the qualitative research with quantitative data.
3. Interactive or an equivalent approach in which scientific research is equally attaches importance and the quantitative and qualitative data, methods, techniques<sup>2</sup>.

*Table 7*



<sup>2</sup> Johnson R.B., Onwuegbuzie Turner A.J. (2007). Toward a Definition Mixed Methods Research // Journal of Mixed Methods Research. – 2007. – №1. – P. 112-133.



However, it should be noted that in modern science there is another position among international researchers who insist on the incompatibility of paradigms and methods<sup>3</sup>.

Thus, the Newtonian scientific picture of the world of mechanical determinism and the idea of narrative psychology continue to define a research methodology for psychological science in XXI century. It is necessary to complement quantitative standardized test data with qualitative data, which reflect ideographic and projective techniques in order to obtain objective, system descriptions of psychic reality.

**Control questions:**

1. What are the reasons for developing two models of psychological knowledge about subject of psychology?
2. Analyze the main stages of modern research in accordance with the ideas of Isaac Newton.
3. Make a model of psychological research using Mixed Methods approach in cross-cultural psychology.
4. Determine the scientific significance of descriptive psychology.
5. What is the significance of descriptive psychology in the modern psychological practice?
6. Explain main paradigm of modern psychology.

**Main literature**

1. Gottlieb A.S. Procedures and methods of sociological research. Workshop. Book 2. A qualitative case study: a textbook. – Samara. Publishing house «Samara University». – 2014. – 354 p.
2. Niglas K. The Combined Use of Qualitative and Quantitative Methods in Educational Research. – 2004. – режим доступа: <http://www.tlulib.ee/files/arts/95/nigla32417030233e06e8e5d471ec0aaa32e9.pdf>

**Additional literature**

1. Johnson R.B., Onwuegbuzie Turner A.J. (2007). Toward a Definition Mixed Methods Research // Journal of Mixed Methods Research. – 2007. – №1. – P. 112-133.
2. Mingers J., Brocklesby J. Multimethodology: Towards a Framework for Mixing Methodologies // Journal Omega. – 1997. – Volume 25. – P. 489–509.

---

<sup>3</sup> Gottlieb A.S. Procedures and methods of sociological research. Workshop. Book 2. A qualitative case study: a textbook. – Samara. Publishing house «Samara University». – 2014. – 354 p.

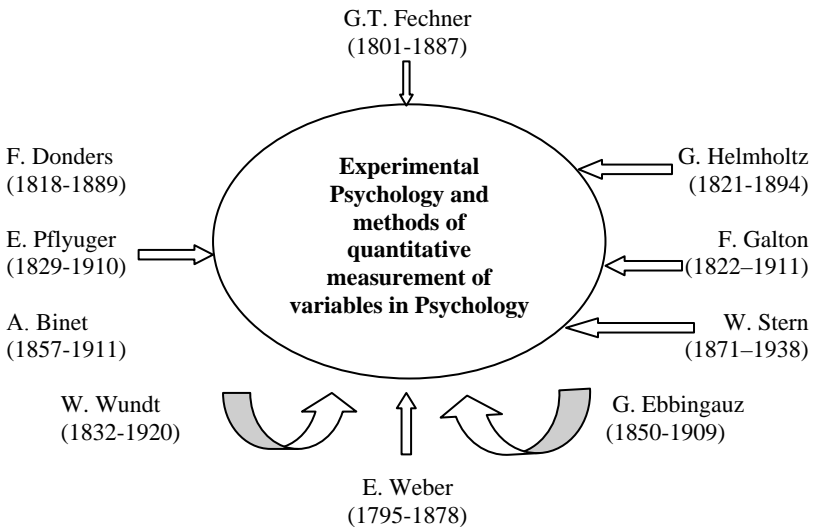
# 3

## HISTORY OF MEASUREMENT IN PSYCHOLOGY AND MODERN STATISTICAL ANALYSIS

### 3.1. The History of Quantitative Methods in Psychology

It should be noted, that the theory of mechanical determinism had methodological impact not only on the subject of psychology, but also adjusted its classical idea of the experimental studies in psychology and requirements of the scientific data. In other words, psychological phenomena was started to study under the experimental conditions by measuring and describing data mathematically.

In the nineteenth century was made great efforts in order to development of quantitative methods in Experimental Psychology:



The following are the major achievements of the scientists of the nineteenth century. In the area of quantitative measurement in psychology they are:

**G. Helmholtz:**

- Experimental study of senses;
- Nerve impulses may be measured by reaction time;
- Dependence of sensations on the external stimuli;
- Sensual, muscular and mental factors determine perceptual construction of an external world.

**F. Donders:**

- time between stimulus presentation and human response may be used as a quantitative measure of the speed of physiological and mental processes;
- quantitative measurement of mental chronometry – a duration of decision making between two stimuli.

**E. Weber:**

- Physiology of the sensory system;
- Effect of skin sensations: temperature adaptation;
- Different sensitivity inherent in the various areas of the skin;
- Bilateral transfer of motor skills in early childhood;
- Ratio of external stimuli and sensations.

**G. Fechner:**

- Stimuli affect and differences between sensations;
- Threshold of sensation;
- Data of senses is processed and converted before they reach conscious awareness;
- Weber-Fechner law;
- Mathematical approach in experiment;
- The content of psycho-physical experiments can be manipulated by a controlled psychological stimuli;
- There are quantitative relationship between mental and physical phenomena.

**F. Galton:**

- Has developed a quantitative test of Intelligence;
- Statistically processed a huge biographical material;
- Applied statistical methods for determining genetic predisposition of mental development;

- Developed methods of variation statistics;
- Method of calculating the correlation coefficient between the variables;
- Factor analysis.

***A. Bine:***

- Applied math in calculating the level of intelligence.

***W. Stern:***

- Introduced IQ.

***E. Pflyuger:***

- experimentally proved the difference between the touch function and consciousness.

***G. Ebbingauz:***

- Memory laws got by quantitative data;
- Defined the role of statistical data in the detection of mental patterns.

***W. Wundt:***

- Mental states were studied by means of experimental procedures;
- Applied quantitative methods in the study of regular relations between sensations and physical stimuli;
- Only elementary mental processes are subject of experiment.

Thus, many scientists in experimental psychology, psychophysics, psychophysiology have made a fundamental change in the scientific psychological knowledge in the nineteenth century. Regarding this natural-scientific approach are included in psychological experiment, and such terms as reproducibility, validity, objectivity, reproducibility, verifiability, as well as a quantitative approach of reliability psychological fact was became famous in psychology.

### **3.2. Modern Statistics in Psychology**

Brief historical analysis showed that regarding mathematics, psychology became a science. In methodology of experimental psychology and mathematical analysis of psychological data were

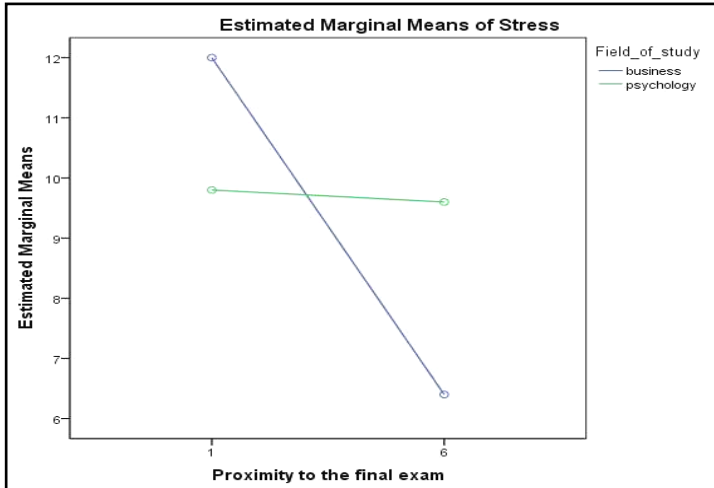
included such concepts as «variable», «distribution», «statistical hypothesis», «statistical criteria», «level of statistical significance», «power of the test», «ranking», «degree of freedom», «median», «standard deviation», «measuring scale» and other mathematical terminology.

The first computers in the twentieth century rapidly developed mathematical foundations of psychology. It gave possibility to development of computer software, statistical analysis of quantitative psychological data. Consider the most common of them in modern psychological statistics – SPSS and MatLab.

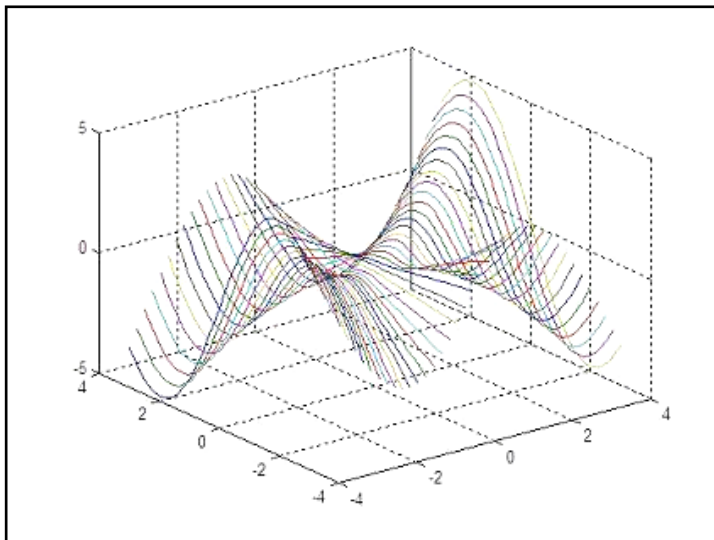
In 1967, Norman Nie and Dale Bent (Stanford University, San Francisco, USA) developed the first statistical computer program Statistical Package for the Social Science (SPSS), which could run on the IBM 360. In the current version SPSS mean as Superior performance software system. Each new updated version of SPSS corresponding to new serial number. In modern scientific psychological research requires strictly computer processing of psychological data by using statistical packages. SPSS has become the most widely used software for statistical analysis of scientific data throughout the world, as it can be used without any special knowledge in the field of application programming. But it should be noted that because of lack of knowledge about theoretical foundations of experimental psychology and mathematical methods of modern psychology any psychologist is not competent work with such simple program as SPSS.

MatLab (Matrix Laboratory) as another modern powerful software becomes to work with complex psychological data. This software application allows you to:

- Analyze psychological and psychophysiological data, such as EEG (electroencephalogram), an fMRI (Functional Magnetic Resonance Imaging), eye tracking (software that recognizes eye movements), Galvanic skin resistance measurements;
- Simulate and modelling psychological experiments, including the behavioral experimental paradigm using psychtoolbox package;
- Visualize statistical data in three-dimensional charts and others.



**Picture 1.** Examples of SPSS data illustrations<sup>4</sup>



**Picture 2.** Examples of MatLab data illustrations<sup>5</sup>

<sup>4</sup> [http://www.maths-statistics-tutor.com/img/two\\_way\\_factorial\\_anova/interaction.jpg](http://www.maths-statistics-tutor.com/img/two_way_factorial_anova/interaction.jpg)

<sup>5</sup> <http://www.matrixlab-examples.com/image-files/plot3-3d-using-lines.jpg>

Thus, psychologist has to know history of mathematical foundations of psychology in order to understand the algorithm of statistical calculations. But also has to constantly monitor the latest advances in the science of psychology, must be competent in using modern computer technology in experimental psychology and statistics. These professional competences require English language knowledge in order to exchange of scientific-theoretical and scientific-practical information between scientists around the world.

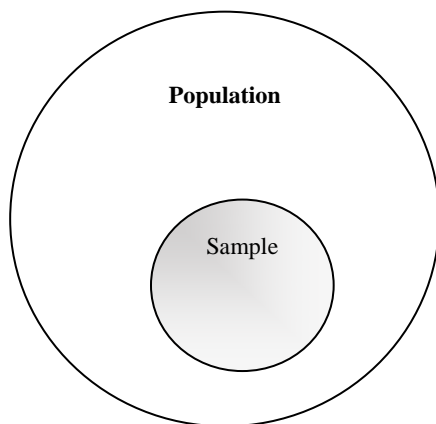
### **3.3. The Problem of Scientific Truth in Psychology: Statistics and Probability**

Mathematics has become a cornerstone in the recognition of psychology as a science. Statistics today for any professional psychologist is a powerful and flexible mathematical tool in processing of psychological data. However, psychology has unresolved classical problems such as subjectivity and objectivity in scientific experiment, identification of random artifacts of psychic reality. These problems directly related with duality of scientific methodology in psychology that we considered in the previous chapters of this textbook. Descriptive psychology and its methodological and theoretical approach brings significant corrections in natural-scientific approach in psychology.

Mathematics allows us to calculate data in psychological experiments. However, a problem of experimenter subjectivity with his individual understanding of certain theories in psychology, subjective perception and subjective selection of experimental variables still has not found its final solutions, even if there are many new technological possibilities. Statistical methods allow to determine some patterns and regularities (not laws!!!) in psychological science. In this regard, each psychologist make a lot of effort to analyze various artifacts of experiment in order to determine the scientific truths. However, it is impossible to determine all artifacts because of endless chances and probabilities of surrounding physical and psychic reality.

Probability along with the statistics started of its development from the XVII century. The concept of probability in the natural-

scientific approach also exist in study of psychic reality. For example, concepts such as random sampling, random variability, random error in measurements (Picture 3).



**Picture 3.** Is it possible to consider that randomized sample reflects whole population?

However, the question of measuring the probability has not yet found its final decision: The values of random variables is impossible to predict, even if they are controled under the experimental conditions. We can only indicate the probability<sup>6</sup>. This statement confirms the Dilthey idea that mental phenomena is impossible fully explore through reconstructions of hypothetical elements.

Thus, psychologists continue to develop Mixed methods approach in order to get scientific objective knowledge about psyche.

**Control questions:**

1. Analyze the possibility of formation of psychology as a science without mathematics.
2. Is it important for psychologists to have professional specialization in such areas as mathematics, psychophysics, and psychophysiology in order to determine the new laws in psychology as it did E. Weber and G. Fechner?

---

<sup>6</sup> Tyurin Yu.N., Makarov A.A. Analysis of the data by a computer. 3rd Ed. – M.: INFRA-M. – 2002. – 528 p.



3. Why knowledge of experimental psychology are important for psychologist during processing of psychological data?
4. Identify the advantages and disadvantages of statistical methods in psychology.
5. Describe further development of «Mixed methods» approach in psychology.
6. What is the role of probabilistic methods in psychological science?

**Main literature:**

1. Tyurin Yu.N., Makarov A.A. Analysis of the data by a computer. 3rd Ed. – M.: INFRA-M. – 2002. – 528 p.
2. Yaroshevskii M.G. The history of psychology from antiquity to the mid-twentieth century. Tutorial. – M.: Academy, 1996. – 416 p.

**Additional literature:**

1. Martsinkovskaya T. History of Psychology: a textbook for students. 8th ed. – M.: Publishing Center «Academy», 2008. – 544 p.

# 4

---

## **PSYCHOPHYSIOLOGY AND PSYCHOLOGY: THE ORIGINS AND DEVELOPMENT**

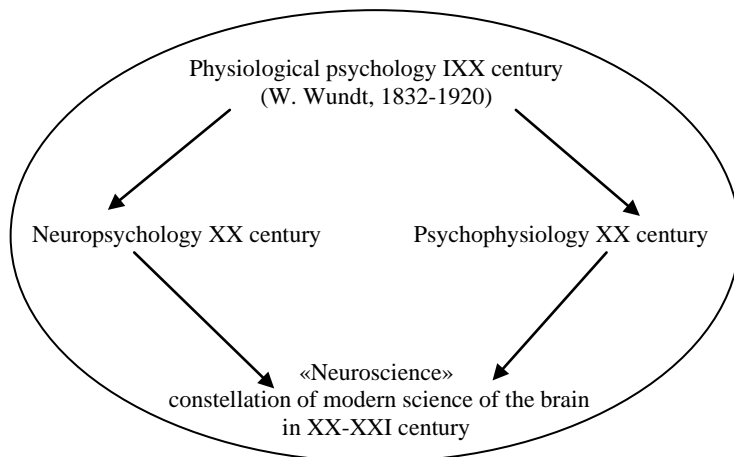
### **4.1. Brain and Mind: the Origins of the Problem**

The historical formation of psychology contributed to a sustainable idea that the development of modern psychological science is possible only in relationship with the brain. Croton Alcmaeon, Hippocrates, Galen, Aristotle and others developed idea about relationship between brain and mind from ancient period, which determined further studies of relation between soul and body in the XVII century. Descartes, G. Leibniz and other scientists continued analysis of brain processes in connection with mind from scientific viewpoints. Psychophysiology and neuropsychology differentiated from physiological psychology in the IXX century. Today all these branches again unite into a single system of knowledge such as Neuroscience. Let us consider the historical logic of psycho-physiological foundations of psychology.

Thus, the Wundt's physiological psychology and psychophysiology in modern psychology began to be similar, as well as neuropsychology and psychophysiology. Now psychophysiology and physiological psychology have terminologically differences. However, these branches of science continue to use biological and physiological methods in order to study the physiological correlates of mental activity on its various levels of development. Physiological psychology referred not only to «psychophysiology», but also referred to «Biological psychology», «Biopsychology», «Psychobiology» in the modern Western science. However, scientists considered that psychophysiology is a separate branch of science, which much differ from physiological psychology in the domestic psychological science

in XX century, because it does not study the individual physiological functions of various mental processes and apply functional-systemic approach in the study of behavior. A.R. Luria said that physiological processes are dependent variables in the study of behavior.

The second trend of current psychology is characterized by disappearing of boundaries between before the various branches of psychology. They are psychophysiology and neuropsychology. This event is associated with the development of modern psychophysiological techniques such as positron emission tomography (PET), magnetic resonance imaging (MRI), functional magnetic resonance imaging (fMRI), etc. These psychophysiological apparatus currently allow to study individuals' higher mental function, their neuropsychological individual differences, age neuropsychological differences and others. It is well known that neuropsychology initially studied the physiology of the higher mental functions through the local brain pathological lesions using methods of physiology, psychology, and medicine.



Thus, the development of physiological psychology, psychophysiology and neuropsychology contributed to scientific psychology by modern methods of studying the mind, consciousness, behavior through psychophysiological methods, but also promoted, as well as mathematics, the establishment of scientific bases of psychology.

## 4.2. Modern Neuroscience: Achievements and Prospects

Modern research technologies opened boundless prospects for the development of scientific thought in the study of the brain. In this context, modern psychology has become a historically determined starting point of such kind researches, because the mental processes and states significantly correlates with brain activity.

### The structure of the research in neuroscience

#### Development issues

*First level of analysis: Psychology*

*Second level analysis: Neuropsychology and psychophysiology*

Neurogenetics Brain research on gene level	Nanoneuronics study the brain at the molecular level	Neurobiology of behavior	Neurophysiology
Psychophysiology	Social Psychophysiology	Clinical Psychophysiology and others.	



#### Methods:

*Neuropsychological and psychological research methods*  
*Methods of related sciences*

Neuroimaging (Functional Magnetic Resonance Imaging (fMRI) Positron emission tomography (PET))	Single photon emission computed tomography – SPECT	Electro-physiology	Psychological experiments and methods, Human genetic analysis and others.
--	--	--------------------	---



#### The level of scientific analysis

Molecular level considering the morphology, physiology, molecular identity of neurons	Cellular level exploring signal processing in neurons	System level considers the nervous base of the behavior	Cognitive level study neural circuits of cognitive processes
--	--	--	---



#### Results:

The model of the psyche, consciousness, behavior, including psychological and neural levels of interconnection

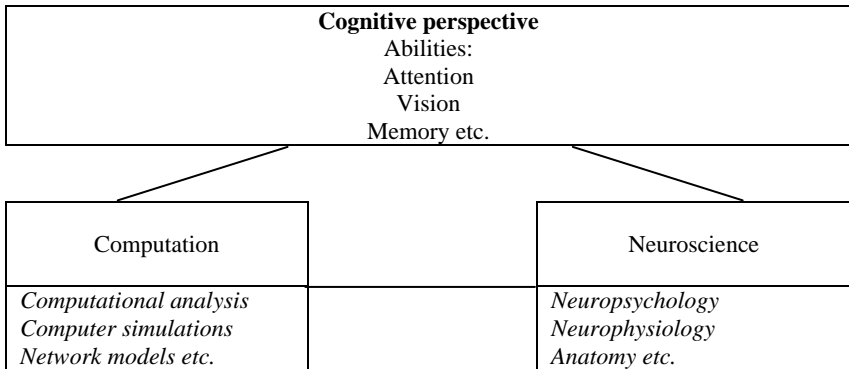
Current methods of neuropsychology allow exploring brain function in «real time». Therefore, the main goal of neuroscience is to understand biological basis of the brain in order to explain the psychological constructs of the mind, consciousness and behavior<sup>7</sup>.

Modern neuroscience is developing a brain problem and the psyche in relation with natural-scientific knowledge. Today in such kind of the brain studies take part not only psychologists and neuroscientists, but also biologists, geneticists, physicists, mathematicians, chemists, physicians, engineers, and many others. In other words, neuroscience is an interdisciplinary science, aimed to solve the problems of relationship between brain and mind.

Let us continue our example of methodological analysis of cognitive perspective by further table 8 as a continuing of table 4, 5.

Table 8

**Cognitive perspective in connection with neuroscience**



According to current methodological analysis of psychological research in the field of cognitive perspective, modern psychologist could analyze cognitive processes by computational methods and neuroscience approaches.

Neuroscience in modern conditions contributed to the strengthening of the full natural-scientific paradigm in psychological science. Studies in psychological science reflect neurophysiological bases

<sup>7</sup> Bear M.F., Connors B.W., Paradiso M.A. Neuroscience: Exploring the Brain / Lippincott Williams and Wilkins, 3rd Edition Hardcover – 2006. – 928 p.

of the mind. Development of neuroscience also affected on qualitative change in training professional psychologists. Today's worldwide universities have included in education program biological, psychophysiological and neuropsychological foundations of psychology, in order to develop students' such skills as:

- Carrying out Theoretical Analysis of Modern Methodological Foundations of Psychology And Neuroscience;
- Using modern technologies in a psychological experiment;
- Knowledge of modern neuropsychological, psychophysiological research methods;
- Ability to processing of psychological and neuropsychological data using statistical computer programs;
- Interpretation of the data by methodological and theoretical foundations of modern psychology and neuroscience;
- Development of practical recommendations from the perspective of an interdisciplinary approach to specific areas of practical human activity.

Modern trends of interdisciplinary research in the field of psychology and neuroscience provides humanity with modern theoretical and applied knowledge as:

- Perception, thinking, speaking as the structure and function of complex neural circuits;
- Memory and plasticity of the brain;
- Study of innate mechanisms of neurological diseases such as Alzheimer's disease, Parkinson's disease and Huntington's disease;
- Problems of recovery of the nervous system and mental functions after injury;
- Effects of drugs on the brain;
- Decision-making and neural organization and many others<sup>8</sup>.

Numerous researches is being conducted in the areas of psychology and neuroscience as a:

- Neuropsychology;
- Neuroscience development;

---

<sup>8</sup> Alexandrov Y.I., Anokhin K.V. Neuron. Signal processing. Plastic. Modeling. Fundamental management. Publishing House of the Tyumen State University. – 2008. – 548 p.

- Neuroscience of behavior;
- Comparative neuroscience;
- Neuroeconomics;
- Neuroinformatics;
- Neurophilosophy;
- Neuroethics;
- Computational neuroscience;
- Social neuroscience and many others.

Thus, there are numerous laboratories specializing in the field of psychology and neuroscience. There are also associations and community of psychologists, specializing in the field of neuroscience. This trend allow developing a qualitatively new level of psychology.

**Control questions:**

1. What is the significance of neuroscience to psychology?
2. What kind of research directions in neuroscience?
3. Determine the prospects of development of neuroscience in the long-term future of psychology.
4. Analyse the importance of neuroscience scientific data in applied psychology.
5. What are the prospects for the development of neuroscience in the Kazakhstani psychology?
6. Identify the features of psychological research in neuroscience.

**Main literature:**

1. Alexandrov Y.I., Anokhin K.V. Neuron. Signal processing. Plastic. Modeling. Fundamental management. Publishing House of the Tyumen State University. – 2008. – 548 p.
2. Anokhin K.V. Psychophysiology and molecular brain genetics // Psychophysiology / Ed. Yu.I. Aleksandrov. St. Petersburg: Peter. – 2001. – P. 407-427.
3. Bear M.F., Connors B.W., Paradiso M.A. Neuroscience: Exploring the Brain / Lippincott Williams and Wilkins, 3rd Edition Hardcover – 2006. – 928 p.

**Additional literature:**

1. Journal of Neuroscience. – режим доступа: <http://www.jneurosci.org/>
2. Kandel E.R., Schwartz J.H., Jessell T.M. Principles of Neural Science / Publisher: McGraw-Hill Medical. – 2000. – 1414 p.
3. Louw A., Puentedura E. Therapeutic Neuroscience Education / International Spine and Pain Institute. – 2013. – 304 p.

# 5

---

## **PSYCHOLOGY OF BEHAVIOR: CLASSICAL IDEAS IN MODERN PSYCHOLOGY**

### **5.1. I.M. Sechenov, I.P. Pavlov, V.M. Bekhterev: Reflexes of Behavior**

The concept of reflex goes back to the works of Descartes, which for the first time understand the reaction by the muscle reflexes. With Descartes' understanding of the mechanical reflex, J. Prohaska passed in its biological treatment. Subsequently by C. Bell, F. Magendie, M. Hall, J. Müller biological reflex associated with the structural and anatomical features of the nervous system. All this ideas contributed to overcoming with Cartesian dualism reflex psychological nature of consciousness in the middle of the XIX century. I.M. Sechenov, criticized the anatomic approach to reflex. He proved physiological basis of mental phenomena, defined reflex and deterministic central inhibition of brain activity, which may examine an objective method. Subsequently, the concept of central inhibition will be the main prerequisite to overcome the full mechanistic understanding of the reflex.

The I.M. Sechenov's classical idea of individual development of the brain reflexes continued by I.P. Pavlov. He objectively defined concepts of conditional reflex activity, an alarm system in the study of higher nervous activity, irradiation and concentration of excitation and inhibition, induction by experimental methods. Concepts of conditioned and unconditioned reflexes become classical concepts of psychology as the science of behavior.

At the beginning of the XX century V.M. Bekhterev also continued ideas about the brain functions, developed the concept of objective psychology, autonomic, motor reflex reactions of mental



processes, which could be studied by methods of observation and recording.

Thus, ideas of classical scholars I.M. Sechenov, I.P. Pavlov, V.M. Bekhterev contributed to the definition of the behavior as a subject of psychology<sup>9</sup>.

## **5.2. J. Watson, B. Skinner: Behaviorism and Modern Subject of Psychology**

Regarding to the ideas of I.P. Pavlov, V.M. Bekhterev about the role of conditioned reflexes in the adaptive activity of the living organism at the beginning of the XX century, American psychology behaviorism began to develop. Having familiarized with the works of Russian scientist I.P. Pavlov, J. Watson considered behaviorism approach. This trend has brought radical ideas about the impossibility of studying the mind and consciousness through introspection. Thus, conscious experience was considered unsuitable for scientific research.

The rapid development of behaviorism in American psychology contributed to the election of J. Watson to the president of the American Psychological Association.

E. Thorndike, continued the ideas of J. Watson and introduced the concept of operant behavior, which is formed through trial, error and accidental success. This idea is continued the idea of evolutionary theory, which also presented the idea of the probability of accidents and the role in the success of adaptation behavior. E. Thorndike also adjusted basics of determining the motor act, and that external stimuli may act only in problem situations, because body was not ready-made formulas in the motor act. Regarding to including motives and actions in scheme of operant behavior it was contributed the transformation of behaviorism to neobihevorizm.

It should be noted that behaviorism, and subsequently neobihevorizm, based on the ideas of the reflex of I.P. Pavlov, developed concept of «stimulus and response» in an integral behavioral act. Be-

---

<sup>9</sup> Yaroshevskii M.G. The history of psychology from antiquity to the mid-twentieth century. Tutorial. – M.: Academy, 1996. – 416 p.

cause of weakened of the J. Watson's position in the middle of the XX century was developed cognitive approach in psychology.

Thus, a brief history of psychology shows that the change in the subject of psychology from the mind to consciousness, from consciousness to behavior has its scientific determinants. Today psychology with the help of modern technology is studying the complex problems of the psyche, consciousness and behavior.

### **5.3. Behavioral Science in the Modern Psychology**

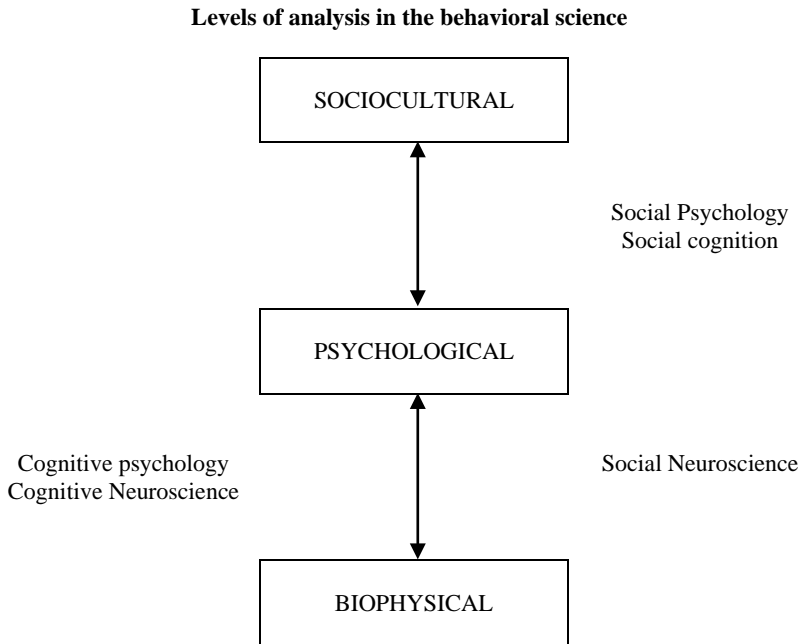
The analysis of the current state of psychology and its main areas may create idea that behaviorism, with its basic ideas about the laws of studying the behavior remains only on the pages of history. Strongly criticized behaviorism theory not found a place in the Russian psychological science. Nevertheless, it should be noted that behaviorism, with its basic postulates of the behavior continues its development in modern Western psychological science. Let us consider how behaviorism ideas are reflected in modern theoretical and applied areas of the world psychological science.

As mentioned earlier, behaviorism began replace by cognitive psychology in the middle of the XX century. However, in 1960 neo-behaviorist K.L. Hull, by exploring mechanisms of adaptive behavior, firstly proposed the idea of modeling functions of the conditioned reflex. Behavior was started study by Mechanistic approach using computer programs, which undoubtedly progressive developing of behaviorism ideas in modern conditions of psychology.

In 1970, A. Bandura developed the theory of social learning, which are also reflected behaviorist ideas. Social learning helped to understand the development of behavioral responses to stimuli. Later D. Rotter added that model of behavioral responses such as the locus of control. Thus, social behavior study contributed to the development of applied psychotherapeutic trends in modern psychology of XXI century. For example, neuro-linguistic programming (NLP) as a practical technology use words as a stimulus variables in changing human behavior. NLP connected the I.P. Pavlov's idea and classical concepts of behavior in behaviorism.

Widely known Cognitive Behavioral Therapy (CBT) also is based on classical behaviorism. So-called scientific direction Applied behavior analysis (ABA) continue widely develop classical ideas of behaviorism about operant training, reactions, and many others in areas such as child development and learning, family psychology, educational psychology etc. it is also necessary to illustrate levels of analysis in the behavioral science (Table 9).

*Table 9*



Today behavioral approach dominant in published scientific journals such as the:

- Journal of Applied Behavior Analysis;
- The International Journal of Behavioral Consultation and Therapy;
- Behavioral Health and Medicine;
- Journal of the Experimental Analysis of Behavior ets.

It should be noted that within the framework of modern behavioral approach Western psychological science conducted funda-

mental studies of behavior formation, medication applied behavioral technology, socially useful skills in various fields of human activities etc.

Thus, it is possible to conclude that behaviorism continue its development in the current psychological science as a so-called behavioral approach. There are many accumulated experimental studies of causes of behavior. This fact indicates that many behaviorism ideas are exist in psychological science and currently have their Western followers.

**Control questions:**

1. What are the main similarities and differences between the provisions of behaviorism and I.P. Pavlov's ideas?
2. How behaviorism continues its development in western psychological science?
3. Analyse the significance of applied behavior analysis in Western psychology
4. Identify the basic postulates of significant behaviorist approach in psychological science of XXI century.
5. Determine the possibility of behavioral approach rehabilitation in the domestic psychological science.
6. What are the prospects of development of the Kazakhstani psychological science in the XXI century?

**Main literature:**

1. Yaroshevskii M.G. The history of psychology from antiquity to the mid-twentieth century. Tutorial. – M.: Academy, 1996. – 416 p.
2. Martsinkovskaya T. History of Psychology: a textbook for students. 8th ed. – M.: Publishing Center «Academy», 2008. – 544 p.

**Additional literature:**

1. Houten R.V., Malenfant J.E.L., Austin J., Lebbon A.. The effects of a seatbelt-gearshift delay prompt on the seatbelt use of motorists who do not regularly wear seatbelts // Journal of Applied Behavior Analysis. – 2005. – №38 (2). – P. 195-203.
2. Steege M.W., Mace F.C., Perry L., Longenecker H. Applied behavior analysis: beyond discrete trial teaching // Psychol. Schools. – 2007. – №44 (1). – P. 91–99.

# 6

---

## **THE IDEAL EXPERIMENT IN PSYCHOLOGY: OPPORTUNITIES AND PERSPECTIVES**

### **6.1. A Classic Experiment: History of Formation**

Ideas about empirical psychology was developed in XVII century. At that period was conducted the first empirical studies with such empirical methods of psychology as experimental introspection (W. Wundt), psychophysical experiment (L. Fechner), associations method (H. Ebbinghaus). These methods allowed first experimental designs in the XIX century. It should be noted, that IP Pavlov's ideas made great contribution in scientific experiment where at first time were included such terms as dependent and independent variables, control of laboratory conditions etc. Pavlov's experiment gave for behaviorists possibilities to create experimental study of behavioral act under laboratory conditions. This event allowed developing experimental technologies at the behaviorist school. The idea of a combination of conditioned and unconditioned stimuli in the study of reactions not only humans, but also animals allowed to study the processes of learning and reinforcement by J. Watson, E. Thorndike, Skinner and many other behaviorists. Later N. Miller, K.L. Hull have developed sophisticated theoretical concepts of learning, which allowed to include such variables as motivation, cognitive development in the psychological experiment, thereby continuing the development of ideas about how to manage the stimulus factors in the behavioral experiment.

Thus, the Pavlovian experiment paradigm and behaviorist stimulus-reactive formula form the basis of the experimental methodology at the beginning of XX century. This formula have been determining the basic requirements of natural-scientific research in psychological science:



It is well known that the stimulus-reactive scheme that allows to study, predict, control the behavior of all living creatures, including human means of conditioning mechanism. Initially, the basis of this figure shows the reductionism in which the study only the socio-historical patterns of behavior considered as biological determinants. However, this approach strengthening of the methodology of experimental research in the current psychology.

It should be noted that in the Soviet psychology of the XX century Pavlovian paradigm did not unequivocally accepted as behaviorism did. It is well known, that behaviorism was regarded as a bourgeois perversion of psychology in the Soviet Union. Some of soviet scientists thought that this paradigm is a necessary condition for the development of psychological science, while others decided that Pavlovian doctrine contributed to physiological basis of higher nervous activity. But many scientists in spite of these differences made a significant contribution to the development of experimental procedures, for example, such as V.M. Bekhterev, A.A. Ukhtomsky, S.S. Korsakov, E. Krepelin, N.N. Lange, A.F. Lazurskii, A.R. Luria, A.N. Leontiev, B.M. Teplov etc.

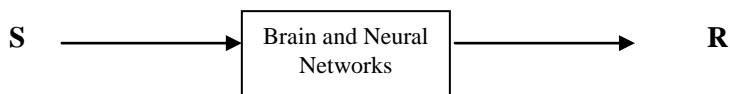
Thus, the idea of I.P. Pavlov in psychological science of XX century played an important role in the development of scientific experiment. His teaching was considered as a genius one and continued develop with behaviorism approach in the West Psychology.

Behaviorism, in which classical Pavlovian experiment continued to develop, determined the basic procedures and techniques of the current standard psychological laboratories XXI century.

## **6.2. Modern Psychological Experiment in the XXI Century**

Classical experiment, which reflect I.P. Pavlov's ideas continue its development in Psychology of the XXI century. «Stimulus-response» approach in modern psychological research involves the ef-

fects of external stimuli on behavior. Nowadays psychological experiments relate with modern technologies such as computer-controlled stimuli reaction time, the number of errors, etc. J. Watson believed that it was impossible to know the brain processes, thereby defined brain concept as a «black box». However, modern technologies in neuroscience opened this «black box»:



In the era of globalization, psychological experimental studies have become popular with regard to their practical potential. In the XXI century high-tech psychological experiment, with its classical methodology and modern computerized methods and techniques gives a huge possibility for psychologists. In modern psychological laboratories through computerized technology carry out experimental studies of human cognitive processes in relation with neural organization:

- The accuracy of eye movements registration;
- Vector encoding of sensory stimuli information;
- Emotional hearing;
- Frontal cortex and decision-making processes;
- Oscillatory brain activity and mechanisms of working memory;
- Functional organization of the cerebral cortex and the level of creativity in solving creative problems;
- Motor performance and system organization, etc.

Analysis of publications in such databases like ScienceDirect, Thomson Reuters, Scopus have shown that most experimental studies in psychology was conducted in the United States, Canada and Europe.

It is important to note the fact that experimental studies in paradigm of behaviorism relate with idea among CIS psychologists about classical problems of the laboratory experiment data, which transfer with reductionism idea.

L.S. Vygotsky, N.A. Bernstein, A.V. Petrovskyi and many others defined the fundamental role of the body's activity in reflection of

future environmental change. modern Russian psychologists such as A.I. Aleksandrov, A.K. Krylov, A.A. Sozinov, A.G. Averkin, Laukka S. et al. developed systematic approach to the procedural requirements of the psychological experiment, which alternative to reductionism<sup>10</sup>. Compare the two opposite approaches to the psychological experiment in the table 10.

*Table 10*

**Paradigms of Psychological Experiment**

<b>Reactive Paradigm</b>	<b>Paradigm of Activity</b>
A living organism = mechanical object	Continuous interaction scheme: the nervous system – the body immersed in the environment – environment
The reason of the behavior places outside the body	The reason of the behavior places in the organism
Presentation of stimuli in a random order in one-dimensional, single-valued sensory problems	Provided steps of experiment for solving complex problems in polymotivation situation
Formation of classical conditioning	Study an action to the target
Study an reflex of action, namely the reaction of the organism to environmental stimuli	Study an anticipatory reflection and action directed to the future
The determinants of behavior are considered and investigated separately	System study of the complex determinants and target causality

Today in current psychology, there are many problems relate with experimental methodology in psychology:

- Stages of the experiment,
- Experimental plans,
- Control artifacts,
- Participants’ influence on experiment results,
- Computer technology and ethical standards of procedure experiment, etc.

Foreign psychologists solve all these issues in order to:

- carry out modern psychological experiments,
- successfully implement the findings in the various areas of practical human activity,

---

<sup>10</sup> Alexandrov Yu.I. Introduction to systemic psychophysiology // Psychology of the XXI century / Ed. V.N. Druzhinin. – M., 2004. – P. 39-85.



- publishing research papers for exchanging with scientific ideas, etc.

In this context, the experiment in its various representations requires further development in the CIS countries, particular in Kazakhstan. It is necessary to define science priorities, develop psychological laboratory, begin to carry out advanced experimental research in its various methodological approaches and techniques in order to get qualified psychologists who can demonstrate their scientific achievements in experimental psychology at international conferences, symposia, etc.

The experiment is a necessary criterion of scientific psychological knowledge in order to obtain new scientific data about the mind, consciousness, behavior. Modern computer technology and modern equipment allows controlling the set of artifacts and creating conditions for the experiment. Modern psychology continues implement the idea of an ideal experiment due to the development of high technologies of XXI century. However, is still an open question about possibility of implementation of the ideal experimental research in psychological science.

**Control questions:**

1. What are the basic requirements for modern experiments in psychology?
2. What is the importance of experimental research in psychology?
3. How does the idea of I.P. Pavlova define modern experimental research in psychology?
4. Determine the reasons of experimental research decline in the age of high technology in the CIS countries.
5. Analyze the possibility of «stimulus-response» approach in psychological research.
6. What are the prospects for experimental research in psychological science of XXI century?

**Main literature:**

1. Alexandrov Yu.I. Introduction to systemic psychophysiology // Psychology of the XXI century / Ed. V.N. Druzhinin. – M., 2004. – P. 39-85.
2. Alexandrov Yu.I. Active Neuron. Signal processing. Plasticity. Modelling. The fundamental management / Ed. E.N. Sokolov, V. Filippov, A.M. Chernorizov. – Tyumen: Publishing House of Tyumen. University Press, 2008. – P. 33-58.
3. Martsinkovskaya T. History of Psychology: a textbook for students. 8th ed. – M.: Publishing Center «Academy», 2008. – 544 p.

**Additional literature:**

1. Gusev A.N. Psychophysics sensory tasks: Systematic-activity analysis of human behavior under uncertainty. – M., 2008. – 320 p.
2. Krylov A.K. Test behavioral problem is the complexity of the minimum necessary: the hidden dynamics // Proceedings of the International Scientific and Technical Conference «Intelligent Systems», V. 1. – M., 2005. – P. 237-244.
3. Krylov A.K., Alexandrov Yu.I. Dive into the environment as an alternative method of presentation of stimuli: a modeling study // Psychological journal, 2007. – V.28. #2. – P. 106-113.

# 7

---

## METHOD OF MODELING AND EXPERIMENT

### 7.1. The Meaning of the Modeling Method in Experimental Psychology

Modern psychological science has undergone significant changes in technology study of psychic reality. Nowadays, the simulation method has become quite popular in experimental research in psychological science. Consider the basic definitions:

Model is a composition of concepts. It is simple thought or symbolic image of some object or system of objects

Simulation – finding (or reproduction) of the properties of any object, process or event by another object or process phenomenon – Model<sup>11</sup>.

Modeling is a composition and explanation properties of objects, processes or conditions by other objects.

Psych modeling is a research method of psychological states, properties and processes by construction their models using data of consistent pattern of psych functioning.

The modeling method in psychology has become widely applied since the XX century regarding to the development of cybernetics as the science of control of complex dynamic systems and the advent of the first electronic computers. It should be noted, that Anokhina P.K. and Bernstein N.A. were first who developed models of complex human physiological systems. Bernstein N.A. identified structural and dynamic model of the motor activity, which is characterized by five levels of movements, each of which has its anatomical representation in the central nervous system, and each has a specific sensory

---

<sup>11</sup> Psychological dictionary. Ed. Meshcheryakov B.G., Zinchenko V.P. – M., 2003 – 672 to.

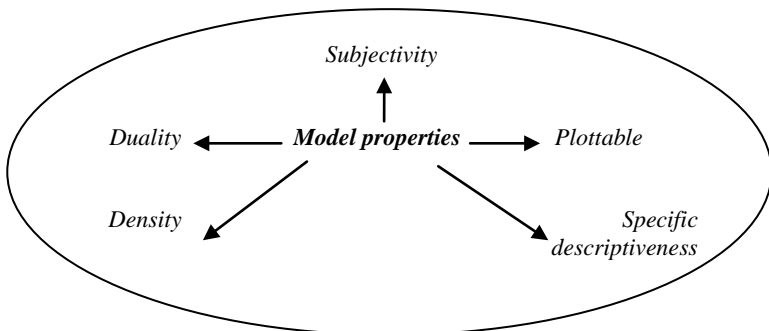
correction for him. Anokhin P.K. created the theory of functional systems, which is represented by a physiological model of human mental activity as a system determines the purposeful behavior.

Further development of computer technologies provide psychological research of artificial intelligence, information models of cognitive processes, psycholinguistic models and many others by using modeling methods.

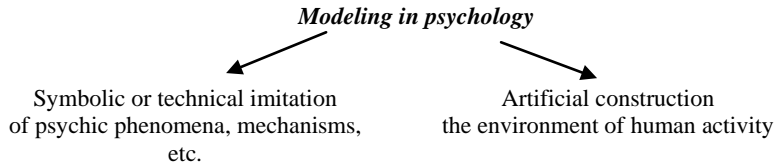
Before considering the features of the modeling methods in psychological experiment, it is necessary to define the basic theoretical principles of the models that have been developed.

It is necessary to point out the fact that every model has its own characteristics, constraints and opportunities in the analysis of a research object. Every scientific model inherent in the important properties that somehow determine its characteristics. Scientifically determine the 5 important features of the model. Each of them defines the limitations of the model as a way of knowing the real objects:

- Any model is subjective, as it creates by scientist as subject of knowledge;
- The dual nature of the model is that the model on the one hand replaces the object of knowledge, and on the other hand becomes a means of knowledge;
- Model opposed to the original object. It can be transformed according to the objectives of the study, but at the same way, it can be compact with its inherent specific information content.
- Model reflects the limited number of properties of the prototype object.



The above properties of the model are taken into account in the modeling of psychic phenomena in experimental studies. These experimental studies are conducted in two directions:



There are many classifications of models depending on:

- 1) the modeling tools: the ideal model and the material;
- 2) model types: structural, functional and structural or functional;
- 3) the degree of completeness is determined complete and incomplete model;
- 4) the purpose of modeling: research, training, working models and others.

Each of classifications of models are incompleteness because each model reflects only those aspects of the object, which distinguishes in the research process by a researcher. Definition of a particular model depends on goals, objectives of the study.

Modeling has basic stages, which determine a procedure of psychological experiment. Any simulation starts from a problematic situation, define necessity of using modeling method in the research. Then it is also necessary to define theoretical bases of model, its language, variables that will be include in the model, the way of data processed by statistical methods, interpret results, and include in the system of scientific knowledge.

The disadvantages of modeling method are:

- Probabilistic nature of the received data by model;
- Dependence of the validity of the model on a number of researcher's assumptions.

Thus, the modeling method in psychological experiment provides many advantages in the study of psychic reality.

## 7.2. Modeling of Psychic Reality in Psychological Science

Modern trends in the development of technological tools in science have expanded the boundaries of understanding models in psychology and the possibility of its construction. The problem of knowledge of the psyche, its structural and functional features involved in the various branches of scientific knowledge. Today simulation psychic reality exist in many sciences:

- Psychology
- Mathematics and engineering
- Bionics
- Cybernetics
- Automation
- Computer engineering
- Computer science
- Elementary particle physics
- Quantum mechanics
- Cosmology and others.

Different models of psychic reality are developed in psychological science. These models depend on the methodological approaches of these branches of science. Thus, in psychology increasingly presented theories that relate to the form of verbal conceptual models, which verbally describe the various processes of mental activity, such as for example, volitional actions, stages of formation of the motor act, the description of mental processes and the structure of the individual etc. However, such models are static; they do not let you know the object under study in its action and change.

There are mathematical models of the psyche, expressed in a highly formalized mathematical formulas and charts. However, unlike verbal models, mathematical models may be converted to the current model by incorporating them into a computer. For example, Lieberman J.L., Metelkov V.P. created a mathematical model of the levels of human mental reaction by means of automatic control theory<sup>12</sup>, Wenger A.L. suggested mathematical modeling of emo-

---

<sup>12</sup> Lieberman, J.L., Metelkov V.P. Mathematical model of human-level mental reaction and its study // Successes of modern science. 2004. – № 11. – P. 10-14.

tional events<sup>13</sup>. There are mathematical models of a wide range of mental phenomena, behavior, communication processes, etc.

Regarding to modern computer technology there are a lot of computer software in modeling of psychological experiment. Today, there are software-based simulation of real models of automatic machines that simulate human cognitive processes such as attention, memory, thinking and many others. Complicated-algorithmic programming models differ from heuristic programming models. Complicated-algorithmic programming models are models with sequential operations of a particular mental process. While heuristic programming models allow you to analyze the mental processes, during which depend on uncontrolled environmental conditions in which they appear. For example, there are many heuristic programming models that reproduce the game of chess, creative thinking musician, program, proving mathematical theorems, etc. Nevertheless, software models have drawbacks which do not allow to fully explore the real mental processes.

Physical models of psychic reality are the next group of models, which is quite progressively evolving in the modern world of psychology. These models are more focused on modeling brain structures and neural mechanisms. In the middle of the XX century Rosenblatt modeled machine, by which firstly studied the processes of perception. The machine could distinguish between the letters and learn them. There was also a programming model Pandemonium Selfridge, which recognized visual images based on artificial neural networks. In modern psychological science, many other models are built on such kind principle. For example, the robotic computer Watson was established in 2011. He won the Jeopardy American intellectual game, thus demonstrating the possibility of artificial intelligence. In neuroscience there are bionic models of nerve cells, sensory organs, fine motor hand (artificial eye, ear, electronic, hand-drawing a robot, etc.). Such models allow us to explore the detailed structural and functional bases of the central and peripheral nervous system. Today, regarding to model has become possible to study not only the different structures of the brain, but its systematic work.

---

<sup>13</sup> Wenger A.L. Mathematical modeling of emotional phenomena // Psychological Journal of International University of Nature, Society and Man «Dubna». 2010. № 3. – Access mode: <http://www.psyanima.ru>

Biological models of psychic reality, which are launched today, characterize by the further step of modeling method developing in psychology. Within the framework of biological modeling has created technical devices, so-called biorobots, in which implanted elements of living matter in order to study the formation of the living neural networks and the characteristics of their relationship with the mental activity.

High-tech development contributes not only to the modernization of the modeling method in psychology, but also to interdisciplinary research mental models between psychological and natural science disciplines. Today, developing an integrated model of the psyche borrows ideas from physics theories such as quantum mechanics, particle physics, the theory of relativity, etc. The integrated model of the mind based on the principle of isomorphism, which suggests the possibility of transferring the results obtained on physical layer to their mental level. Formation of integrated model of the psyche also apply the methods and principles of the exact sciences. In 1960, Karl Pribram Bohm proposed the idea of the brain on the physical principle of holography, i.e. the brain as a kind of lens digitizes the incoming information from the external holographic world and collects it in a subjective hologram.

The model of the psyche is also considered isomorphic with the model of nuclear physics of the electron shells of N. Bohr, where there are such things as the processes of absorption and emission of electromagnetic waves, the stationary state of the atom, etc. By analogy, the consciousness is seen as a process that is unthinkable in the absence of constant movement, but according to the theory of relativity, this movement cannot be more than the speed of light. The integrative model of consciousness also included the idea of self-organizing complex systems of synergy.

Thus, simulation method allows not only experimentally study human mental activity in modern psychology, test scientific hypotheses about brain system, but also opens up great prospects for further strengthening the scientific foundations of psychology.

**Control questions:**

1. Analyse the main characteristics of modeling method in psychological research.



2. What are the prospects of establishing a real model of the psyche in the future?
3. Analyze the possibility of establishing an objective model of consciousness in the context of quantum mechanical paradox.
4. Identify the causes of plurality of classification models in science.
5. Analyze the reliability of experimental data of modeling method in psychology.
6. Determine the status of modern modeling method in the CIS countries psychology.

**Main literature:**

1. Psychological dictionary. Ed. Meshcheryakov B.G., Zinchenko V.P. – M., 2003. – 672 p.
2. Lieberman Y.L., Metelkov V.P. Mathematical model of human-level mental reaction and its study // Successes of modern science. 2004. – № 11. – P. 10-14.
3. Wenger A.L. Mathematical modeling of emotional phenomena // Psychological Journal of International University of Nature, Society and Man «Dubna». 2010. № 3. – Access mode: <http://www.psyanima.ru>

**Additional literature:**

1. History and Synergetics: Mathematical modeling of social dynamics / Ed. S.Y. Malkov, A.V. Korotaev. – M., 2005. – 192 p.
2. McClelland J.L. The Place of Modeling in Cognitive Science // Topics in Cognitive Science. 2009. – №1. – P.11-38.

# 8

---

## COMPUTER TECHNOLOGIES IN MODERN PSYCHOLOGICAL EXPERIMENT

### 8.1. History of Computerization of Psychological Research

The idea of the benefits of using electronic computers (computers) appeared in the psychological experiment in the 1960s of XX century. Computers included in experimental studies, because give possibility to do:

- sequential stimuli presentation;
- processing psychological data;
- simulation and modeling of psychological processes and phenomena.

Later came the small types of computer that allowed psychologists to implement the above-mentioned experimental possibilities. Such computers also allowed to distribute randomly selected test samples. In the 1970s, computers contributed to the automation of laboratory experiments in the field of engineering psychology and cognitive psychology. At that period, computer programs began to develop that allowed to create such conditions in the experiment as:

- Automatically give experiment instructions for participant;
- Time monitoring of test reactions;
- Inform subjects about the results of experiment participation;
- Vary the conditions of the experimental variables;
- modeling of complex of stimulus conditions in order to study decision-making processes;
- Adaptation of experimental conditions to individual characteristics that depend on sensitivity threshold level of training, stress, etc.

Domestic psychologist Tikhomirov D.C. went to the United States for the first time in the 1970s. After this trip, he explained possibility of studying human-computer interaction. After that, domestic psychology became as a computerized science, which were developed in accordance with psychological principles of design in computer science, the problem of the computerization process and its psychological effects, etc.

Computers in psychological science made possible to define physiological qualitative and quantitative characteristics of operator performance in conditions of stress, fatigue, emotional stress, and many other in the XX century.

In the following experimental research was carried out human interaction with computers in real time:

- experimental tasks and dialogue with a computer;
- Analysis of subjects' decision making during solving experimental problems;
- Control computer tasks.

New computer applications have additional opportunities to conduct experimental studies, for example, computer games allow to simulate and testing individual strategy.

Personal computers started widely use in the domestic psychological laboratories in the 1980s.

With the advent of the Internet, computers are widely used in experimental studies in psychology. Today, there are variety of computer experimental programs, which give possibility to develop different scientific ideas.

## **8.2. Modern Computer Software in Psychological Experiment**

Today, many computer applications allow simulating the psychological experiments. Unfortunately, well-known modern computer technologies in the western psychological science do not find their proper application in psychological studies conducted in the CIS countries, including Kazakhstan mostly due to lack of financial support.

Computer technologies have become an integral part of the modern psychological experiment. Quality of such research depends on the availability of such advanced computer applications and equipment. Development of modern psychological concepts also depends on the availability of sufficiently reliable and valid experimental data that are only possible with modern technology.

Consider the basic, widely used, computer programs and applications in psychological studies.

**1. SuperLab** It is a computer application that allows creating experiments in psychological science<sup>14</sup>. After not complicated installation on PC, licensed application provides to design and conduct experimental research. In SuperLab includes features such as:

- sequencing experiment steps (instructions demonstration, include graphic images, audio and video files in experiment section, timing, possibility of creating an automated temporarily duration of experiment, control such variable as fatigue during long, etc.);
- collect data about parameters of the experiment such as a reaction time on each stimulus, the number of errors, registration missed the target stimulus.

The program supports simultaneous conducting a psychological experiment with the psychophysiological equipment like EEG, electroretinography (ERG), functional magnetic resonance imaging (fMRI), as well as develop additional controllers, which allow replacing the computer keyboard by devices, which allow reducing physical fatigue of participant hands during test response on experimental stimuli.

Experimental studies of cognitive processes conduct in psychology by this program, for instance, in various complexity computer tasks such as driving simulations.

**2. E-Prime.** It is a licensed computer software application for creating and conducting psychological experiments with the same possibility of simultaneous fixation of physiological parameters, including microsaccades eye movements, which is measured using Eye Tracking Technology<sup>15</sup>. This software application contains the following applications:

---

<sup>14</sup> Access mode: [www.superlab.com](http://www.superlab.com)

<sup>15</sup> Access mode: [www.pstnet.com](http://www.pstnet.com)

- accuracy control subjects reaction time (in milliseconds);
- E-studio – a good graphical interface for experiment design;
- E-run – accuracy in the representation of stimuli, synchronization, and data collection;
- E-Merge- quickly and easily combines individual data group analysis;
- E-DataAid – data management: edit, analyze and export data;
- E-Recovery- recovers lost data of experiments;
- Supports digital incentives format (MPEG, AVI, WMV, JPEG, PNG);
- Function to copy objects between different experiments;
- Digital registration of verbal reactions on tests;
- Support demonstration incentives across multiple displays;
- UNICODE support international fonts;
- Support new devices (joystick, etc.);
- Improved interactive service.

This software is used in numerous psychological studies.

**3. VR and Game Development.** Virtual reality and the creation of computer games are PC applications that allows to create the reality by different computer content in relation with other devices such as LCD monitors, forming a three-dimensional image, a multi-channel speaker system, manipulator (wheel with pedals, sighting a gun, gloves, modulating the temperature and vibration tactile sensations, projectors 3D-stereo etc). This program allows creating and carrying out psychological experiments in the field of various types of addictions, phobias, training and coaching skills, etc. Computer games have numerous advantages in conducting psychological research, because they allow controlling variables such as motivation and emotional experiences of the subjects, facilitating entry into the experimental conditions, etc. There are computer games, which are developed in order to rehabilitating people with various forms of psychological dependence, psychological problems, as well as compensation of neurological disorders:

- Formal Logic Games (Chess, Checkers, Etc.);
- Casino Games (Poker, Casino, Etc.);
- Sports in order to develop and study of sensory-motor skills, concentration, attention test (tennis, billiards, football etc.)

- games which develop emotional stability, persistence in achieving the goals, as well as the discharge of aggression and coping;
- game in the form of persecution-avoidance, which contribute to the study of intuitive thinking, emotional and sensory perception, etc.

Annual conferences and exhibitions are devoted to current research in the field of virtual reality of psychological experimentation. For example, in 2005, M. Benayoun firstly developed giant interactive installation of virtual reality. There are three-dimensional displays, which «raised» the image of objects-stimuli, 3D- booths, through which the test stimuli are given. Tokyo Institute of technology has developed Recorder device which allow reproducing a stimuli-odors and other psychological experiments.

There are many resources relate with VR and Game Development, which are not popular for domestic psychologists:

- Virtual Reality world – beta tested – [www.there.com](http://www.there.com)
- Cyber Therapy <http://www.cybertherapy.info/pages/main.htm>
- List of sites on VR and training <http://www.coe.ecu.edu/vr/other.htm#Training>

Thus, this area of research is developing dynamically in the modern psychology, publishing scientific articles in particular in such a journal as a Journal of Virtual Research.

**4. Computer Assessment of Memory and Cognitive Impairment (CAMCI)/** Computer evaluation of memory and cognitive impairment. This is a computer program for studying cognitive processes. It is allow assessing early stage deterioration of cognitive processes.

**5. CogniPlus** computer application, which widely use in psychological evaluation of professional competences and training cognitive processes such as attention, memory, in particular training even vasomotor coordination.

**6. MoTrak** computer application that allows get real-time data about angular rotation of the participant's head during the test of tracking visual stimuli or control the position of the head during an experimental study.

**7.** In order to improve the objectivity and clarity of experimental research in psychology developed the so-called **Black Box Toolkit**. The need of the device was determined by technical disturbances, which create a computer technology, for example:

- demonstration of stimulus on monitor may be delayed due to the limited technical capabilities of the monitor;
- a high probability of incorrect fixation data of reaction time in milliseconds, depending on the computer's memory, etc..

Black Box ToolKit allows to synchronize operation between the equipment, check the synchronization between the two stimuli, such as visual and hearing, thus ensuring the accuracy of the data in the psychological experiment.

**8. Eye-Tracking** is a sensor technology, which allows to measure tiny eye movements. This device help to gain deep insights of human behavior.

Eye tracking is used in different research fields such as:

1. Cognitive psychology. Transformation of social abilities and cognitive skills among infants;
2. Developmental psychology. Different psychological abilities in relationship with processes of development;
3. Psycholinguistics. Define reading skills, develop learning processes among dyslexic children, usability researches, understanding decision-making processes;
4. Neuropsychology. Diagnosis of mental disorders, research brain activity etc.

There are many psychological data by using eye-tracking technology:

- Eye-Tracking and Alzheimer's Disease;
- Eye-Tracking Analysis;
- Eye-Tracking and Autism;
- Eye-Tracking and Cognitive Systems;
- Eye-Tracking and Drug Studies;
- Eye-Tracking and Dyslexia;
- Eye-Tracking and fMRI;
- Eye-Tracking and Methodology;
- Eye-Tracking and Schizophrenia etc.

This chapter provides basic computer applications and technological developments in the field of psychological experimentation. But it should be noted that t various technology is developed in order to maximize the purity of the experimental conditions, reduce the impact of different kinds of artifacts on the experimental variables. Many companies specialize in the organization of psychological la-

laboratories, for example, «turnkey» and others. Modern computer applications for the Tablet computers, smart phones also allow conducting global experimental research in psychology; an Internet connection provides the real-time mode and efficiency of the collection of psychological data.

The above trends suggest that the classical behaviorist stimulus-reactive formula continuing to define the methodology of modern experimental research, and influences the intensification of development of computer technology in psychology. Thus, computer software is defining a new level of psychological research.

**Control questions:**

1. What are the historical path of computerization of psychological research?
2. Define the role of computer technology in psychological experiments.
3. Is it possible that computer technology and robotics completely replace the experimenter in a psychological experiment in the near future?
4. Is it important to know programming language of computer technology for experimenter?
5. Determine possibility of psychological experiment effect on computer technology development.
6. Analyze the role of computer technology in psychology.

**Main literature:**

1. Vasilyeva I.A., Osipova E.M., Petrov N.N. Psychological aspects of the application of information technology // *Voprosi psihologii*. – 2002. – №3. – S. 80-86.
2. Babayev Y.D., Voiskunsky A.E. The psychological consequences of informatization // *Psychological journal*. – 1998. – №1. – P. 89-100.
3. Access mode [www.pstnet.com](http://www.pstnet.com)
4. Access mode: [www.superlab.com](http://www.superlab.com)

**Additional literature:**

1. Miller M.W., Litz B.T. Emotional processing in posttraumatic stress disorder II: Startle reflex modulation during picture processing // *Journal of Abnormal Psychology*. – 2004. – № 113. – P. 451-463.
2. Martinez K., Castro-Couch M., Franco-Chaves J., Ojeda-Arce B., Segura G., Milad M., Quirk G. Correlations between psychological tests and physiological responses during fear conditioning and renewal // *Biology of Mood & Anxiety Disorders*. – 2012. – №2:16. – P. 2-16.
3. Nass C.I., Lombard M., Henriksen L., Steuer J. Anthropocentrism and computers // *Behaviour and Information Technology*. – 1995. – vol. 14, №4. – P. 229-238.
4. North M., North S., Coble J. *Virtual reality therapy. An innovative paradigm* / Colorado Springs, CO: IPI Press. – 1996. – 211 p.



**Internet resources:**

1. Virtual Reality and its use in Mental Health [http://www.psychnet-uk.com/virtual\\_reality/virtual\\_reality.htm](http://www.psychnet-uk.com/virtual_reality/virtual_reality.htm)
2. Virtual Reality Medical Center – <http://www.vrphobia.com/>
3. [http://www.vrphobia.com/imi/conference2003/downloads/CyberTherapy\\_Program\\_4\\_Dec\\_2002.pdf](http://www.vrphobia.com/imi/conference2003/downloads/CyberTherapy_Program_4_Dec_2002.pdf)
4. <http://www.vrphobia.com/imi/newconference/links.html>
5. Virtual Reality Self-Help Center <http://www.vrselfhelp.com/>
6. Virtual Reality in Behavioral Neuroscience and Beyond <http://www.nature.com/cgitaf/DynaPage.taf?file=/neuro/journal/v5/n11s/full/nn948.html>
7. Analysis and Development of Interaction Techniques between Real and Synthetic Worlds – <http://ligwww.epfl.ch/~ssbalcis/Public/proposal.html>
8. Virtual Reality Interactive Characters – <http://www.haptek.com/>
9. Overcoming Your Worst Fears, Virtually <http://www.wired.com/news/print/0,1294,5553,00.html>
10. Virtual Reality: History <http://archive.ncsa.uiuc.edu/Cyberia/VETopLevels/VR.History.html>
11. What are Virtual Environments? <http://archive.ncsa.uiuc.edu/Cyberia/VETopLevels/VR.Overview.html>
12. Virtual Reality: A Short Introduction – <http://www-vrl.umich.edu/intro/>.

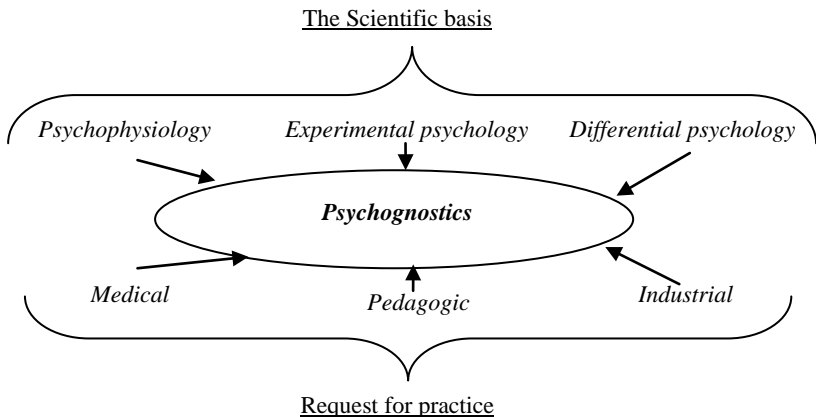
# 9

## MODERN PSYCHODIAGNOSTIC TOOLS

### 9.1. The History of Psychodiagnostics

Each psychological research requires certain measurement tools of psychological variables. Such circumstance determined diagnostic instruments development in experimental research. It is necessary to understand a role of psychodiagnostics in current psychology. Solution of current problems is possible only by knowledge of the history of the science.

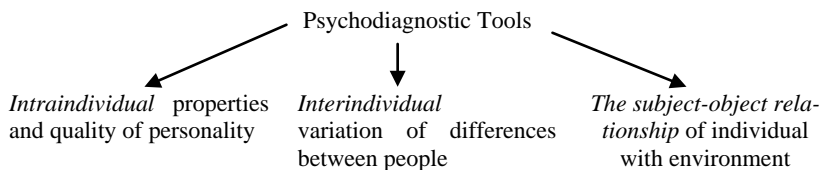
The desire to understand individual psychological differences appeared at the dawn of human history. For example, it has been found that in ancient China were carried out professional selection of government officials, in ancient Babylon was determined competencies clerks, the ancient Greeks also developed the idea of temperaments, etc. However, scientific psychodiagnostics developed in the XX century.



Psychodiagnostic methodology used to determine the experimental method in the middle of the XIX century. The methodology related with experimental psychology and psychophysiology. It is known, that natural science methods defined experimental methods in psychology. For the first time F. Galton was applied chronometry study of mental activity. Later W. Wundt used the method of associations in order to study subject's reaction time as its individual characteristics. H. Ebbinghaus experimentally studied the memory laws through a set of meaningless syllables. J. Cattell identified the phenomenon of anticipation by using tachistoscope. All of these studies have identified the problem of individual differences, which subsequently determined the basis of differential psychology. F. Galton for the first time proposed the twin's method in correlation study by a special questionnaire. A. Cotle determined a methodological basis of statistics in order to define individual differences. He proposed the idea of prediction by statistical laws, applying the formula of probability theory in the determination of certain regularities in human behavior, and interpretation of research data in relation with average index. F. Galton continued the idea of average value in the definition of mental abilities, which were measured by biographical and biographical methods. Subsequently, these measurements were designated as intellectual tests by G. Cattell. Ideas about test continued in the works of D. Cattell, who has developed more than 50 tests aimed to measuring sensitivity. C. Binet differentiated tests by age group. Then T. Simon converted these tests to a scale of mental development. Later regarding the tests the B. Stern's concept of IQ were developed. E. Seguin and D. Esquirol created tests to determine the degree of mental retardation that contributed to the development of clinical psychodiagnostics.

Measurement of intelligence contributed to the widespread development testology with industrial applications. Particularly, G. Munsterberg created vocational tests. Mass testing in the field of occupational psychology has led to the formation of group diagnostic form.

Further development of psychodiagnostics characterized by the development of questionnaires, projective techniques, and standardized tests aimed to identifying the specific relations and communications:



The principal amount of psycho-diagnostic techniques have been developed in the XX century, and which are currently used in the world of psychology undergoing rehabilitation procedures and others.

Description of existing classifications and types of diagnostic techniques is not the purpose of this chapter. However, it should be noted, that such scholars as A. Anastasi, Gizella E., Guilford J., Cronbach L. made a significant contribution to the development of objective tests' evaluation parameters such as the quality and efficiency, reliability and validity, which are the basic terms of classical psychodiagnostics. Psychodiagnostics defined as an important part of experimental research in psychology in order to psychic reality study.

Nowadays, in each psychological experiment it is necessary to define such parameters of diagnostic tools as reliability, validity, representativeness, etc. Therefore, psychologist is obliged to know all modern measuring methods in psychology, classification and theoretical foundations, navigate the world of modern psychometrics, international standards of experimental research in different areas of professional activity. For instance, in personnel psychodiagnostics, individual psychological diagnostics in counseling practice, etc.

## **9.2. Modern Psychodiagnostics in CIS Countries: Problems and Ways of Solution**

Development of psychodiagnostics in the foreign and the CIS countries has enough fundamental differences. According to Russian Shmelev A.G., Sobchik L.N., Burlachuk L.F., Buchanan N.A. et al. modern psychodiagnostics is undergoing a systemic crisis, which is caused by problems such as:

- critically low number of professional psychodiagnostists whose activities directly would be associated with the development of new diagnostics instruments and tests;

- a limited number of domestic psychological tests. According to Baturin N.A., most of them were not really adapted and have not been re-tested in order to define a reliability and validity. Furthermore, all of them have not been standardized and reflect the American or German standards of 1950-1960 years. Most psychologists are not aware of this and continue to get data in current research by these tests»;
- Lack of knowledge of modern foreign psychodiagnostic tools;
- Common tendency among the post-soviet scientists-psychologists to develop their own highly specialized psychodiagnosics techniques, which do not pass all the necessary stages of validation, adaptation and testing for reliability;
- Low quality of psychologists training;
- Lack of modern textbooks on psychodiagnosics, which would be constantly updated its content in accordance with the latest developments in the field of testology;
- Popularization of professional psychodiagnostic tool, which leads to widespread use by different specialists without psychological education<sup>16</sup>.

All these problems also exist in the Kazakhstani psychological science. Regarding to three-stage system of education in Kazakhstan which reflect bachelor degree, master degree and PhD program contributed to the development of international relations, conducted jointly researches with leading foreign professors in the psychology. These scientific collaborations give a huge possibility to develop domestic psychodiagnosics, for example, Russian and Kazakh versions of Dundy Stress State questionnaire (DSSQ) was officially translated and adopted. However, this single work, which does not fill all the gaps in domestic psychodiagnosics. Russian psychologists also consider to cooperation with foreign psychodiagnosics in order to cope with domestic psychological tests crisis, testers, offer to get the rights to translate twenty modern foreign psychological tests, including the latest versions of popular techniques such as MMPI, 16-PF etc.<sup>17</sup>.

---

<sup>16</sup> Baturin N.A. Modern psychodiagnosics in Russia // Vestnik. Psychology. – 2008. – Vol. 2. – P. 4-9.

<sup>17</sup> Burlachuk L.F. Psychodiagnosics: A Textbook for high schools. Saint Petersburg: Peter. – 2006. – 351 p.

It is necessary to improve the quality of training of psychodiagnosticians in Kazakhstan, which is possible regarding to the existing academic programs, inviting foreign professors of psychology for teaching in domestic universities. It is also possible to obtain rights in order to translate of modern foreign textbooks of psychodiagnosics. In these circumstances, psychologists should make efforts in order to development psychodiagnosics tools, appropriate ethical and scientific standards of the domestic psychodiagnosics.

### **9.3. The Main Achievements of Western Psychodiagnosics**

In recent decades, psychodiagnosics has developed quite a large arsenal of psychodiagnosics instruments, which is popular among professional psychologists around the world. Quality control of the tool passes through the International Test Commission (ITC), which develops, updates guidelines, norms, standards of psycho-diagnosics, generates and updates a list of tests, questionnaires, methods that meet quality standards. The purpose of the committee is to develop tests, training experts in the field of psychometrics, develop ethical codes of using psychodiagnosics tools. ITC set up various management tools that reflect the basic standards and regulations psycho-diagnostic tools:

1. The ITC Guidelines on Adapting Tests (2005) sets standards for develop procedures for new psychological tests;
2. The ITC Guidelines on Computer-Based and Internet-delivered Testing (2005) presents the requirements for computer technology in testing, psychometric requirements for the construction of computer tests, Internet Privacy and computer tests;
3. The ITC Guidelines on Quality Control in Scoring, Test Analysis and Reporting of Test Scores (2012) addresses to psychometrics issues etc.
4. The ITC Guidelines on Test Use (2013) mostly pay great attention to the problem of test classifications;
5. The ITC Guidelines on the Security of Tests, Examinations, and Other Assessments (2014)<sup>18</sup>.

---

<sup>18</sup> International Test Commission (ITC). International Guidelines for Test Use. – 2000. – 30 p.

It should be noted that ITC is also working with organizations such as the American Psychological Association (APA), The National Council on Measurement in Education (NCME), American Educational Research Association (AERA), British psychological Society, Australian psychological Society, German psychologists' Association, American national standards Institute (ANSI), Caveon Test Security, International test commission (ITC), European Association of psychological assessment, International Association for cross-cultural psychology, International Association of Applied psychology and many others. Every organization has the official sites, which provides detailed information.

There are a lot of ITC conference where discuss actual problems of psychodiagnostics tools, in particular those related to computer technology. There also discuss methodological, technical, professional and ethical issues of modern testing, psychometrics, classification of tests in psychological practice etc.

Nowadays, there are a lot of techniques and tests, which are not reflected in domestic psychological science.

Thus, the analysis of psycho-diagnostic instruments' development give possibility to find solutions in crisis of post-Soviet psychodiagnostics psychological science. As one of the ways to overcome this crisis represented in the form of integration with the global associations in this area.

**Control questions:**

1. Define the role of psychodiagnostics in modern experimental research.
2. What are the prospects of further development of computer psychodiagnostics tools?
3. Is it possible crisis overcoming in modern domestic psychodiagnostics in nearly future?
4. Explain a role of professional communities in identifying important trends in psychometrics and psychodiagnostics.

**Main literature:**

1. Baturin N.A. Modern psychodiagnostics in Russia // Vestnik. Psychology. – 2008. – Vol. 2. – P. 4-9.
2. Kustubaeva A.M., Matthews J., Jakupov S.M., Kamzanova A.T., Tolegenova A.A., Zholdasova M.K. Adaptation of the Russian version of Dundee Stress Questionnaire // Russian scientific journal. – 2011. – №3 (22). – P. 118-122.

3. Matthews G., Campbell S.E., Falconer S., Joyner L., Huggins J., Gilliland K., Grier R., Warm J.S. Fundamental dimensions of subjective state in performance settings: Task engagement, distress and worry // *Emotion*. –2002. – №2. – P. 315-340.
4. Burlachuk L.F. *Psychodiagnostics: A Textbook for high schools*. Saint Petersburg: Peter. – 2006. – 351 p.

**Additional literature:**

1. Raigorodskii D.Y. *Practical psychodiagnostics. Procedures and tests*. – MA. – 2006. – 672 p.
2. American Psychiatric Association *Diagnostic and Statistical Manual of Mental Disorders 5-th Edition (DSM-5)*. American Psychiatric Association. Arlington VA. – 2013. – 479 p.
3. International Test Commission (ITC). *International Guidelines for Test Use*. 2000. – 30 p.
4. Gary G.-M. *Handbook of psychological assessment / 4th ed.* by John Wiley & Sons, Canada. – 2003. – 768 p.
5. Ogdon D. *Psychodiagnostics and Personality Assessment: A Handbook (3rd ed.)*. / Western Psychological Services, Los Angeles, CA. – 2001. – 565 p.
6. Lichtenberger E., Mather N., Kaufman N. & Kaufman A. *Essentials of Assessment Report Writing / John Wiley & Sons, Inc.* Hoboken, NJ. – 2004. – 320 p.



# 10

---

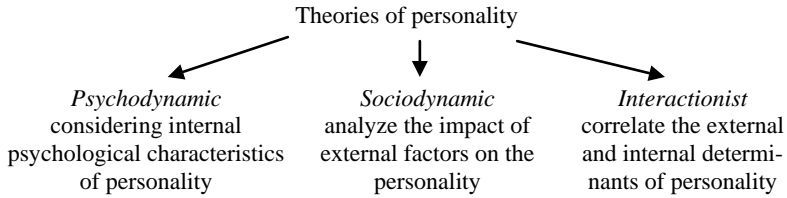
## **PERSONALITY PSYCHOLOGY: HISTORY AND PERSPECTIVES OF DEVELOPMENT**

### **10.1. Theories of Personality: the Foundations of Development and Classification**

The development of psychodiagnostics tools directly linked to personality psychology. This undoubtedly defines the role of psychodiagnostics between the theoretical and applied psychology. This important fact indicates that knowledge about history of personality psychology and its methodological bases are important for psychologists in order to use measurement instruments, methods ethics and standards of psychological intervention in practice. In this regard, every psychologist is obliged to be guided in current trends in the psychology of personality.

In this case, it is important to make analysis of the major historical periods of personality psychology formation. As is known, the development of the first ideas about the identity has its roots in the writings of ancient philosophers (Hippocrates, Plato, Aristotle, and others.). Various scientists considered largely ethical and social aspects of personality. Personality psychology determined the basic provisions of modern psychology from the XIX century. Thus, the appearance of the first clinical observation data (J.-M. Charcot, Janet P., S.S. Korsakov, I. Sikorsky, V.M. Bekhterev, V.H. Kandinsky etc.) made possible to develop common scientific theories of individual norms and pathology. Experimental psychology contributed to the formation of natural-scientific approach of personality study with the application of mathematical and statistical approach. This approach formed the basis of the classical non-experimental and experimental theory of personality.

In the XX century it was developed a number of theoretical models of personality, which can be classified into three main groups:



There are many classifications of personality theory from various approaches. For example, the classification of the theories on the basis of dynamic and structural approaches. G. Allport suggested this theoretical approach in 30th years of XX century.

In XX century domestic psychologists developed set of theoretical explanation of the structure and dynamics of personality, its basic characteristics and qualities. In general, each individual theory in psychology has complex empirical data and presented in the form of verbal descriptions and verification principle position. Theorists in order to design personality concept follow to certain rules of abstraction, which inevitably depends on the model that defines the view of the scientist to the objective reality of the facts. Some of the observed objective parameters of the individual are taken into account in theory, but some are ignored or join in the class assumptions of the theory. This provision determines the cause that scientists' personality determine psychological theories of personality. Complexity, multidimensionality, of every personality theory reflect multi-dimensional object of study in psychology.

Thus, personal determination of assumptions was defined in the development of personality theory. Knowledge of these provisions in personality theories of is essential in the formation of modern professional psychologist who is able critically analyze these theories in order to make a significant contribution to the further development of the theoretical and practical foundations of personality psychology.

## **10.2. The modern personality psychology: condition and development trends**

Nowadays, a huge amount of research is done in current psychology of personality, most of which are represented in foreign psy-

chological science. There are many scientific researches in the field of personality psychology remains out of the attention of domestic psychologists. Comparative analysis of current trends in Western psychology of personality was presented in Table 11. There are areas of research are determined by constructs of personality in Western psychology<sup>19, 20</sup>:

Table 11

**Three-level analysis system of personality**

<b>Level</b>	<b>Characteristics of personality</b>	<b>Directions and methods</b>
Dispositional Traits	A broad aspect of personality characteristics; describe internal, stable personality traits and individual differences in behavior, cognitive processes and emotions	<ul style="list-style-type: none"> <li>– Big Five</li> <li>– 16PF Questionnaire</li> <li>– H. Goughs' California Psychological Inventory (CPI)</li> <li>– Ego resiliency and Ego control</li> </ul>
Adaptation features	Psychological features of individual adaptation lead in categories such as time, place, social role and the associated with motivational, cognitive aspects of social situations	<ul style="list-style-type: none"> <li>– Motives and goals</li> <li>– Values and beliefs</li> <li>– Cognitive schemes and styles</li> <li>– psychosocial stages of personality development</li> <li>– Styles relationship</li> <li>– Identification of statuses and roles</li> <li>– Coping strategies and defense mechanisms, etc.</li> </ul>
Life stories	Holistic study of personality in relation with environment	<ul style="list-style-type: none"> <li>Self-defining memories</li> <li>Nuclear Scripts</li> <li>Recurrent life narrative themes: agency and communion</li> </ul>

Table 11 considered main levels of studying personality in current psychology. In this regard, it should be noted, that the main dif-

<sup>19</sup> Richard W. Robins, R. Chris Fraley, Robert F. Krueger. Handbook of Research Methods in Personality Psychology Guilford Press. – 2009. – 719 p.

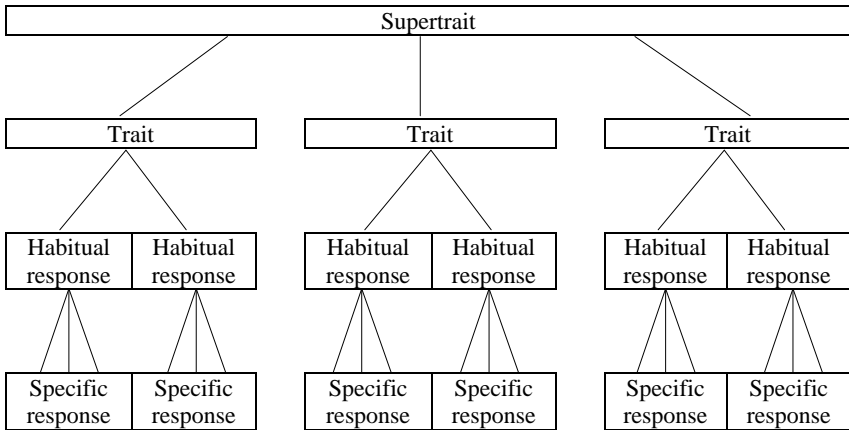
<sup>20</sup> Oliver P., Richard W., Lawrence A. Handbook of Personality, Third Edition: Theory and Research / Guilford Press. – 2008. – 862 p.

ferences between personality psychology of Western countries and CIS countries are determined in psychodiagnostic tools and methodology of experimental studies.

Let see main research design of dispositional traits in a table 12.

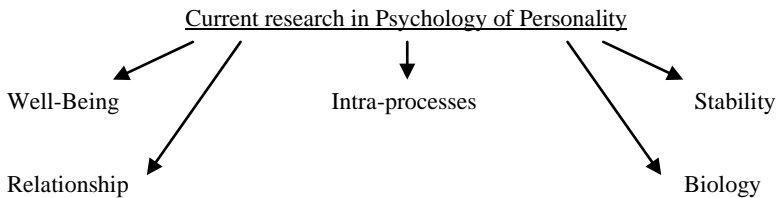
Table 12

**Research Design of Dispositional Traits**



In such kind researches, it is necessary to define many specific responses among population, after that it is possible to define habitual responses in order to define trait and super trait. Such kind research design help to define general personality traits.

Morf C. & Ayduk O. (2004) analyzed of publications in leading international journals on personality psychology. They found that modern research is being conducted in five main areas<sup>21</sup>:



<sup>21</sup> Morf C., Ayduk O. Current directions in personality psychology / Published by Pearson. – 2004. – 213 p.

It is important to note that the ongoing research in the field of personality psychology in foreign countries cover a wide range of modern personality problems, which are annually updated content such leading journals as:

- Journal of Research in Personality;
- Personality and Individual Differences;
- European Journal of Personality;
- Journal of Personality;
- Journal of Personality and Social Psychology etc.

In addition, there are many annual international conferences on various topics of personality psychology with the various associations of researchers, scientists and practitioners in the field of personality psychology:

- Association for Research in Personality;
- International Society for the Study of Individual Differences;
- European Association of Personality Psychology;
- Association for Psychological Science;
- Society of Personality and Social Psychology (SPSP) etc.

Unfortunately, there are only a number of scientific journals of personality psychology in the CIS countries. In addition, there is no association of psychologists specializing in the field of personality psychology. The individual studies are conducted in the framework of laboratories at universities and a few psychological institutions. However, it is necessary to point to the current trend of international cooperation with Russian research laboratories of personality psychology. For example, the International Laboratory of positive personality psychology and motivation (Russia), the head of which is a D.A. Leontiev, collaborate with the laboratory of K.M. Sheldon (University of California, USA) in order to conduct joint researches in the field of well-being and motivation psychology. In 2011, was opened the Russian-British laboratory of psychogenetics in relation with the Psychological Institute of RAO Goldsmiths University (London) where conducted the study of hereditary and environmental factors of the individual. The main goal of such cooperation is to worldwide integration of Russian psychology psychological science. Kazakhstan psychological science also continues to develop cooperation with leading foreign US professors from Canada, UK, Ger-

many, UAE, etc. due to PhD programs with international standards of experimental research, publication of scientific articles in top journals, and others. It is possible to the near future, at the present rate of development of psychological science in Kazakhstan will fully comply with international standards and improve the quality of the experimental studies in different areas of psychology and prepare high-qualified psychologists-experts.

**Control questions:**

1. Analyze the current experimental theories of personality.
2. Identify the similarities and differences of psychological theories of personality in the Western and domestic psychological science.
3. What are the reasons for the large number of personality theories in psychological science?
4. Analyze difficulties of development Personality Psychology in the CIS countries.
5. How does the theory of personality define the style of work of practical psychologists?
6. Determine the prospects of development of personality psychology in the XXI century.

**Main literature:**

1. Richard W. Robins, R. Chris Fraley, Robert F. Krueger. Handbook of Research Methods in Personality Psychology Guilford Press. – 2009. – 719 p.
2. Oliver P., Richard W., Lawrence A. Handbook of Personality, Third Edition: Theory and Research / Guilford Press. – 2008. – 862 p.
3. Morf C., Ayduk O. Current directions in personality psychology / Published by Pearson. – 2004. – 213 p.
4. Psychological Science in Russia in the twentieth century: problems of theory and history. – M., Publishing House of the Institute of Psychology. – 1997. – 576 p.

**Additional literature:**

1. Matthews G., Deary I.J., Whiteman M.C. Personality traits. – Cambridge University Press. – 2003. – 519 p.
2. Pervin L., John O. Personality Psychology. Theory and research. – M., 2000. – 607 p.
3. Megargee E.I. The California Psychological Inventory // In J. N. Butcher (Ed.), Oxford Handbook of Personality Assessment New York, NY: Oxford University Press. – 2009. – P. 323-335.

# 11

---

## MODERN COGNITIVE PSYCHOLOGY

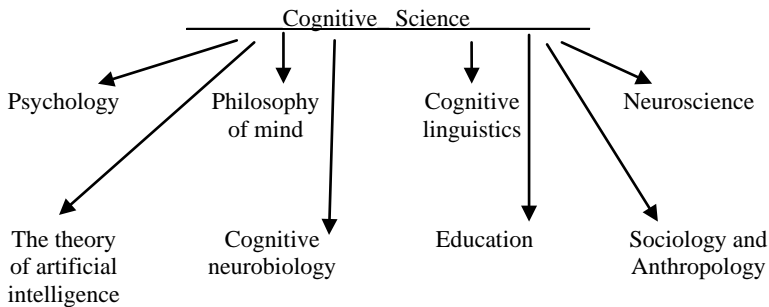
### 11.1. The History of Cognitive Psychology

Cognitive psychology has reached sufficiently high results in its development during short period. Nowadays Cognitive psychology is one of the most popular and leading area of scientific knowledge.

The subject of cognitive psychology are models of mental processes by which considered psychological knowledge in relation with computer metaphor. It is well known, that cognitive psychology began its official development since 1950th of XX century. Cybernetics and the establishment of modeling methods of mental processes and intelligence was developed regarding to the emergence of computer systems. There are many cognitive scientists J. Miller, D. Simon, A. Newell, N. Chomsky, G. Bruner, U. Neisser et al who stand at the origins of cognitive psychology and determined further development of psychology. Cognitive psychology was determined by the crisis behaviorism. This branch of psychology contributed to the rehabilitation of concept of the mind as a subject of psychology, and looked at cognitive processes as mediating factors of external behavior. Cognitive mental processes were continued by computer metaphor in order to explain information processing.

Modern cognitive psychology includes a plurality of sections, each of them defined by the object of cognitive processes studies. For example, sections of the psychology of perception, attention, memory, thinking, decision making, and others. The information approach in cognitive psychology defined the methodological bases of the theoretical understanding and explaining structure of cognitive processes. Nevertheless, classical cognitive psychology faced with a number of limitations of the information approach in explaining the

more complex mental systems that can not be studied only in a direct comparison brain with machine. Ignoring the connection of consciousness with brain activity, with its neurobiological basis contributed to develop of cognitive psychology in 1970th of XX century. It was included in a new, more extensive field of science, namely, cognitive science, which today is an interdisciplinary study of complex cognitive processes in relationship with the biological, social and other factors. At the end of the 1970th was founded Cognitive Science Society (CSS). Then in 1977 was published Journal Cognitive Science.



Let us give several definitions of modern branches of Psychology. All definitions are taken from official scientific sources.

*Cognitive Science* is the interdisciplinary science of mind, which includes and attempts to integrate approaches from psychology, linguistics, philosophy, anthropology, computer science, and physiology<sup>22</sup>.

*Philosophy of mind* is the branch of philosophy that studies the nature of the mind (mental events, mental functions, mental properties and consciousness) and its relationship to the physical body. It intersects to some extent with the fields of neurobiology, computer science and psychology. Within philosophy, the Philosophy of Mind is usually considered a part of Metaphysics, and has been particularly studied by schools of thought such as Analytic Philosophy, Phenomenology and Existentialism, although it has been discussed by philo-

---

<sup>22</sup> The Cambridge Dictionary of Psychology. General Editor D. Matsumoto. – Cambridge University Press 2009. – P. 117



sophers from the earliest times. It has a potential influence on philosophical questions such as the nature of death, the nature of free will, the nature of what a person is (and his or her identity and the self), and the nature of emotion, perception and memory. The central issue in Philosophy of Mind is the mind-body problem (the relationship of the mind to the body), and the challenge is to explain how a supposedly non-material mind can influence a material body and vice-versa. The two major schools of thought that attempt to resolve this problem are Dualism and Monism (see the sections below), with Pluralism as a small minority viewpoint<sup>23</sup>.

*Neuroscience* an interdisciplinary approach to the study of the nervous system that includes anatomy, biochemistry, cognitive modeling, pharmacology, and physiology<sup>24</sup>.

*Cognitive linguistics* is a cluster of overlapping approaches to the study of language as a mental phenomenon. Cognitive linguistics emerged as a school of linguistic thought in the 1970s<sup>25</sup>.

*The theory of artificial intelligence* is the theory and development of computer systems able to perform tasks normally requiring human intelligence, such as visual perception, speech recognition, decision-making, and translation between languages<sup>26</sup>.

*Cognitive neurobiology* an interdisciplinary approach to understand the human mind. The goal is to further understanding of the relationship between cognitive phenomena and the underlying physical substrate of the brain<sup>27</sup>.

Thus, the emergence of this area of science was a logical continuation of the sciences brain development. Knowledge of various branches continue to develop scientific problems of mental processes, their biological substrate, the influence of social factors on the development of the psyche, etc.

---

<sup>23</sup> [http://www.philosophybasics.com/branch\\_philosophy\\_of\\_mind.html](http://www.philosophybasics.com/branch_philosophy_of_mind.html)

<sup>24</sup> The Cambridge Dictionary of Psychology. General Editor D. Matsumoto. – Cambridge University Press 2009. – P. 336.

<sup>25</sup> <https://www.thoughtco.com/what-is-cognitive-linguistics-1689861>

<sup>26</sup> [https://en.oxforddictionaries.com/definition/artificial\\_intelligence](https://en.oxforddictionaries.com/definition/artificial_intelligence)

<sup>27</sup> <http://ki.se/en/neuro/cognitive-neuroscience>

## 11.2. Current Researches in Cognitive Science

Integration of the theoretical foundations and the experimental data, in current trend of psychology, allows developing modern cognitive science. There are a lot of applied research in various fields of human activity that define system theory of brain and mind, for example:

- Research in the field of artificial intelligence and psychology allowed to develop programs that recognize speech in order to solve problems in the fields of medicine and engineering;
- Identification of biological and psychological foundations of behavior in robotics paradigm allowed developing robots with complex cognitive scheme, capable of performing complex tasks. Such robots determined the long-term positive economic impact in organizations, but also in military companies to;
- Advances in neuroscience and cognitive psychology allow developing new treatments for such disorders as autism, Parkinson's disease and Alzheimer's disease;
- Results of interdisciplinary research in cognitive psychology contributed to develop modern methods of anxiety and depression treatment;
- Cognitive ideas in education have allowed using effective teaching methods, to not only read and write, but also the study of other subjects, etc.

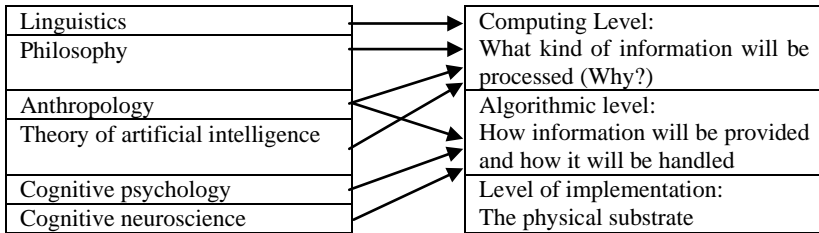
Also in cognitive science conducted integrative studies of individual mental processes. Its advantage determined by the following parameters:

- Innovative approach in cognitive science allows to get the knowledge about brain and mind;
- The unique contribution of cognitive science to study of individual mental process;
- Each branch of cognitive science develops cross-disciplinary problems;
- Development integrative study of cognitive processes in different branches of cognitive science.

Thus, nowadays according to the paradigm of cognitive science it is necessary to create team of scientists from all branches of cogni-

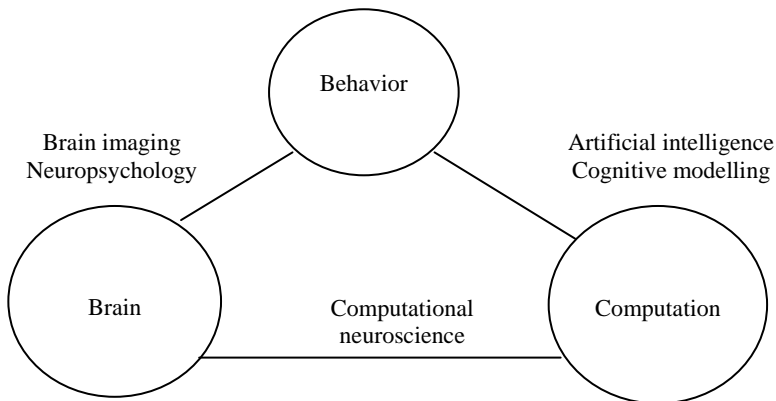
tive science in order to study only one cognitive process. This team of scientists have to find peculiarities of this process, develop integrative knowledge in order to explain the phenomenon. It also integrates research methods of each cognitive science branches, analysis of different data, in order to understand the object of study and include but complex results of different spheres of human activity in science.

Marr D. (1982) developed a scheme of complex studies in cognitive science<sup>28</sup>:



Thus, the modern cognitive science has identified new opportunities and prospects for the cognitive psychology development in relation with other scientific knowledge.

Cognitive science become popular field of research of human brain because of new computational technologies. These technologies allow investigating brain system by computerized modelling.



<sup>28</sup> Marr D. Vision: A computational approach / San Francisco: Freeman & Co. – 1982. – 250 p.

Cognitive psychology sets a new path of interdisciplinary research in cognitive science, formulate new challenges in the mental structures study, for example, role of biological processes in the brain and artificial intelligence<sup>29</sup>.

Let us define new approaches in cognitive science:

*Brain imaging* is any technique which permits in vivo visualisation of the central nervous system – e.g., PET, MRI – yielding a series of 2-D images/cross-sections of brain regions of interest, which may be manipulated by computer to generate 3-D simulations; other techniques – e.g., ultrasound, angiography, radionuclide scans, regional cerebral blood flow (RCBF) measurements, brain electrical activity mapping (BEAM) and its variants, and even the now-obsolete pneumoencephalogram-provide images of aspects of the CNS, but are limited in the structures visualised or degree of resolution, or other parameters<sup>30</sup>;

*Computational neuroscience* is the field of study in which mathematical tools and theories are used to investigate brain function. It can also incorporate diverse approaches from electrical engineering, computer science and physics in order to understand how the nervous system processes information<sup>31</sup>;

*Cognitive modeling* is an area of computer science that deals with simulating human problem solving and mental task processes in a computerized model. Such a model can be used to simulate or predict human behavior or performance on tasks similar to the ones modeled. Cognitive modeling is used in numerous artificial intelligence (AI) applications, such as expert systems, natural language programming, and neural networks, and in robotics and virtual reality applications. Cognitive models are also used to improve products in manufacturing segments such as human factors engineering, and computer game and user interface design<sup>32</sup>.

In the XXI century cognitive science is included in the interdisciplinary education program of psychology in the areas of graduate specialization such as «Consciousness», «Action», «Language»,

---

<sup>29</sup> Gentner D. Psychology in Cognitive Science // Topics in Cognitive Science. – 2010. – P. 328-344.

<sup>30</sup> <http://medical-dictionary.thefreedictionary.com/brain+imaging>

<sup>31</sup> <http://www.nature.com/subjects/computational-neuroscience>

<sup>32</sup> <http://whatis.techtarget.com/definition/cognitive-modeling>

«Education», «Memory», «Perception». Textbooks and manuals have been publishing annually in order to update theoretical and empirical content of disciplines. There are set of research laboratories at the universities. Each of these laboratories reflect cognitive science, for example:

- Child Neuroscience Laboratory;
- Computational Laboratory of Cortical Dynamics;
- Consumer Decision Making Laboratory;
- Fear Learning Laboratory;
- Infant Cognition Laboratory;
- Language and Brain Laboratory;
- Memory & Cognition Laboratory;
- Neurobiology of Learning and Decision-Making Laboratory;
- Perception & Cognition Laboratory;
- Sensory Information Processing Laboratory;
- Systems Neurophysiology and Neuroengineering Laboratory etc.

There are researches, which relate with Neuroscience and Cognitive science (NACS) in such topics as:

- Neuroscience of hearing process;
- The cellular and molecular neuroscience;
- The individual development and the brain-behavior paradigm;
- Memory and decision-making;
- Network models and pattern recognition;
- Neuroethology;
- Neuromorphological Engineering;
- Sensorimotor integration;
- Speech and language and others<sup>33</sup>.

Currently, there are many international conferences in the field of cognitive science, where discusses new experimental data in cognitive science. For example, Social Cognitive Neuroscience aimed to study psychological and neural bases of social behavior, which reflect relation between social psychology and cognitive neuroscience in the XX century. Social cognitive neuroscience as a relatively young discipline of XXI century has contributed to formation of a

---

<sup>33</sup> Program of Neuroscience and Cognitive Science. – access mode: <http://www.nacs.umd.edu/res/cognitive.html>

number of new areas, which indicates a rapid dynamics of cognitive science development during short period. For example, regarding to modern technology it is became possible to study brain processes in social behavior. Social cognitive neuroscience addressed the problem of amygdala and human social relations, the amygdala and social emotions perception, relationship between prefrontal cortex and perception of social relations and many others<sup>34</sup>.

Thus, the modern computer developments and achievements in the field of brain study technologies have allowed to expand the boundaries of interdisciplinary studies of cognitive processes in relation with brain processes, neurobiology and others. Modern cognitive psychology continues its development in such applications areas as Human Factor, which deals with the problems safety and productivity in the system of human-technology, engineering, cognitive and decision-making, individual differences in human performance etc. Another aspect of the cognitive science application is significant contribution to the development of psychiatry, which deals with the neuronal level of various mental disorders and diseases, define ways of treatment and prevention. In addition, cognitive science, in particular with cognitive psychology promotes intensive development of computer technology and robotics.

It is also important to note that cognitive science, being a very popular trend in psychological science in foreign countries, continues it's develop in the CIS countries. For example, there are Interregional Association for Cognitive Studies (MAKI), Virtual Lab of Cognitive Science, annual conferences, seminars, round tables with leading universities in CIS. Cognitive science also is reflected in the experimental studies conducted within the framework of PhD programs in Kazakhstani universities.

Thus, cognitive psychology, in its interdisciplinary representation brings not only the theoretical and practical contribution to the development of modern psychological science, but also contributes to the formation of applied aspects in other sciences, define new ideas, original approaches in experimental study of the psyche, consciousness and behavior in their relationship with the brain.

---

<sup>34</sup> Ochsner K.N. Current directions in social cognitive neuroscience // Current Opinion in Neurobiology. – 2004. – №14. – P. 254–258.

**Control questions:**

1. Identify the important historical milestones in the development of cognitive psychology.
2. Analyse the development of cognitive psychology in the CIS countries, in particular in Kazakhstan.
3. Analyze cognitive psychology and development of computer technology in the XX century.
4. How neuroscience defines experimental research in cognitive psychology?
5. What is the role of the computer metaphor in modern cognitive science?
6. Determine the prospects of further development of cognitive science in the system of its interdisciplinary connections.

**Main literature:**

1. Marr D. Vision: A computational approach / San Francisco: Freeman & Co. – 1982. – 250 p.
2. Gentner D. Psychology in Cognitive Science // Topics in Cognitive Science. – 2010. – P. 328-344.
3. Program of Neuroscience and Cognitive Science. – access mode: <http://www.nacs.umd.edu/res/cognitive.html>
4. Ochsner K.N. Current directions in social cognitive neuroscience // Current Opinion in Neurobiology. – 2004. – №14. – P. 254–258.
5. The Cambridge Dictionary of Psychology. General Editor D. Matsumoto. Cambridge University Press, 2009.

**Additional literature:**

1. Solso R. Cognitive Psychology. – 6th ed. – SPb.: Peter, 2006. – 589 p.
2. Cognitive Psychology: History and Modernity / Falikman M. and Spiridonov V. – Lomonosov, 2011. – 384 p.
3. Velichkovsky B.M. Cognitive science: the basis of cognitive psychology. 2 Vols. – M.: Meaning: Publishing Center «Academy». – 2006. – 448 p.
4. Kustubaeva A.M. fMRI and cognitive function // Treasury Series Bulletin of psychology and sociology. – Almaty, 2008. – №1 (24). – C. 64-69.

# 12

---

## **ORGANIZATIONAL PSYCHOLOGY: CURRENT TRENDS AND EXPERIMENTAL STUDIES**

### **12.1. The History and Development of Modern Organizational Psychology**

Organizational Psychology is still one of the most common branch in foreign psychological science. There are a huge number of international conferences, various associations, the community, for example, such as:

- Alliance for Organizational Psychology, a federation of Work, Industrial, and Organizational Psychology societies;
- European Association of Work and Organizational Psychology (EAWOP);
- Society for Industrial and Organizational Psychology (SIOP);
- Canadian Society for Industrial and Organizational Psychology etc.

Annual high-indexed journals are published:

- European Journal of Work and Organizational Psychology;
- Journal of Organizational Behavior Management;
- Work & Stress;
- Human Factor;
- Applied Ergonomics;
- International Journal of Selection and Assessment etc.

M. Mynsternberg and J. Cattell began to deal with individual differences in order to predict human behavior at the workplace. M. Mynsternberg developed the origins of modern approaches in professional selection and profессиogram. Organizational psychology developed in many countries, including in Russia, where such scholars



as V.M. Bekhterev, A.F. Lazurskii, N.A. Bernstein and many other developing psycho-techniques and ergonomics, considered classification of professions, psychological problems of mental health and fatigue, workplace in organizations in the XIX century. B.F. Lomov, V.P. Zinchenko, D.Y. Panov, V.D. Nebylitsin, E.A. Klimov, B.G. Ananiev and many others contributed further development of labor psychology. In the laboratory of Engineering Psychology at the Institute of General and Pedagogical Psychology of Pedagogical Sciences of the USSR, Moscow University and others was created many researches in engineering psychology, ergonomics and labor psychology. The further development of labor psychology in the countries of the CIS in the XXI century continued in line with organizational psychology, which brings together the knowledge about human as the subject of work in organizations.

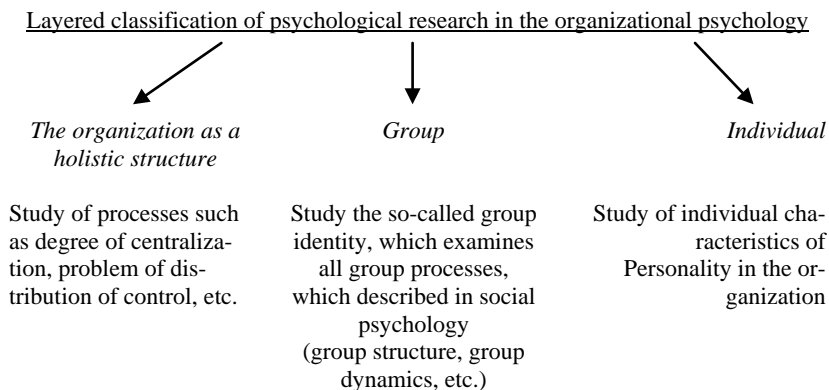
Organizational psychology intensively developed during the Second World War, due to the need of formation of forces. There was developed the Alpha test in Western countries. In the postwar years, development of this branch of psychology was not reduced regarding to industrial development. Experimental researches continued to develop ethical standards, norms, requirements for specialization in industrial and organizational psychology in the field of psycho-technique at the American Psychological Association. Development business psychology contributed to the popularization of organizational psychology in the western countries as an applied branch of studying human behavior in organizations to improve the efficiency of work in the 1990th. Thus, psychological parameters of work contributed to establishment and development of Organizational Psychology in the XXI century.

## **12.2. Modern Trends in Organizational Psychology**

Currently conducted a number of experimental studies of organizational change issues, organizational climate, teamwork, leadership and organizational psychology, workplace stress, burnout, job satisfaction, organizational communication, organizational theory and behavior personality and identity at work, selection and evaluation of personnel, corporate governance, coaching, risk management,

budgeting and financial management, changes in the management of the organization, and others. It was necessary to conduct psychological researches in the field of organizational psychology, analyses the main directions of its development.

All psychological studies in organizational psychology depend on the level of efficiency of system performance analysis and organizational behavior<sup>35</sup>:



Currently, organizational psychology prefer to conduct psychological research by systematic and holistic approach that deals with the results of all three levels of analysis between organization and personality.

The three-tier classification of trends in organizational psychology allows analyzing researches<sup>36</sup>:

- Recruiting and Staffing – this trend develops problems of validation psychodiagnostic tools in order to analysis of recruitment etc. ;
- Training and Development deals with the problems of career planning, training of staff motivation, management development, etc.;

<sup>35</sup> Zankovsky A.N. Organizational Psychology: A Textbook for high schools in «Organizational Psychology». – 2nd ed. – M.: Flint: SAG, 2002. – 648 p.

<sup>36</sup> Jewell L. Industrial and organizational psychology. Textbook for high schools. – St. Petersburg: Peter, 2001. – 720 p.

- Organizational development study organization structure, improving the working groups, etc.;
- Measuring performance are considered problems of developing performance measurement criteria;
- The quality of working life investigates the factors of job satisfaction, increased productivity, etc. ;
- Psychology of consumers are considered problems of assessing consumer preferences and reactions to products;
- Engineering psychology study of the «human-machine» system, the design of work environment, etc.

Every year, these areas are replenished with new topics in psychological research, for example, developed labor motivation problems in professional stress, occupational health and safety, psychological climate in organizations and many others.

Development of computer technologies and Internet communications have contributed to the development of research in the field of organizational psychology, ergonomics and human factors. For example, many organizations have moved to the level of virtual working groups in order to select the most successful professionals, collect them in one place in order to implement the organization's objectives, i.e. create virtual offices. In this regard, there are relevant studies of working groups, their efficiency, management techniques, education and training, the problem of communication and job satisfaction, the development of «group identity» issues of interaction in the system «human-technique» and others.

Research of «Human-technique» system in organizational psychology defined by computer technology. For example, e-mail correspondence in organizations, conflict in organizations, dissatisfaction with work, information overload, the confidentiality of information and personal characteristics of employees, depersonalization employees.

It should be noted another trend in the development of organizational psychology, which is associated with the development of robotics. Today, robots are integrated into the structure of the organization and exert their influence on the processes. For example, now in western countries can meet the robots in hospitals, hotels, universities, factories, etc. That perform certain fixed functions of person-

nel depending on the organization. In this regard, there are psychological problems of interaction in human-robot system, the robot's impact on the natural processes of group dynamics in organizations, etc.

Thus, organizational psychology, as one of the most popular branches of psychological science in the world continues its intensive development. Psychological research focuses on theoretical approaches development; solve applied problems in modern organizations with its system components as employees, administration, equipment and others.

In Kazakhstani psychological science in the conditions of international cooperation began to develop organizational psychology. For example, conducting psychological research of human factors; psychologists and practitioners continue to participate in international conferences on organizational psychology, which indicate of further development of psychological science in Kazakhstan.

**Control questions:**

1. Identify the important factors that contributed to organizational psychology development.
2. Differentiate between the labor psychology and organizational psychology.
3. What are the similarities and differences in methodology and theory of organizational psychology in the Western and domestic psychological science?
4. Analyze of organizational psychology development in Kazakhstani psychological science.
5. How does the computer technology effects on organizational psychology?
6. What is the importance of knowledge of organizational psychology for psychologists, researchers and practicing psychologists?

**Basic literature:**

1. Zankovsky A.N. Organizational Psychology: A Textbook for high schools in «Organizational Psychology». – 2nd ed. – Moscow: Flint: SAG, 2002. – 648 p.
2. Jewell L. Industrial and organizational psychology. Textbook for high schools. – St. Petersburg: Peter, 2001. – 720 p.
3. Handbook of psychology / by John Wiley & Sons, Inc., Hoboken, New Jersey, 2003. – 664 p.

**Additional literature:**

1. Mutlu B., Forlizzi J. Robots in Organizations: The Role of Workflow, Social and Environmental Factors in Human-Robot Interaction // School of Computer Science at Research Showcase CMU. – 2008. – P. 145-154.
2. Forlizzi J. How robotic products become social products: An ethnographic study of cleaning in the home. In Proc. HRI. – 2007. – P. 129-136.

# 13

---

## **CULTURAL-HISTORICAL CONCEPT OF L.S. VYGOTSKY AND THEORY OF ACTIVITY IN MODERN PSYCHOLOGICAL SCIENCE**

Analyze of such domestic classical theoretical and methodological approaches as the cultural and historical concept of L.S. Vygotsky and theory of Activity of A.N. Leontiev is defined by several factors:

1. No analysis of these concepts in foreign scientific literature;
2. Analysis of the explanatory capacity of these concepts in modern trends of intensive psychological science development in the age of computer technology;
3. In order to further development of L.S. Vygotsky and A.N. Leontiev concepts in current psychology.

Cultural-historical conception and activity approach in Russian psychology could help to develop current methodological basis of psychological science. This raises the need to analysis of trends in modern foreign psychological science.

### **13.1. L.S. Vygotsky, A.N. Leontiev and Foreign Psychology in XX and XXI Centuries**

Scientific value of cultural and historical concept of L.S. Vygotsky and Activity approach of A.N. Leontiev was reflected in the scientific and psychological literature of post-Soviet countries. Due to number of objective reasons, such as the lack of access to foreign scientific sources by domestic psychologist in the XX century, there are no information about foreign scientists, who are followers of the cultural-historical concepts and active approach.

Cultural-Historical Psychology of L.S. Vygotsky and the Theory of Activity mentioned in foreign psychology, for example:

1. Activity theory, but it should be noted that a greater degree of translation «Activity» in the English language is close to the value of activity than the performance, which formed a lot of problems in understanding the theory;
2. The cultural-historical theory of activity;
3. Cultural historical activity theory (CHAT);
4. Social-cultural psychology;
5. Cultural historical psychology<sup>37</sup>.

There are variety of definitions of the theory in foreign psychology because the activity approach is often seen in unity with cultural and historical concept. L.S. Vygotsky's concept became popular in foreign psychology. In addition, it should be noted that, L.S. Vygotsky and A.R. Luria was considered as a founders of the cultural and historical concept in Western psychology<sup>38</sup>.

The first translations of L.S. Vygotsky's concept into English were made 1960th of XX century. This event contributed to cultural-historical methodological approach in psychological studies in the United States, Great Britain, Western and Eastern Europe. In the 1980s, were formed International Society for Cultural Research and Activity Theory (ISCRAT) and the Theory of Activity, as well as the Society for Social-Cultural Studies (SSCS). Each of these organizations conducted their own conference and merged into International Society for Cultural and Activity Research (ISCAR). Many local and international conferences around the world dedicated to L.S. Vygotsky's idea, have been publishing international journal *Culture & Psychology* (Impact Factor = 0.75 according to Thomson Reuters database, 2015), and *Journal of Mind, Culture, and Activity*. There are several foreign research centers and laboratories adhere to the ideas of L.S. Vygotsky and A.N. Leontiev, such as:

- Laboratory of Comparative Human Cognition (University of California, San Diego, USA);

---

<sup>37</sup> Holzman L. What Kind of Theory is Activity Theory? // *Theory & Psychology*, Sage Publications. – 2006. – Vol. 16(1). – P. 5-11.

<sup>38</sup> Cole M. A.R. Luria and Cultural-Historical Approach in Psychology / in A.R. Luria and *Contemporary Psychology*.- 2005. – P. 35-41.

- The Centre for Sociocultural & Activity Theory Research (University of Birmingham, UK);
- The Center for Activity Theory and Developmental Work Research (University of Helsinki, Finland);
- The East Side Institute for Group and Short Term Psychotherapy (New York, USA).

However, despite such significant trends in the development of ideas of L.S. Vygotsky and A.N. Leontiev abroad in XXI century, there are no information in foreign textbooks and scientific publications about L.S. Vygotsky, A.N. Leontiev and other Soviet scientists.

Holzman L. showed that many foreign psychological theories are considered as an alternative to the concept of dialectical behavior, this is causing doubts among the majority of foreign scientists about the extent of scientific importance, not only of the activity approach, but cultural and historical concept, as its methodological framework. Previously, many foreign scientists determined L.S. Vygotsky as a behaviorist, then they began to recognize him as a cognitivist, and today L.S. Vygotsky is considered as constructivist. For this reason, foreign followers of the classic Soviet concepts faced with criticism and misunderstanding of domestic theories by their colleagues, and continue behaviorist principles in experimental studies and theoretical developments.

Thus, cultural and historical concept of L.S. Vygotsky and theory of Activity of A.N. Leontiev are well known and have their followers abroad, who continue to promote the classical methodology of domestic psychological science in current psychology. American Society of Psychology count the most cited scientists psychologists in foreign periodicals and found out that the L.S. Vygotsky was entered in the list of top 100 scientists and psychologists of the XX century [3].

### **13.2. Features of Development of The Theory of Activity in the XXI Century: The Explanatory Possibilities and Prospects of Development**

It is necessary to analyze current state of the theory of Activity and its role in modern theoretical developments and approaches in

psychological research due to global changes in science that occur in the XXI century. There are many modern computer application technologies in experimental studies in neuroscience, cognitive science, and others.

Many psychological experimental studies in foreign psychology conduct in relation with methodological and theoretical foundations of the cultural-historical theory and the theory of Activity. Consider a few examples of studies in the foreign psychology in the XXI century:

- Organizational psychology: Diaper D. (2006) examines the problem of interaction in the system «human-computer», explaining the system in terms of the activity approach;
- Psychotherapy: Holzman, L., Newman F. (2012) examine the relationship in the system of «client-therapist» in the social system of psychotherapy in terms of the ideas of L.S. Vygotsky and A.N. Leontiev;
- Educational Psychology: Mark S., Deming J.C. (2008) revealed differences in cognitive problem-solving process by L.S. Vygotsky's ideas;
- Psychology: Lidstone J., Meins E., Fernyhough C. (2010) examined the child's inner speech through cultural-historical concept;
- Psychology of Management: Jarzabkowski P. (2003) examines the theory of activity in accordance with the processes of relations strategies in the management system etc.

Nowadays, the Activity approach exists in western social psychology studies in clinical psychology, educational psychology, psychology of learning, and others.

Experimental studies was decreased in psychological science in the CIS countries in the XXI century. However, it should be noted, that concepts of L.S. Vygotsky and A.N. Leontiev define as methodological basis of psychological studies, and have many followers.

In Kazakhstani psychological science have been conducting experimental studies within PhD programs in various fields of psychology in collaboration with professors, scientists and psychologists from international universities. It is important to note the fact that, domestic classical psychological concepts are still considered as me-



thodological bases in doctoral dissertations. Comparative analysis of foreign and domestic theories proved explanatory potential of ideas of L.S. Vygotsky, A.R. Luria, A.N. Leontiev in order to interpret current psychological research data.

Gonzalez V. (2006) noted that Activity theory would make a valuable contribution to further development of current psychology<sup>39</sup>.

**Control questions:**

1. Identify the main trends of the activity theory development in the domestic psychological science.
2. Analyze the main provisions of the cultural-historical theory.
3. What causes of different understanding of the activity theory in Russian and foreign psychological science?
4. Vygotsky L.S. Behaviorist and cognitive scientist: determine the causes of such representations of foreign scientists and psychologists.
5. What are the prospects for the development of the activity approach in the CIS under the conditions of gradual integration with the foreign psychological science?
6. Determine the possibility of further development of cultural-historical theory in modern psychological experiment in the field of cognitive science and neuroscience.

**Main literature:**

1. Holzman L. What Kind of Theory is Activity Theory? // *Theory & Psychology*, Sage Publications. – 2006. – Vol. 16(1). – P. 5–11.
2. Cole M. A.R. Luria and Cultural-Historical Approach in Psychology / in A.R. Luria and Contemporary Psychology.- 2005. – P.35-41.
3. Haggbloom S.J., Warnick R., Warnick J.E., Jones V.K., Yarbrough G.L., Russell T.N., Borecky C.M., McGahhey R., Powell J.L., Beavers J., Monte E. The 100 most eminent Psychologists of the 20th Century // *Review of General Psychology*. – 2002. – №6. – P. 139–152.
4. Diaper D. Reactionary reactions to altering activity theory // *Interacting with Computers*. – 2008. – №20. – P. 260–266.
5. Holzman, L., Newman F. Activity and Performance (and their Discourses) in Social Therapeutic Method / T. Strong and A. Lock (Eds.) *Discursive Perspectives in Therapeutic Practice*. London: Oxford University Press. – 2012. – P. 184-195.
6. Mark S., Deming J.C. Concept learning versus problem solving: A cognitive difference // *Brian Source: Journal of Chemical Education*. – 2008. – №85. – P. 873-878.

---

<sup>39</sup> Gonzalez V. The Nature of Managing Multiple Activities in the Workplace. Doctoral dissertation, Information and Computer Science. University of California, Irvine. – 2006. – 200 p.

7. Lidstone J., Meins E., Fernyhough C. The roles of private speech and inner speech in planning during middle childhood: Evidence from a dual task paradigm // *Journal of Experimental Child Psychology*. – 2010. – № 107. – P. 438-451.
8. Jarzabkowski P. Strategic Practices: An Activity Theory Perspective on Continuity and Change // *Journal of Management Studies*. – 2003. – №40:1. – P. 23-55.
9. González V. The Nature of Managing Multiple Activities in the Workplace. Doctoral dissertation, Information and Computer Science. University of California, Irvine. – 2006. – 200 p.

**Additional literature:**

1. Bedny G.Z., Harris S.R. Working sphere/engagement and the concept of Task in activity theory // *Interacting with Computers*. – 2008. – №20. – P.251–255.
2. Spasser M.A. Informing Information Science: The Case for Activity Theory // *Journal of the American society for information science*. – 1999. – №50(12). – P.1136–1138.
3. Vygotsky L.S. *Thought and language* / Cambridge MA: MIT Press. – 1962. – 320 p.
4. Vygotsky, L.S. *Mind in society* / Cambridge, MA: Harvard University Press. – 1978. – 250 p.
5. Leontiev A.N. Activity and consciousness / CC-SA (Creative Commons Attribution – Share Alike 3.0) by Marxists Internet Archive. – 2009. – 196 p.
6. Tolman C.W. The comparative psychology of A.N. Leontyev, U.S.S.R / Tobach (Ed.). *Historical Perspectives and the International Status of Comparative Psychology*, 1987. pp. 203-209. – режим доступа: <https://www.marxists.org/archive/leontev/index.htm>

# 14

---

## **PSYCHOLOGY AND PRACTICE: CURRENT TRENDS IN INTERNATIONAL PSYCHOLOGICAL SCIENCE**

### **14.1. Clinical Psychology: The History and Development Trends in Modern Science**

Nowadays, personality psychology continue improve psychological tools in scientific-theoretical and applied psychology, such as counseling psychology, psychological correction of personality and others. It is well known, that practical psychologist activity is defined by his professional competence and skills, knowledge of methodological foundations of psychology, in particular psychodiagnostics, psychology of personality. In this chapter will be analyzed differences in education system of psychologists-practitioners in foreign psychological science, and in the post-Soviet psychological science. This analysis could help to develop important competences of the modern psychologist, such as knowledge different approaches in applied psychology, standards of psychological assessment, aware about professionally important competencies of expertize.

Currently, clinical psychology and counseling psychology are most common areas in current practical psychology.

Foreign clinical psychology is largely determined by practical needs, such as principles, directions and methods of psychological assistance in order to increase psychological well-being. It is necessary to point out the fact that this branch of psychology is also represented in the Russian psychology, but unfortunately, in the Kazakhstani psychological science is not reflected yet in its classical foreign representation.

Purposes of this subchapter are to conduct a brief review of clinical psychology history, to clarify differences between clinical and health psychology in the post-Soviet psychology, consider the modern world requirements and standards for the training of clinical psychologists. Knowledge of these standards, which not represented in the post-Soviet scientific literature, would help to develop ability to analyze different approaches in modern practical psychology. It seems that the knowledge and understanding of the main provisions of Clinical Psychology will also contribute to the development of psychologists' professional reflection.

Clinical psychology formation related with American psychologist L. Witmer. He was a student of W. Wundt and one of the founders of the American Psychological Association (APA). L. Witmer at first time introduced the term «clinical psychology». However, the history of clinical psychology and its origins related with ideas such scholars of antiquity as Galen, Hippocrates, Plato, Aristotle and others about problems of mental processes in health and disease, their connection with the brain activity. Clinical psychology continued its intensive development in psychology only in the XIX century. Psychiatrists like J.-M. Charcot, Janet P. et al. for the first time pointed out the possibility of using medical forms of treatment with psychological methods such as hypnosis in psychiatric practice. E. Krepilin facilitated this approach. He was another student of W. Wundt, who used experimental psychological approaches in the psychiatry and determined the direction of modern empirical clinical psychology. After J.-M. Charcot, S. Freud developed psychotherapeutic non-medical methods, and contributed to psychological theories' development in order to understand of mental disorders. Thus, he defined descriptive approach in clinical psychology. This approach contributed to the development of many areas in the field of psychotherapy and counselling psychology, such as psychoanalysis, cognitive-behavioral psychotherapy, gestalt therapy, psychodrama, person-centered therapy, etc.

Soviet psychiatrists S.S. Korsakov, I.A. Sikorski, V.M. Behterev, V.H. Kandinsky, psychologists L.S. Vygostky, A.N. Leontiev, A.R. Luria, B.V. Zeigarnik, E.D. Chomsky and others made a significant contribution to develop clinical psychology as a medical psychology in Russia in 1990th of XX century. Clinical psychology

was replaced by term of medical psychology in Russia in order to get compliance with international standards. However, there is a conflict of ideas about role of clinical psychology in professional activity between psychologists and physicians. The problem has no solutions yet. For example, clinical psychologists are preparing in the departments of psychology, at such universities as the Moscow State University named after M.V. Lomonosov, St. Petersburg State University, Ural State University etc., as well as in medical universities in the departments of clinical psychology, for example, the St. Petersburg State Pediatric Medical Academy, State Medical University. In Western science clinical psychology and medical psychology is significantly differ in content. Clinical Psychology is a psychological, practical-oriented discipline. Medical psychology focused on the problems of psychological principles' application in medicine of physical and mental disorders. If medical psychology in foreign science is defined as an discipline integrates somatic and psychotherapeutic methods in the management of mental illness and emotional, cognitive, behavioral and substance abuse, the Clinical Psychology integrates science, theory and practice in order to understand, predict and alleviate maladjustment, disability and discomfort, as well as contribute to adaptation, adaptability, and personal development. Clinical Psychology focuses on the intellectual, emotional, biological, psychological, social and behavioral aspects of human functioning throughout life, in different cultures. At the same time, training of clinical psychologists in foreign universities is carried out at the psychology faculties, whereas medical psychology is an important component in the preparation of physicians. According to the regulations of Medical Psychology Associates (MPA) if individual with medical education wants to get specialization in clinical psychology he can do it by two alternative ways:

1. to obtain a license to practice medicine in the United States;
2. In accordance with the qualification requirements of the APA this person has to finish PhD in clinical psychology, only after receiving master's degree in this specialization or complete a certified clinical psychopharmacology program<sup>40</sup>.

---

<sup>40</sup> Medical Psychology/ Education Information. – режим доступа: [http://education-portal.com/directory/category/Psychology/Psychology\\_and\\_Human\\_Behavior/Medical\\_Psychology.html](http://education-portal.com/directory/category/Psychology/Psychology_and_Human_Behavior/Medical_Psychology.html)

Clinical psychology continue its intensive development in the XIX century. Clinical psychology contributed to the development of various specialized areas, and in particular, the organization of Society of Clinical Psychology, which in cooperation with the APA developed such areas as:

– Clinical Geropsychology is broadly defined as the application of «the knowledge and methods of psychology to understanding and helping older persons and their families to maintain well-being, overcome problems and achieve maximum potential during later life»<sup>41</sup>;

– Clinical Psychology of Women was established for clinical psychologists dedicated to increasing scientific understanding of those aspects of clinical psychology that pertain to women; to promoting the development of models for the delivery of service to women; to increasing the quality of educational and training opportunities for women in clinical psychology; to advocating on behalf of women clinical psychologists with respect to formation of policies of the Division; and to the development of the subspecialty of clinical psychology. The purpose of this list is to facilitate the sharing of information regarding these areas and for discussion of related issues<sup>42</sup>;

– Clinical Psychology of Ethnic Minorities was established to promote research on clinical interventions with American racial and ethnic minority populations; to foster sensitivity to cultural, racial, and ethnic issues in the training of all psychologists; to increase the quality and accessibility of training opportunities for minority clinical psychologists; to enhance the representation of minority psychologists with Division 12 and APA governance; and to provide a forum for the exchange of ideas on socio-cultural issues<sup>43</sup>;

– Section for Clinical Emergencies and Crises has been established to advance the clinical and scientific understanding of psychological/behavioral emergencies and crises, as well as the clinical abilities needed to evaluate and manage them. Emergencies include life-threatening behaviors such as acute suicidality, potential violence, and risk to vulnerable victims of violence. The Section provides a forum for the exchange of clinical information and research

---

<sup>41</sup> <http://www.apa.org/ed/graduate/specialize/gero.aspx>

<sup>42</sup> <http://www.apa.org/about/division/div12.aspx>

<sup>43</sup> <https://www.div12.org/sections/>

findings related to the emergencies noted above, and to the crises from which they so often develop. It has the further purposes of fostering education and training in the evaluation and management of these high risk clinical situations, as well as understanding and assisting with the impact of such difficult and intense work on the clinician him or herself<sup>44</sup>;

– Assessment Psychology was established to emphasize the development, use and interpretation of tests based on psychological theory, knowledge and principles. The ongoing advances in scientifically based assessment systems, computer technology and statistical methodology, the increasingly sophisticated uses of psychological instruments in clinical settings, and the widespread use of psychological tests in making important decisions which effect the lives of many people, has created an exponentially growing body of knowledge and practice which requires the expertise of the assessment specialist. The Assessment Psychologist is familiar with the statistical, methodological, research and ethical issues involved with test development and use, as well as their proper application in specific settings and with specific populations<sup>45</sup>, etc.

Thus, clinical psychology in modern foreign psychology is quite common and popular specializing in master's and doctoral PhD programs at psychological faculties of leading universities, which will be reflected in the Kazakhstani psychological science in the way of its integration with the world of psychology. In this regard, the definition of clinical psychology at the APA become important for Kazakhstani psychological science, which helps set the basic international standards in preparation of modern psychologists with appropriate competencies of the specialization.

## **14.2. Modern Psychological Counseling: Trends and Training Standards**

Counseling psychology is another common branch not only in the foreign psychology, but also in domestic psychological science of the CIS countries.

---

<sup>44</sup> <https://www.div12.org/sections/>

<sup>45</sup> <https://www.div12.org/sections/>

Counseling Psychology is defined as a branch of the science and practice in psychology, aimed to provide psychological care<sup>46</sup>.

The APA defines the following sections in the Counselling Psychology:

– Health Psychology seeks to advance contributions of psychology to the understanding of health and illness through basic and clinical research, education and service activities and encourages the integration of biomedical information about health and illness with current psychological knowledge. The division has a nursing and health group and special interest groups in aging, women, and minority health issues<sup>47</sup>;

– Human-Animal Interaction addresses the role of the human-animal bond in empathy development, the ability to form and express attachments, reaction to grief and loss, the challenges of aging, and other developmental passages throughout the lifespan; the ways in which human interaction with animals promotes health; the role of animal-assisted therapies in prevention and intervention programs in a variety of settings; Violence prevention as it relates to the link between animal abuse and family, juvenile, and community violence; Training programs on topics such as pet grief counseling, assessment and treatment of animal abuse, as well as counseling programs to address the needs of veterinary students, animal shelter volunteers, and animal rescue workers<sup>48</sup>;

– Independent Practice offers tools and learning opportunities to increase professional skill building and practice development across the career span<sup>49</sup>;

– Lesbian, Gay, Bisexual & Transgender Issues mission is to expand understanding of Lesbian, Gay, Bisexual and Transgender populations among Counseling and Psychological professionals, students and all those they impact in their roles as clinicians, teachers, consultants and authors<sup>50</sup>;

– Positive Psychology;

– Supervision & Training, etc.

---

<sup>46</sup> Nelson-Jones, R. Theory and practice of counseling. – SPb .: Peter, 2001. – 464 p.

<sup>47</sup> <http://www.apa.org/about/division/div38.aspx>

<sup>48</sup> <http://www.div17.org/sections/human-animal-interaction/>

<sup>49</sup> <http://www.apa.org/about/division/div42.aspx>

<sup>50</sup> <http://www.div17.org/sections/lesbian-gay-bisexual-transgender-issues/>



The goal of modern counseling psychology is not merely theoretical, but practical training skills of psychological intervention. Current psychologists developed training standards, which determine professionally important competences. These standards were developed by international associations, such as, for example, The British Psychological Society, Australian Psychological Society and many others. The goals of such organizations are:

- Develop accredited courses in order to educate of psychologists
- Professional support further activities of practicing psychologists (supervision, personal therapy of practice psychologist and many others) etc.

Unfortunately, Kazakhstani associations such as the Kazakh Psychological Association and the Association of Psychologists of the Republic of Kazakhstan do not conduct a full-scale compulsory registration all practicing psychologists in the Republic of Kazakhstan. They not fully developed and presented documents that reflect the standards training of psychologists. Nowadays, it is necessary to develop these organizations' activities in accordance with international standards, establish international cooperation with foreign associations. However, it should be noted only private institutions are developing practical principles of counseling psychology in the CIS countries. For example, there are the Moscow Institute of Gestalt and psychodrama, and Moscow Gestalt Institute in Russia.

Thus, counseling psychology develop in accordance with only some of international standards, and are determined by scientific research in the field of practical psychology in domestic psychological science in the XXI century. Development of counseling psychology, particularly its practical part is a fairly long and laborious process, which should involve such supervisory structures as the APA, the BPS and many other associations, depending on representing their country.

**Control questions:**

1. Determine the historical stages of clinical psychology development.
2. What is the role of Clinical Psychology in the development of psychological science in the XXI century?
3. What kind of factors approved clinical psychology as a professional specialization of psychologists in foreign practice?

4. Analyze methods of psychotherapy and counseling psychology.
5. Identify development of practical psychology in Kazakhstan psychology.
6. Analyze the main provisions of counseling psychology in its relation with clinical psychology.

**Main literature:**

1. Berebin M.A. Education in Clinical Psychology in Russia // Medical psychology in Russia: the electron version. – 2014. – № 5 (28). – access mode: <http://mprj.ru>
2. Berebin M.A. Status of clinical psychologist in the health system and training of clinical psychologists // Medical psychology in Russia: the electron. scientific. Zh. – 2012. – № 2. – Access mode: <http://medpsy.ru>.
3. Medical Psychology. – access mode: [http://en.wikipedia.org/wiki/Medical\\_psychology](http://en.wikipedia.org/wiki/Medical_psychology)
4. Clinical Psychology – access mode: [https://ru.wikipedia.org/wiki/Клиническая\\_психология](https://ru.wikipedia.org/wiki/Клиническая_психология)
5. The American Psychological Association, Society of Clinical Psychology (Division12). – режим доступа: <http://www.apa.org/divisions/div12/div12.html>
6. Graduate Programs in Medical Psychology: Program Options – режим доступа: [http://education-portal.com/articles/Graduate\\_Programs\\_in\\_Medical\\_Psychology\\_Program\\_Options.html](http://education-portal.com/articles/Graduate_Programs_in_Medical_Psychology_Program_Options.html)
7. Medical Psychology/ Education Information. – режим доступа: [http://education-portal.com/directory/category/Psychology/Psychology\\_and\\_Human\\_Behavior/Medical\\_Psychology.html](http://education-portal.com/directory/category/Psychology/Psychology_and_Human_Behavior/Medical_Psychology.html)
8. Compare 24 Masters Programs Clinical Psychology. – режим доступа: <http://www.masterstudies.com/Masters-Degree/Psychology/Clinical-Psychology/>
9. Nelson-Jones, R. Theory and practice of counseling. – SPb.: Peter, 2001. – 464 p.

**Additional Literature:**

1. Todd J., Bogart A.K. Basics of clinical and counseling psychology. – SPb.: Eksmo – Press. – 2001. – 768 p.
2. Sandenberg N., Weinberg A., Taplin J.. Clinical Psychology. Theory, practice and research. – SPb. : Prime EVROZNAK. – 2007. – 383 p.
3. Division of Clinical Psychology British Psychological Society. – режим доступа: <http://www.dcp.bps.org.uk>
4. Australian College of Applied Psychology (ACAP). – режим доступа: [http://www.acap.edu.au/Graduate-Diploma-of-Professional\\_Psychology.html](http://www.acap.edu.au/Graduate-Diploma-of-Professional_Psychology.html)
5. Medical Psychology Associates – режим доступа: <http://www.medpsychassociates.com/services/individual.php>

# 15

---

## **PSYCHOLOGY OF THE XXI CENTURY: A LOOK INTO THE FUTURE**

### **15.1. Education of Professional Psychologist in Modern Conditions: The Universal Training or Specialization**

Current trends in psychological science is determined by history of psychology. Psychology development is characterized by its interdisciplinary orientation XXI century:

- Computerized experimental studies using modern psychophysiological instruments;
- Development of high-tech psycho-diagnostic tools;
- Statistical packages of data processing;
- Develop educational programs in order to training specialists-psychologists;
- Annual international conferences;
- Publication of scientific results in the world of highly indexed journals in order to share with latest results of psychological research;
- Providing access to any professional information through on-line communications and others.

All these areas of modern dynamic development psychology implemented for the purpose of identifying and understanding the complex nature of the mind, consciousness and behavior in relation with higher nervous activity functions. It is known that this problem involved scientists from the time of antiquity, and nowadays it involved professionals from different areas of human knowledge, such as philosophy, medicine, biology, physics, and others. In this regard,

modern psychology include complicated theoretical and applied knowledge, which effects on certain difficulties of preparation professionals who oriented in all branches of psychology. In fact, effective classical system of training psychologists in the XX century is impossible apply to current psychological education due to multiple theoretical approaches developed as a result of constantly conducted experimental studies in psychological science of XXI century. Modern foreign universities annually reprinted textbooks. In some branches of psychology, even three-year-old textbooks are excluded from the learning process, because they does not reflect current scientific information in the field of psychological science.

The current dynamics of XXI century psychology contributes to development of human knowledge about brain and mind. In this regard, Kazakhstani education system increased requirements in the specialization of psychologists in particular branches of psychology.

Let is describe how this trend in education system is developed at the Department of Psychology of al-Farabi Kazakh National University.

The main objective of the educational policy of the University is to provide high quality of education; it is based on the development strategy of al-Farabi Kazakh National University in the 2012-2020 years and in the light of the Strategy for the Development of the Republic of Kazakhstan in 2050 «New political course of established state». Department of General and Applied Psychology continues to work to improve the psychological training program in accordance with international standards, focusing on the university's strategy to become one of the world's leading research universities for the preparation of competitive specialists for the innovation economy by 2020. In this regard, the Department of General and Applied Psychology has made every effort in recent years in the formation of such a training program for professionals in the specialty «Psychology», which reflects the global standards of education in the field of psychology. And today this work allowed passing international accreditation ACQUIN.

The result of the achievements of the department due to the fact that the new experimental graduate courses on the basis of correlation with programs promising European and Western universities have been developed. Developed programs characterized of Integra-

tive knowledge and the applied orientation. Tutorials, monographs, methodological manuals have been developed on the basis of these programs

Significant changes in the research activity of the department teachers took place from 2012 to 2016. The department actualized research work together with the undergraduates. Master's thesis were aimed at solving urgent problems of the region and discussed with employers at department meetings. Employers acquainted with psychological problems in organizations that are formulated as a research problem.

On the basis of research of the department published joint articles with undergraduates, training modules developed.

Promote educational and research activities was provided in the course of undergraduates' internships. Undergraduates of the department have been trained in a variety of advanced universities in Germany, Korea, Russia and other countries, which allowed acquire the achievements of psychology of these countries, to master new technology research, writing projects and the specifics of psychological diagnosis and counseling.

Internship's passages had a significant importance for professional self-consciousness of undergraduates and stimulate their creativity. Undergraduates took an active part in international scientific conferences and symposia; they publish research results in international scientific journals.

Also, analysis of the labor market and professional practice allowed us to determine that today the most popular are specialists in the field of organizational and clinical psychology. These requirements of contemporary professional practice and the labor market are reflected and integrated in the educational program. Employers' wishes are also taken into account in developing this educational program (Caspian Bank, Halyk Bank, Mental Health Center of Almaty, Republican Scientific and Practical Center of Psychiatry, Psychotherapy and Addiction, and others).

In the development of educational programs the Department of General and Applied Psychology continuously carries out work matching the requirements of employers to the training of future staff within individual educational trajectories. For example, disciplines «Psychology of family and marriage» and «Family therapy» were

included in the educational program based on the recommendation of the employer J.A. Smirnova, she is director of the center «My Family», Ph.D., Associate Professor. The separate individual educational trajectory of Magistracy «Counseling Psychology» was developed at the request of the employer – Republican Centre for Psychiatry and Psychotherapy and Addiction.

In general, it should be noted that the structure of the master's educational program on a specialty «Psychology» corresponds to the general university requirements and regulations, which is the legal basis of the specialty. The structure of the educational undergraduate programs in psychology consists of 2 major compulsory professional modules and 3 individual educational trajectories. Each individual educational trajectory consists of 4 modules. The master student independently creates individual educational trajectory based on the Core Curriculum in the specialty and the Catalogue of Disciplines (modules). Master student also chooses the required number of compulsory and elective disciplines (modules), which are reflected in the individual educational plan (IEP). After that, the working curriculum of the specialty for the academic year is formed in accordance with the basic specialty curriculum and individual curricula of master students.

The structure of the educational program of magistracy meets the logic of any science: from the general to the particular, from fundamental research to applied aspects. As the two compulsory modules offered to study and deepen knowledge on: 1) the methodology of psychology and measurement, as well as 2) the techniques of experimental modeling and data analysis. Individual educational trajectories aimed at deepening the knowledge and specialization in one of the areas of psychology:

- 1) Organizational Psychology;
- 2) Counseling Psychology;
- 3) Clinical Psychology.

Domains of individual trajectories are relevant for Kazakhstan and meet the demands of life, practice.

For example, Personality and Organizational Psychology Track develops:

- ability to analyze Personality and Organizational Behavior, main stages of Personnel Selection;

- ability to estimate Performance Measurement and Rewards;
- ability to conduct psychological research of organizational processes, work Motivation and Attitudes, Leadership features;
- ability to follow the principles of Group Dynamics in organizations;

Counselling Psychology Track develops:

- ability to apply theoretical basis of psychological intervention in different social, cultural issues;
- ability to design counselling program relate with goal of intervention;
- ability to cover important and interesting topics in Counselling Psychology;
- ability to produce documentary products in Counselling Psychology;
- ability to use Individual and Group Psychotherapy methods.

Clinical Psychology Track develops:

- ability to deal with ethic problems in psychotherapy;
- ability to create own therapeutic strategies in work with people;
- ability to analyze methodological issues relate with psychotherapy;
- ability to distinguish psychological decoders cording DSM-5.

Preparation of highly qualified psychologists-professionals /with knowledge and competencies demanded in the field of education and personal development, production and health/ aimed at meeting the needs of the Kazakhstan society in professionals-psychologists. The main task today of the Department of General and Applied Psychology is training of highly skilled specialists in the conditions of the educational policy of the University.

Thus, specialization and training of psychologists was determined by modern tendencies of development of psychological science. Modern scientist should know all the scientific developments in the individual specializations, identify current problems and trends for further research in their field of expertise, be aware about interdisciplinary connections, develop important scientific collaborations etc. Therefore, modern psychologist who specializes in one area of psychology has to be aware about recent scientific data, historically important representatives, leading scientists and experts.

This condition objectively defines impossibility of knowledge all branches of psychology by psychologist. Such kind of foreign psychologist's specialization criticized by psychologists from the CIS countries. However, our education system have been developing such kind approach because huge scientific data start influence on our limited understanding of other branches of psychological science.

It is necessary to describe current trends in modern Russian Psychology in order to get whole idea about tendency of development of current psychology.

There are tendencies and exact steps, which make current Russian psychology:

- Increase of the role of psychological science in social governance;
- Development of standards and ethical principles of professional activities for practicing psychologists;
- Certification of practicing psychologists, creation of an All-Russian Register of Certified Psychologists;
- Analysis of achievements and development tendencies of Russian psychology.
- Such analysis allows to determine the mission of the Russian Psychological Society as the task of increasing the role and status of the psychological science and practice in the process of the modern Russian society governance;
- Development of uniform standards for professional activities of psychologists, including consulting psychologists, developmental psychologists, family psychologists, sports psychologists etc., and making of corresponding job descriptions for the purpose of adding them to the Unified Skills Guide for Positions of Managers, Specialists and Nonmanual workers;
- Development of the specialists-psychologists facultative certification project, including a unified form of certificate confirming the right to perform professional activities; creation of the Unified Register of Certified Psychologists;
- Creation of a work group for the purpose of studying the issues connected with protection of intellectual rights in psychology, opportunities in the sphere of audit of methodological materials, diagnostic and corrective tools;
- Psychological security of children and youth.



Actual problems of theoretical psychology and psychological practice are:

- Methodology and history of psychology;
- The cultural activities paradigm of constructivism;
- Modern programs, methods and techniques in research and applied psychology;
- Psychological practice;
- Psychodiagnostics;
- Consulting psychology and non-clinical psychotherapy.

Modern researches in different spheres of Russian and Kazakhstani psychology:

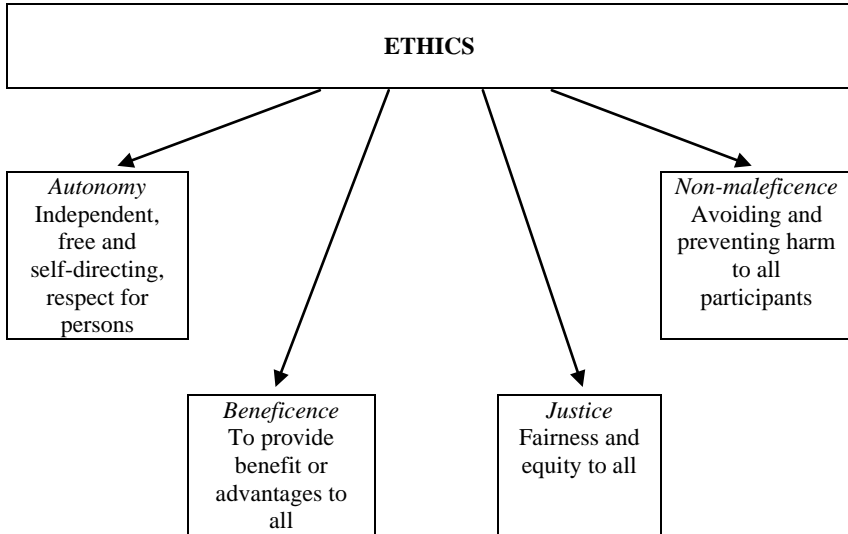
- Psychology and psychosemantics of consciousness;
- Psychology of speech;
- Developmental psychology and acmeology;
- Psychophysiology;
- Psychogenetic;
- Cognitive psychology;
- Zoopsychology and comparative psychology;
- Psychology of security and military psychology;
- Psychology of extreme activities;
- Judicial psychology and psychology of law enforcement activities;
- Sports psychology;
- Health psychology and clinical psychology;
- Ethical psychology and moral psychology.

## **15.2. Modern Ethical Standards in Psychology**

Psychology classically associated with ethics standards. Scientists develop psychological techniques in order to improve the quality of human activities, but usually face with some negative aspects of such tools. In this regard, leading psychological organizations and associations developed ethical standards such as:

- Ethical Principles of Psychologists and Code of Conduct (American Psychological Association);
- Code of Ethics and Conduct Guidance (British Psychological Society);

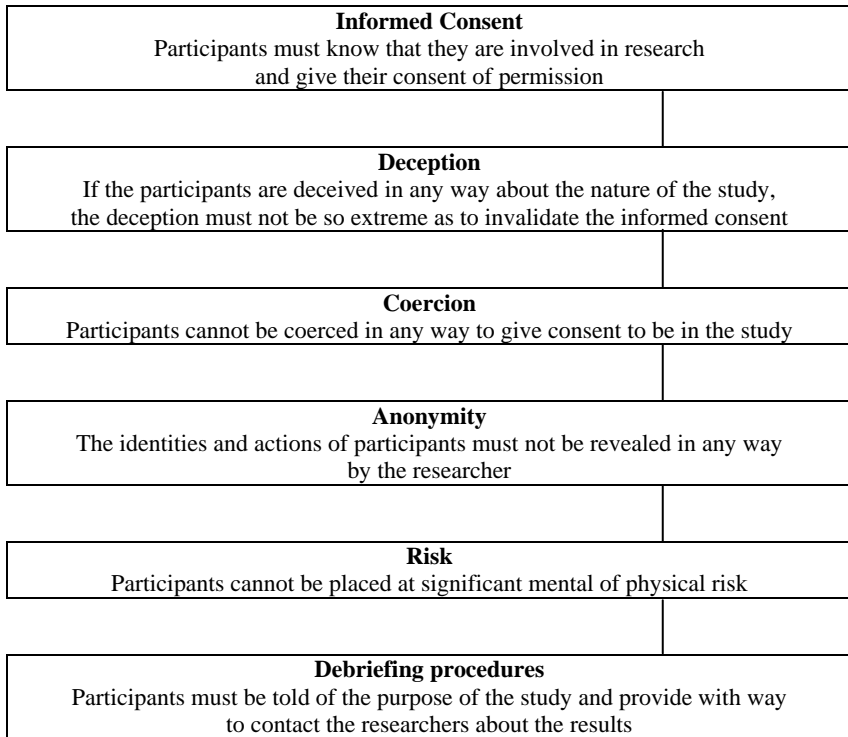
- Canadian Code of Ethics for Psychologists, etc.
  - Neuroethics;
  - Ethics and Cognitive Science;
  - Ethical issues in psychological experiment;
  - Australian Clinical Psychology Association Code of Ethics, etc.
- Basic principles of ethics are well known.



Currently, for practicing psychologists it is necessary to get license in order to work in the field of psychotherapy. In this case, scientists developed special codes of ethics for different areas, for example:

- American Association of Marriage and Family Therapy (AAMFT) Code of Ethics;
- American Counselling Association (ACA) Code of Ethics;
- United States Association for Body Psychotherapy (USABP) Code of Ethics;
- Canadian Counselling and Psychotherapy Association (CCPA) Code of Ethics;
- European Association for Gestalt Therapy: Code of Ethics and other.

Let us show an example of APA guidelines for human research<sup>51</sup>:



Worldwide ethical codes of psychologists' activities are an important guide for ethics committees whose primary function is to conduct a peer review of the planned experimental or non-experimental research in all branches of psychological science and practice. Without permission from such committees, it is impossible to conduct research, get psychological data, and develop practical applications.

There are so-called ethical dilemmas, which develop groups of experts from different branches of science in order to submit their expert solution for the problem.

---

<sup>51</sup> <https://www.slideshare.net/MrTimBradley/unit-1-history-and-methods-powerpoint>

Thus, intensive development of psychological science in the XXI century create different codes for new directions and specialized branches of psychology.

### **15.3. Horizons of Psychological Science Development in the XXI Century**

In the XXI century, psychological science becomes useful knowledge for society with its historical background knowledge, interdisciplinary research in the field of science and practice. Psychology creates scientific problems relate with «brain and mind» system. In this context, English language is becoming scientific one in order to communicate with other specialists-psychologists. Regarding this Kazakhstani psychologists take into account this particularly highly demands on the professional competence.

Main historical milestones in the development of psychological ideas relate with:

- Problems with which psychology face with during scientific formation;
- Effect of technological progress on computer metaphor development which give possibility to explain the cognitive processes;
- Development of applied principles of psychology in XXI century.

Current experimental studies allowed creating «smart» bio-robots in order to understand neural processes of biological brain. Regarding this modern psychological science become closer to the scientific solution of classical problems of interrelation of biological brain with the psyche, consciousness and behavior. Perhaps in the near future due to the development of various scientific technologies in the experimental psychological studies humanity will be able to determine the laws and regularities in the brain system and mind. Physicist, an expert in the field of biology, neuroscience, and cognitive science Kaku M. (2014) considered that in the near future we would be able to connect biological brain with computer. «Brain network» model would allow us to share with thoughts and emotions around the world, to record the memories and dreams, create «smart

pills» in order to improve cognitive functions, disclosed the secrets of artificial intelligence, the nature of mental illness, telekinesis, telepathy<sup>52</sup>.

Regarding this psychology as science will continue it's complex development, in order to identify new frontiers of interdisciplinary research in the area of the brain, mind, consciousness and behavior.

**Control questions:**

1. What are the characteristics of ethical standards in psychological science?
2. Identify the advantages and disadvantages of specialization in psychological science.
3. Analyze difference between professional competence of a research psychologist and the psychologist-expert in the XXI century.
4. Describe the trends of Kazakhstani psychological science development.
5. What are the prospects for the development of psychological science in the XXI century?
6. Is it possible that psychological science will become an interdisciplinary branch of scientific knowledge in the future?

**Main literature:**

1. Kaku M. The Future of the Mind: The Scientific Quest to Understand, Enhance, and Empower the Mind. Published by Doubleday. – 2014. – 400 p.
2. Aleksandrov A.D. The main tasks of the psychology of the XXI century. – SPb.: Peter, 2003. – 53 p.
3. Zelichenko A.I. Psychology in Russia: state and prospects. – M., 2002. – 212 p.

**Additional literature:**

1. Modern Russian psychology. / Lyubutin KN GRIBAKIN AV – Ekaterinburg: World of Knowledge. – 2004. – 113 p.
2. Barrett L.B. The Future of Psychology: Connecting Mind to Brain // Perspectives on Psychological Science. – 2009. – №4. – P. 326-339.

---

<sup>52</sup> Kaku M. The Future of the Mind: The Scientific Quest to Understand, Enhance, and Empower the Mind. Published by Doubleday. – 2014. – 400 p.

## CONCLUSION

Problems of psychology formation as a science, its core areas development, as well as current conditions of the psychological experiment, psycho-diagnostics and correction of personality do not exhaust the breadth and diversity of the modern world psychological science. Psychological science within the modern theoretical and practical problems continue to influence on its core areas development. In this case, it is necessary to carry out a comparative analysis of current trends in psychological science.

Main branches of psychology, certain problems which modern psychological science face with, as well as to present all trends in foreign psychology are impossible to describe in in this scientific work. In this regard, the value of the textbook will depend on the professional interests of the reader. For example, the textbook will be a guide for lecturers because there was reflected such areas of psychology as experimental psychology, history of psychology, personality psychology, psychodiagnostics, statistical methods in psychology, mathematical modeling in psychology and other. For students this textbook is not only organize knowledge, but may help to define personal priorities and interests in professional specialization in order to ensure a successful career in future. For professional psychologists textbook contains information relate with modern trends of applied psychology, basic ethical standards in the field of clinical and organizational psychology, and others. There are no textbook in Kazakhstan, which describe current psychological research directions in the western theoretical and applied psychology, especially in its American and European representation. Due to this Kazakhstani psychological science face with difficulties in integration processes with current foreign psychology. Regarding this in this textbook not only analyzed foreign and domestic psychological science, but also discussed similarities and differences in scientific approaches, experimental studies in order to understand the subject of psychology.

Thus, the textbook «Current trends in Psychology» continue to development the scientific heritage of professor S.M. Jakupov. In additional, this textbook may contribute to further development of psychologist's general fund of semantic entities and may give a definite impetus in the implementation of their professional interests and development of professionally important skills.

Educational issue

Kamzanova Altyngul Tustikbayevna

**CURRENT TRENDS  
IN PSYCHOLOGY**

*Educational manual*

Typesetting and  
cover design *G. Kaliyeva*

**IB №11262**

Signed for publishing 28.09.2017. Format 60x84 <sup>1</sup>/<sub>16</sub>. Offset paper.  
Digital printing. Volume 7,5 printer's sheet. 80 copies. Order №4589.

Publishing house «Qazaq university»  
Al-Farabi Kazakh National University  
KazNU, 71 Al-Farabi, 050040, Almaty

Printed in the printing office of the «Kazakh University» publishing house.