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**DESIGN
OF THEORETICAL AND EMPIRICAL
PSYCHOLOGICAL RESEARCH**

Course of lectures

*Vitebsk
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Compiled by: Associate Professor of Psychology Department of the VSU named after P.M. Masherov, PhD in Psychology **S.L. Bogomaz**; Lecturer of Psychology Department of the VSU named after P.M. Masherov **M.M. Morozhanova**

R e v i e w e r s :

Head of the Department of Psychology and Pedagogy of the Vitebsk State Order of Peoples' Friendship Medical University, PhD in Medical Sciences, Assistant Professor *A.L. Tserkovsky*;
Head of the Department of Social Pedagogical Work of the VSU named after P.M. Masherov, PhD in Pedagogy, Assistant Professor *E.L. Mihailova*

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The course of lectures “Design of theoretical and empirical psychological research” consists of lectures, questions and tasks for independent work and control on each topic. In a generalized form, the theoretical provisions of the development of the design of psychological research are presented. The course of lectures “Design of theoretical and empirical psychological research” is addressed to undergraduates of specialty 1-23 80 03 “Psychology”.

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CONTENTS

INTRODUCTION	4
MODULE 1. Theoretical and methodological foundations of the design of psychological research	5
Lecture 1. Introduction to the subject. Specifics of psychological scientific knowledge	5
Lecture 2. Types of scientific psychological research	10
Lecture 3. Planning of scientific psychological research	16
Lecture 4. Work with scientific psychological information	21
Lecture 5. The procedural part of the research program	26
Lecture 6. Theoretical scientific psychological research	30
MODULE 2. The essence of empirical research design	35
Lecture 7. Empirical scientific psychological research	35
Lecture 8. Ethical issues of psychological research	40
Lecture 9. Presentation of the results of scientific psychological research: requirements for the content and design of dissertations (thesis)	44
Lecture 10. Citation rules for scientific papers	48
BASIC AND ADDITIONAL LITERATURE	51

INTRODUCTION

The purpose of teaching the discipline is to form students' scientific views, knowledge in the field of methodology and methods of theoretical and empirical psychological research.

Tasks of the study of the discipline:

- to know and understand the conceptual and categorical apparatus of scientific research in psychology;
- to learn the essence and stages of research in psychology;
- master the basic methods of psychological research.

Mastering the discipline "Design of theoretical and empirical psychological research" should ensure the formation of the following universal competencies:

UC-3. Have the skills to develop the design of scientific psychological research.

As a result of mastering the discipline, the student must:

know:

- the content and structure of research activities;
- the main methods and specific features of scientific psychological research;
- basic methods of theoretical and empirical cognition;
- principles and basic techniques of formal and meaningful planning of scientific psychological research;
- ethical standards of research activity in psychology;
- requirements for the design of scientific papers;

be able to:

- identify the problem field and the subject of scientific research in psychology;
- formulate the object and subject of psychological research;
- set goals and objectives of the study;
- develop methodological foundations of the study;
- plan and organize scientific and applied research;
- apply methods of psychological research and formalize the results in writing.

own:

- formal and meaningful planning skills for theoretical and empirical research;
- the skills of writing scientific reports and preparing scientific reports on the results of the study.

This course contributes to the formation of systematic professional thinking of a psychologist, introduces him to the latest trends in the field of scientific research methods, underlies the practices and implementation of research work, is necessary for the development of special disciplines.

MODULE 1. THEORETICAL AND METHODOLOGICAL FOUNDATIONS OF THE DESIGN OF PSYCHOLOGICAL RESEARCH

Lecture 1. Introduction to the subject. Specifics of psychological scientific knowledge

Lecture plan

1. The history of the professional application of psychological knowledge.
2. The specifics of psychological knowledge. Psychology and human life experience.
3. Psychology in the system of technical, natural, social and humanities sciences.

Basic concepts: science, psychology, knowledge, scientific research

1. Science is a general way of understanding the natural world. Its three fundamental features are systematic empiricism, empirical questions, and public knowledge.

Psychology is a science because it takes the scientific approach to understanding human behavior. Psychology is a relatively young science with its experimental roots in the 19th century, compared, for example, to human physiology, which dates much earlier.

Psychological knowledge – a person's knowledge of himself as a carrier of special psychological properties and characteristics, a subject of mental activity. Knowledge about the psyche, following the developing life of a person and reflecting all the new and more complex aspects of his interaction with the world, is included in this interaction itself as an important factor in its regulation, providing not only adaptive, adaptive, but also transforming effective, active forms of behavior.

In the process of development of psychological knowledge can distinguish the levels:

1) Everyday psychology. This kind of psychological knowledge has been accumulated and used by people in everyday life in the course of historical development. Knowledge about people is usually specific and formed for each person individually. Their validity verified through personal experience, and they are used when interacting with other people. They begin with an attempt to explain some other human action by the peculiarities of his inner world. To do this, we compare his actions and draw conclusions about the typical properties of his soul. This knowledge allows us to characterize it. Thus, everyday psychology moves from observing and trying to explain a specific action to a general understanding of a person.

2) Art. The greatest source of psychological knowledge is works of art. Writers and poets try to reflect typical features of people's inner world (psychology) in their stories, images, and actions. At the same time, creative individuals use their observations, reflections, and the wisdom of everyday psychology. And here it is important not only that "what" is depicted, but also that "how" it is done. In music, the inner world of a person is reflected in sounds. Images of various kinds and types created in works of art allow a person to better understand their inner world and the souls of other people.

3) Scientific psychology. For many centuries, scientific and psychological knowledge has developed within the framework of philosophy, medicine, pedagogy and other Sciences. In the second half of the XIX century, psychology became an independent science and during the XX century accumulated a huge amount of knowledge. Scientific psychology aimed at finding patterns of mental phenomena, uses scientific methods that characterized by objectivity and provide greater reliability of the knowledge obtained. Features of scientific and psychological knowledge- their generality, systematic, evidence, reliance on scientific facts and concepts. At the same time, this knowledge is presented in a specific language of scientific psychology, understandable only to professional psychologists. There is also a special area of scientific psychology – applied psychology, which studies the ways of applying (applying) scientific and psychological knowledge to solve practical problems.

4) Practical psychology. Its tasks include finding ways and developing methods of psychological assistance to people. Practical psychology does not study the General laws of mental phenomena, but rather the individual, specific circumstances of a person's life and ways of interacting with him. The criterion for the reliability of knowledge considered the practical experience and efficiency of the specialist. The practical psychologist in his work always relies on a concept and applies it to the specific situation.

5) Parapsychology. The fifth source of psychological knowledge called parapsychology, which belongs to the type of esoteric knowledge: extrasensory cognition, clairvoyance, telepathy, palmistry, yoga methods, and astrology. The totality of esoteric knowledge concerning the world of psychic phenomena often called parapsychology. The mystery of the methods of obtaining them, the lack of explanations based on traditional scientific principles are characteristic of such knowledge. Ways to prove the truth of such knowledge are specific and not systematic enough.

2. The problem of the subject of psychology

The peculiarity of psychological knowledge is its poly-subject (multiplicity). The formation of psychological knowledge constantly accompanied by a confrontation of views on the relationship of matter and consciousness, soul and body. In accordance with this criterion, the dynamics of the formation of psychological knowledge can be divided into 2 periods:

1. Psychology in the framework of related scientific disciplines (IV century BC – mid-XIX century);
2. Formation of psychology as an independent discipline (mid-XIX – XXI centuries).

The Goals of Research in Psychology:

Scientific research in psychology has four related goals. Researchers hope to develop complete descriptions of behaviors, to make predictions about future behavior, and to provide reasonable explanations of behavior. Furthermore, they assume the knowledge derived from their research will be applied to benefit people, either directly or eventually.

Basic versus Applied Research

Scientific research is often classified as being either basic or applied. **Basic research** in psychology is conducted primarily for the sake of achieving a more detailed and accurate understanding of human behavior, without necessarily trying to address any particular practical problem. **Applied research** is conducted primarily to address some practical problem. Research on the effects of cell phone use on driving, for example, was prompted by safety concerns and has led to the enactment of laws to limit this practice. Although the distinction between basic and applied research is convenient, it is not always clear-cut. For example, basic research on sex differences in talkativeness could eventually have an effect on how marriage therapy is practiced, and applied research on the effect of cell phone use on driving could produce new insights into basic processes of perception, attention, and action.

The problem of the scientific method

The scientific method is a process of systematically collecting and evaluating evidence to test ideas and answer questions. While scientists may use intuition, authority, rationalism, and empiricism to generate new ideas they don't stop there. Scientists go a step further by using systematic empiricism to make careful observations under various controlled conditions in order to test their ideas and they use rationalism to arrive at valid conclusions. One major problem is that it is not always feasible to use the scientific method; this method can require considerable time and resources. Another problem with the scientific method is that it cannot be used to answer all questions. For example, B. G. Ananyev identifies the following groups of methods:

Group I – organizational methods

Comparative method. The comparative method consists in comparing different objects or different sides of one object of study at some point in time (comparison of different groups by age, activity, etc.);

Longitudinal method (multiple surveys of the same individuals over a long period of time). Such long-term monitoring of an object allows you to identify the dynamics of its existence and predict its further development;

A complex method (representatives of different Sciences participate in the study; however, as a rule, one object is studied by different means. Research of this kind allows us to establish connections and relationships between different types of phenomena, for example, between the physiological, psychological and social development of the individual).

Group II – empirical methods

Observation and self-observation. Observation, as an intentional, systematic, purposeful perception of certain features of behavior, has a variety of types and forms and can be implemented within the framework of quantitative and qualitative approaches. Observation can be carried out at the stage of a pilot study, as it allows you to find out some features of behavior, situation or personality, depending on what needs to be measured. The study can be completed by observation, since it allows you to clarify the information already available. In addition, the observation results can be used as external criteria against which the validity of the methods is evaluated. In this sense, the observation method has practically no limitations.

Experimental methods. Its application is not easy, since it requires the researcher to comply with all the requirements for conducting an experiment, and this is the choice of independent variables, the determination of the values of independent variables, the choice of a method for measuring the responses and reactions of the subject, monitoring the progress of the experiment, eliminating interference, choosing a method for mathematical processing of results, etc. It also implies systematic control over all factors that differ from the manipulated variables, but may affect the phenomenon under study. The advantages of the experimental method consist primarily in the researcher's ability to manipulate one or more variables, which allows for a fairly clear interpretation of the results.

Psychodiagnostic methods (tests, questionnaires, sociometry, interviews, conversation). The advantages of the tests include objectivity, reliability of the results, great diagnostic and prognostic capabilities. Disadvantages and limitations – test anxiety, high motivation to achieve success, the well-being of the subjects and the organization of the study itself have an impact on the test results. The advantages of questionnaires are the ability to collect a large amount of information in a short time, the ability to create computer versions and processing methods. Disadvantages and limitations are mainly associated with distortions in the development and adaptation of questionnaires, as well as with errors that the subject makes (may be intellectual, cultural, motivational, age-related). In addition, the questionnaires have a low predictive potential, as they characterize current relationships and problems.

The *analysis of the products of activity* (for example text and drawing) is a method of studying personality, which allows to indirectly study its psychological characteristics based on the practical results (products) of activity. Its essence consists in the reconstruction of personality traits based on the final

and intermediate results of activity. The specificity of this method lies in the fact that the researcher may not come into direct contact with a person, but only deal with the products of his previous activity.

Group III – data processing methods

Quantitative (statistical). Quantitative methods include methods for which the main procedures are measurement, categorization and coding.

Qualitative methods are characterized by the presentation of information in the form of descriptions and values. These include questionnaires made up of open-ended questions, non-standardized interviews, included and unsystematic observation, archival and biographical methods, and discourse analysis.

Group IV – interpretation methods

- genetic (analysis of the material in terms of development with the allocation of individual phases, stages, critical moments, etc.);
- structural (establishes structural links between all personality characteristics) methods.

3. Academician B. M. Kedrov placed psychology at the center of the "triangle of Sciences" (Figure 1).

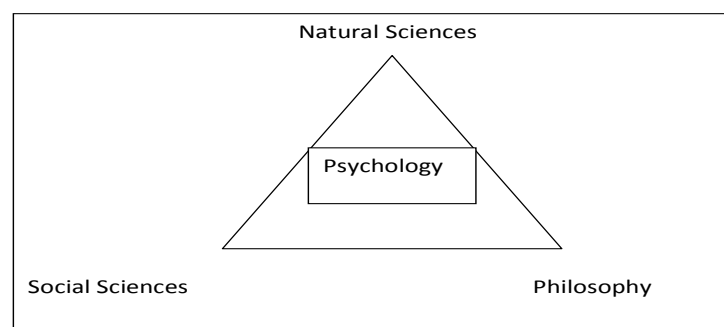


Fig. 1 – Triangle of sciences

The apex of this triangle constitutes the natural Sciences, the lower left corner – social science, bottom right – philosophy (logic and epistemology). Between the natural Sciences (natural and philosophical Sciences) is mathematics, between the natural and social Sciences are technical Sciences. Psychology is Central to all three groups of Sciences. It acts both as a product of all other Sciences, and as a possible source of explanation of their formation and development.

Thus, psychology is a science in which social-humanitarian and natural-scientific knowledge are correlated, which determines its role as a Foundation in the system of Sciences. Psychology integrates data from these branches of scientific knowledge and, in turn, influences them, becoming a General model of human knowledge. The historical mission of psychology in modern times is to be an integrator of all spheres of human knowledge and the main means of

building its General theory. Psychology fulfills the mission of combining the natural and social Sciences in the study of man into a single concept.

Questions and tasks for independent work

1. What is the essence of the history of professional application of psychological knowledge?
2. Reveal the specifics of psychological knowledge.
3. Determine the relationship between psychology and the life experience of a person.
4. What are the fundamental differences between scientific and everyday psychological knowledge?
5. What is the difference between basic and applied research? Which of them is given priority in science? Why?

Task:

Prepare materials for the presentation at the scientific and practical conference on the problem "The specifics of psychological scientific knowledge".

Lecture 2. Types of scientific psychological research

Lecture plan

1. Stages and structure of scientific research.
2. Methodology of research.
3. Paradigms, theories, and researcher's approach.
4. Inductive and deductive approaches.
5. Empirical research.

Basic concepts: methodology, method, approach, theory, paradigm, empirical research

Classification of methods of psychological research can be carried out on various grounds, reflecting its type, stage, nature of the interaction of the object and the subject of cognition, methodology.

1. Research is a complex, purposeful, analytical-synthetic, intellectual cognitive activity that originates from practice and returns to it, the characteristic feature of which is the systematic study of objects of real reality by precisely established methods and means.

Research in psychology is the systematic, controlled, empirical study of hypotheses about the supposed relationships between psychological-behavioral and organizational phenomena.

Research objectives in psychology:

1. Definition, identification of new relationships, data, which, although they cannot be considered as final results, but allow us to answer a number of unresolved questions. In the field of organizational psychology, as in other related disciplines, it is impossible to assume that the conclusions drawn from the study will be final.
2. Verification and confirmation of certain facts or theoretical propositions. Data verification is a prerequisite for the reliability and scientific validity of research results.

2. Methodology, approaches and principles of research

There are three paradigmatic determinants:

- *ontology* – the reality studied;
- *the epistemology* – the knowledge of the reality,
- and lastly, the *methodology* or strategy used to seek the truth.

Research involves understanding the relationship between theory, philosophy (ontology and epistemology), methodology and methods.

The success of the research, the objectivity of obtaining knowledge is primarily due to the choice of the research methodology. **Methodology** is a system of principles and methods of organizing and constructing theoretical and practical activities.

There are four levels of methodology.

The highest level is the philosophical methodology, which consists of the general principles of knowledge and the categorical structure of science as a whole. Methodological functions are performed by the entire system of philosophical knowledge.

General scientific methodology is the second level, representing general scientific concepts that affect many scientific disciplines, for example, system, synergetic and other approaches.

The third level is a *specific scientific methodology*, i.e. a set of approaches, principles, and procedures applied in a particular scientific discipline. The methodology of a special discipline includes both problems specific to scientific knowledge in this field, and issues raised at higher levels of methodology, for example, a systematic approach; modeling in psychological and pedagogical research.

The fourth level of the methodology is represented by the *research methodology and technique*. This is a set of procedures that ensure the receipt of reliable empirical material and its processing, after which it can be included in the array of knowledge, which is highly specialized methodological knowledge.

All levels are interconnected and form a complex system, while the philosophical level acts as the basis, the basis of all methodological knowledge.

3. Paradigms, theories, and researcher's approach

Theory – a systematic set of interrelated statements intended to explain some aspect of social life.

A **paradigm** is a way of seeing the world (or an “analytical lens” similar to a set of glasses) and a structure by which human experience can be understood (Kuhn, 1962). In social science, there are several predominant paradigms, each with its own unique ontological and epistemological perspective. Recall that ontology is the study of what is real, and epistemology is the study of how we come to know what is real.

Positivism is a widespread trend in philosophy, founded in the 1930s by the French philosopher Auguste Comte (1798-1857).

Positivism is guided by the principles of objectivity, “knowability,” and deductive logic. The positivist framework pirates from the assumption that society can and should be studied empirically and scientifically. Positivism also calls for a value-free science, one in which researchers aim to abandon their bases and values in a quest for objective, empirical, and knowable truth.

From a positivist perspective, credible research is determined by:

- objectivity, observable phenomenon that excludes subjectivity;
- reliability, that data is repeatedly the same;
- validity, that data is equivalent when repeated;
- generalisability, that findings are applicable to the greater population, and lastly;
- reproducibility, that results will be the same in similar studies with similar contexts.

Social constructionism.

Social constructionists share four beliefs and practices in common (Burr, 2015):

1. A critical stance toward knowledge that is normally taken-for-granted: social constructionists believe that conventional knowledge is not necessarily based upon objective, unbiased observations of the world. Humans, according to Social Constructionism, put more emphasis on certain categories than others, even if these categories do not necessarily reflect real divisions.

2. Knowledge exists in a historical and cultural context: all ways of understanding are historically and culturally relative. What is thought of as natural, and the categories and concepts we use, are an effect of history and culture.

3. Knowledge is sustained by social processes: knowledge is constructed through interactions between people and the world. Thus, an individual’s perception of “truth” is a product of social processes and the interactions that an individual is engaging in rather than objective observation.

4. Knowledge and social action go together: each understanding of the world has a variety of “social constructions,” that come with it.

While positivists seek «the truth» the social constructionist framework posits that «truth» is a varying, socially constructed, and ever-changing notion. This is because we, according to this paradigm, create reality ourselves (as opposed to it simply existing and us working to discover it) through our interactions and our interpretations of those interactions. Key to the social constructionist perspective is the idea that social context and interaction frame our realities. Researchers

operating within this framework take keen interest in how people come to socially agree, or disagree, about what is real and true.

Post-positivism is also known as methodological pluralism. According to Krauss (2005), the paradigm the researcher selects determines the research methodology.

The post-positivist paradigm evolved from the positivist paradigm. It is concerned with the subjectivity of reality and moves away from the purely objective stance adopted by the logical positivists. Postmodernism – a paradigm focused on the historical and contextual embeddedness of scientific knowledge; characterized by skepticism towards certainty and grand explanations in social science.

The main features of postpositivism, as opposed to positivism

- The neutrality concept of the post-positivists recognises subjectivities and attempts to avoid biases.
- Subjectivity is encouraged through transparency by disclosing subjective positioning during conclusions.
- Reliability is not rejected; however, the methods should be systematic, well-documented and designed to include subjectivities to establish dependability.
- Post-positivists accept multiple truths and acknowledge that phenomena are true according to experiences, which is the foundation of authenticity.

• In contrast to the logical positivist movement, where the scientist is independent and detached from the research, post-positivists believe there is a mutual influence.

4. Inductive and deductive approaches

Theoretical methods of psychological research include:

Deductive (axiomatic and hypothetical-deductive) method – ascent from the general to the particular, from the abstract to the concrete, – the result of which is theory, law, etc.;

A deductive approach to research is one that people usually associate with scientific research. The researcher studies what others have done, reads the existing theories of whatever phenomenon he or she is studying, and then tests the hypotheses that flow from those theories.

Generally, studies using deductive approach follow the following stages:

1. Deducing hypothesis from theory.
2. Formulating hypothesis in operational terms and proposing relationships between two specific variables
3. Testing hypothesis with the application of relevant method(s). These are quantitative methods such as regression and correlation analysis, mean, mode and median and others.
4. Examining the outcome of the test, and thus confirming or rejecting the theory. When analysing the outcome of tests, it is important to compare research findings with the literature review findings.

5. Modifying theory in instances when hypothesis is not confirmed.

Advantages of Deductive Approach

Deductive approach offers the following advantages:

1. Possibility to explain causal relationships between concepts and variables.
2. Possibility to measure concepts quantitatively.
3. Possibility to generalize research findings to a certain extent.

Inductive method – generalization of facts, ascent from the particular to the general, the result of which is an inductive hypothesis, regularity, classification, systematization. When researchers take an *inductive approach*, they start with a set of observations, and then move on from those specific experiences to a more general set of assumptions about those experiences. In other words, they move from data to theory, or from the particular to the general.

It is important to stress that inductive approach does not imply disregarding theories when formulating research questions and objectives. This approach aims to generate meanings from the data set collected in order to identify patterns and relationships to build a theory; however, inductive approach does not prevent the researcher from using existing theory to formulate the research question to be explored. Inductive reasoning is based on learning from experience. Patterns, resemblances and regularities in experience (premises) are observed in order to reach conclusions (or to generate theory).

Generally, the application of inductive approach is associated with qualitative methods of data collection and data analysis, whereas deductive approach is perceived to be related to quantitative methods.

Modeling – concretization of the method of analogies, "transduction", conclusions from the particular to the particular, when a simpler and/or more accessible object is taken as an analogue of a more complex object, the result of its application is a model of the object, process, state.

5. Empirical research is based on observed and measured phenomena and derives knowledge from actual experience rather than from theory or belief.

Empirical research can be conducted and analysed using qualitative or quantitative methods.

Quantitative research: Quantitative research methods are used to gather information through numerical data. It is used to quantify opinions, behaviors or other defined variables. These are predetermined and are in a more structured format. Some of the commonly used methods are survey, longitudinal studies, polls, etc.

The main advantages of quantitative methods are their objectivity and reliability. However, much has been said recently about the limitations of quantitative methods. This is the study of mental phenomena outside the social context, without all its inherent connections with other people. The investigated behavior in strict quantitative studies differs from the natural one, since the actions of the subject are strictly limited, and he cannot plan and implement behavior, as in normal conditions.

Qualitative research: Qualitative research methods are used to gather non numerical data. It is used to find meanings, opinions, or the underlying reasons from its subjects. These methods are unstructured or semi structured. The sample size for such a research is usually small and it is a conversational type of method to provide more insight or in-depth information about the problem. Some of the most popular forms of methods are focus groups, experiments, interviews, etc.

The main advantage of qualitative methods is that they provide rich material, but are subject to the influence of subjective factors, so they cannot be used to obtain objective data, as when using quantitative methods. In addition, it is difficult to repeat the course of the study and obtain the same data.

Data collected from these will need to be *analysed*. Empirical evidence can also be analysed either quantitatively and qualitatively. Using this, the researcher can answer empirical questions which have to be clearly defined and answerable with the findings he has got. The type of research design used will vary depending on the field in which it is going to be used. Many of them might choose to do a collective research involving quantitative and qualitative method to better answer questions which cannot be studied in a laboratory setting.

Principles of selection of methods. One of the important questions that the researcher asks: how much the selected methods are aimed at obtaining the necessary data and are able to solve the tasks set. When planning methods and procedures of empirical research, it is necessary to pay attention to their validity and reliability.

Questions and tasks for independent work

1. What is the difference between methodology, method and technique of research?
2. Describe the basic explanatory principles of psychology.
3. What are the methodological features of the main approaches to the organization of research?
4. Describe the diagnostic capabilities and limitations of the methods of observation, experiment, survey, conversation and testing.

Task:

Formulate possible research topics and underlying hypotheses, for the implementation of which it is necessary to include in the methods:

- observation;
- formative experiment;
- interview or survey;
- analysis of products of activity.

Lecture 3. Planning of scientific psychological research

Lecture plan

1. The concept of the research program.
2. Definition of the problem and the research topic.
3. Planning, organizing, and conducting an experiment.
4. Preparation of report.

Basic concepts: scientific research, hypothesis, experiment, sampling

The goals of psychological studies are to describe, explain, predict and perhaps influence mental processes or behaviors. In order to do this, psychologists utilize the scientific method to conduct psychological research. The scientific method is a set of principles and procedures that are used by researchers to develop questions, collect data, and reach conclusions.

1. Scientific research involves the following eight stages

1. *Problem statement or problem definition.* This stage of the research also includes the development of its leading idea, i.e. the main direction. The leading idea should provide an opportunity for a comprehensive study of the problem. A problem in a broad sense is a complex theoretical or practical issue that requires study and resolution. In science, it is a contradictory situation that appears in the form of opposing positions in the explanation of any phenomena, objects, or processes and requires an adequate theory to resolve it. An important prerequisite for a successful solution of the problem is its correct formulation. The essence of the problem for a person is such that it requires analysis, evaluation, the formation of an idea, a concept to find an answer (solution to the problem) with verification and confirmation in experience. A problem is mainly a question that does not have an unambiguous solution (with a degree of uncertainty). It should be emphasized once again that the formulation of the problem is preceded by careful preparation - a bibliography on the problem, research reports, and special psychological literature are studied. At the same time, methods of theoretical analysis, genetic, comparative-historical methods are used. The concept of psychological research and its leading idea are based on a critical analysis of the problem and its current state, on the generalization of the results of previous studies.

Thus, the conditions for the occurrence of the problem and the actions for its implementation are:

- Detection of information scarcity.
- Awareness of the need to eliminate this deficit.
- Description (verbalization) of the problem situation in natural language.
- Formulation of the problem in scientific categories and terms.

The problems are divided into:

- real problems
- "pseudo-problems" that seem significant.

- unsolvable problems (turning mercury into gold, creating a "perpetual motion machine", etc.)

The proof of the unsolvability of the problem itself is one of the options for its solution.

The next phase of research planning is to **determine its purpose, objectives and hypotheses**. The researcher formulates the purpose and objectives of the study. The purpose of the study is to clarify the problem, to isolate, based on classification and analysis of the relations of the main dependencies characterizing the phenomenon, to formulate the primary hypothesis. Sometimes it is advisable to conduct a preliminary (pilot) study. It can have different forms and perform different functions, for example, on a small trial material to check the conformity of methods, the wording of questionnaires, technical aspects of the methodology used, etc. Special attention is paid to the exact formulation of specific research tasks and its hypotheses. An essential part of the course of research is the movement from hypotheses formulated in a general way to hypotheses that can be verified with the help of empirical research.

The next phase of research **planning is the choice of methods**. At this stage, the researcher selects and justifies the methods to be used, determines the area of material collection and plans the duration of the study. The most accurate formulation of the tasks of the work and hypotheses allows the researcher to make this choice reasonably. Research is a complex activity in which a whole system of methods is applied. The choice of research methods, their system and method of use depend on the general direction of the study. Methods of other sciences (physiology, sociology, pedagogy) are often included in the system of psychological methods. The use of methods of other fields of knowledge in psychological science is becoming more and more frequent.

Selection of subjects for psychological research (Sampling). The researcher must design a sample. It is a plan for taking its respondents from a specific areas or universe. Sampling is a set of individuals selected from a large general population using a certain procedure. The main factor in the reliability of the sample is to what extent it reflects this population. A sample is considered representative if it accurately reflects the composition of the general population. The general population means the totality of all objects that have qualities and properties of interest to the researcher.

Types of samples

- Probability sampling (simple random, systematic, stratified, cluster, multi – stage).

- Non-probability sampling (selection of available cases, selection of typical cases, "snowball", quota sampling).

Data collection is the most important work, is researcher. The collection of information must be containing on facts which is from the following two types of researcher. Data collection may be from the following:

Experiment. Experiment is a scientifically formulated experiment related to the observation of the phenomena under study under conditions created and controlled by the researcher.

The following main advantages that the experimental method has in psychological research can be distinguished: the ability to select the start time of the event, repeatability of the event being studied, variability of results by conscious manipulation of independent variables.

Disadvantages: the conditions of the subjects' activity do not correspond to reality; the subjects know that they are the objects of research.

Questionnaire. In modern psychological research, the questionnaire is a list of questions and answers compiled in accordance with the research program. The questionnaire assumes a fixed order of questions, fixed content and form, as well as a clear list of answers. Questionnaires are very often used in developmental psychology.

Its advantages: efficiency, mass character, low labor intensity. It makes it possible to interview a lot of people in a short time and get information about objective facts, biographical and subjective attitudes of the subject. The questionnaire questions may contain socio-demographic data about the subject (gender, age, social status, education, marital status, etc.), data on his personal preferences (opinions, motives, plans, expectations, etc.), facts of behavior (actions, actions, results).

The *reliability* of the questionnaire means independence from random factors. This is the first thing the methodology is tested for. There are several types of *reliability*. Retest reliability characterizes the degree of repeatability of the results during repeated testing by the same method. The reliability of the test parts characterizes the uniformity of tasks. Another type of reliability is the reliability of parallel forms, when the measurement results of the same indicator obtained using different sets of questions (tasks) are compared.

Validity indicates the validity and effectiveness of the application. There are several types of validity.

The validity of the content is established with the help of experts and characterizes the compliance of the test tasks with the content of the measurement subject.

Empirical validity is defined as the degree of conformity of test scores and indicators according to an external criterion chosen as a criterion of validity.

Constructive validity determines the degree of reflection of the basic constructs that the test is aimed at measuring. It is usually measured using other techniques with already proven validity.

Predictive validity reflects the ability of the method to predict human behavior in real situations in the future.

Observation. Observation is a scientifically purposeful, organized in a certain way fixed visual perception of the object under study. This is a direct recording of events by an eyewitness, a planned perception. Observation implies an attentive attitude to the phenomenon, fixation of its manifestations

and minimal interference with the natural process. Scientific observation is characterized by purposefulness, systematicity, regularity, analyticity, registration of results, operating with a system of unambiguous concepts.

Classifications of types of observation:

- according to the purpose of the study (free – purposeful);
- by the nature of interaction with the object (hidden – open);
- by orientation (self–observation - objective observation);
- by completeness or specifics of the organization (solid – selective);
- according to the time of the study (single – periodic – longitudinal);
- according to the degree of standardization of procedures (non-structured/non–standardized - structured/standardized);
- according to the conditions of observation (field – laboratory);
- by the observer's position (on–off);
- according to the procedures for registering the results (photo, video recording - recording in the protocol); etc.

In practice, a variety of combinations of these types of observation are possible.

Interview. An interview is a specifically organized conversation for obtaining specific psychological information, limited in time, has a clear goal, involves planning actions to collect information and a scheme for processing the results obtained.

There are two main types of research interviews:

structured (standardized) and unstructured (non-standardized).

A structured interview is characterized by a complete composition and sequence of questions asked; alternation of general and particular questions; the presence of several questions on the same topic (for reliability).

Its advantages are the ease of conducting, the ability to compare different answers. This type of interview can be used in nomotetic analysis (especially in mass surveys with hundreds and thousands of subjects). He has more reliability, mistakes in the formulation of questions are minimized, the qualifications of the interviewer may be low.

Disadvantages – it is impossible to modify the questions, it is possible to avoid answers from the subject.

An unstructured interview is usually used at the stages of preliminary acquaintance with the problem. There are various options for such an interview. These are autobiographical stories; projective stories (based on pictures); interpretations of stories; descriptions of other people; making a continuation of the story; continuation of the sentence; essays on a given topic.

The advantages of an unstructured interview are high flexibility in the sequence and formulation of questions; informal nature (in form it approaches a normal conversation); standardization of meaning for different interviewees (but there is a problem of recognizing such people); the possibility of obtaining more in–depth information.

Disadvantages – complexity of conducting; complexity of analysis; difficulty of comparison with other data. In practice, a combination of these two types is possible (semi standardized interview), in which there are certain nodal points - strictly necessary questions (but there may be additional ones).

Data Analysis

When data is collected, it is forwarded for analysis which is the most technical job. The choice of data processing methods is carried out in accordance with the purpose, objectives, hypotheses of the study. Data analysis may be divided into two main categories. There are quantitative and qualitative data processing.

Quantitative data processing involves working mainly with numerical values, which one or another technique allows to obtain after its implementation.

Methods of *descriptive statistics* include frequency counting, measures of central tendency (mode, median, arithmetic mean), measures of variability (variance, standard deviation), measures of distribution form (asymmetry, kurtosis). Methods of descriptive statistics often include methods that allow assessing the normality of the distribution of a trait in a sample. We emphasize that the choice of descriptive statistics methods depends on the type of data obtained during the study: thus, the data on the sexual composition of the sample, usually taking two values, do not imply the calculation of the arithmetic mean, etc.

Quality data processing assumes that in the course of the methodology, the researcher received textual data.

Hypothesis Testing

Research data is then forwarded to test the hypothesis. Do the hypothesis are related to the facts or not? To find the answer the process of testing hypothesis is undertaken which may result in accepting or rejecting the hypothesis.

Generalization and Interpretation

The acceptable hypothesis is possible for researcher to arrival at the process of generalization or to make & theory. Some types of research has no hypothesis for which researcher depends upon on theory which is known as interpretation.

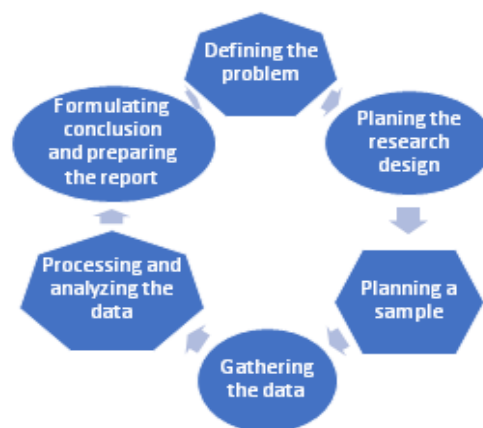


Fig. 2 - Planning, organizing, and conducting research

Preparation of Report

A researcher should prepare a report for which he has done his work. He must keep in his mind the following points:

It should contain objectives, hypothesis, explanations and methodology of the research. It must be divided into chapters and every chapter explains separate title in which summary of the findings should be enlisted. The last section would be clearly of conclusions to show the main theme of the study.

Closing the Report

After the preparation of report, the last step in research process contains of bibliography, references, appendices, index and maps or charts for illustration. For this purpose, the information should be clearer.

Questions and tasks for independent work

1. Tell us about the observation method and its types. What are the advantages and disadvantages of this method?

2. Describe the algorithm for selecting empirical methods and the methodology of the study. What characteristics should these techniques correspond to?

3. Describe possible algorithms for selecting methods for processing the data obtained in the study. How do the characteristics of the data affect the choice of methods of their processing?

Task:

Within the framework of your chosen research activity, try to formulate several programs yourself for further student research work.

Lecture 4. Work with scientific psychological information

Lecture plan

1. Scientific publications.
2. Description of research methods.
3. The main formats of scientific information.

Basic concepts: scientific publication, article, book, thesis (dissertations), encyclopedia, electronic databases

After choosing a topic, each scientific research begins with the study and generalization of scientific and technical information. The purpose of the search, study and analysis of information is a comprehensive coverage of the state of the issue on the topic, justification of the purpose and objectives of scientific research.

1. Scientific publications

A scientific publication (from Latin - publicato - I declare publicly, I

reveal) is a work created as a result of scientific research, theoretical generalizations made within the framework of the scientific method. This is bringing information to the community through placement in scientific publications. The scientific publication is intended to inform scientists, researchers and specialists about the latest achievements in various fields of science, as well as to consolidate the parity of discovery. To date, the scientific work is not considered completed until it is published.

Scientific publications are written by academics for academics. Their purpose is the presentation and discussion of research findings and the advancement of hypotheses and theories.

Although there is some variation from discipline to discipline, the main distinguishing characteristics of scientific publications are:

- a systematic structure, including descriptions of research methods
- complex scientific language
- quantitative data, graphs and tables, original text passages
- scholarly references

Popular scientific publications

Popular scientific publications are for lay people without specialist knowledge of the relevant field. The distinguishing characteristics of popular publications include:

- more accessible language
- more examples, less quantitative or detailed data
- less precise descriptions of research methods
- few, if any, references
- more general explanations of the subjects covered

Well-known popular scientific journals include: *Scientific American*, *Psychologies Magazine* and the scientific supplements included with certain newspapers.

Professional journals

The content of these publications is mainly of a practical nature and aimed at professional practitioners in a wide variety of individual fields. The distinguishing characteristics of professional publications include:

- a mix of complex and accessible language.
- focus on the practice of a particular profession and the communication of information that is useful in this context.
- references.

Although it is generally important to distinguish between the different types of publication, some publications are not easy to put into one category.

Scientific publications have to satisfy certain scientific criteria. It must be possible for the reader of a scientific publication to verify the accuracy of the content. To this end, scientific publications are governed by certain agreements and quality criteria.

The author of a scientific publication is expected to specify the basis of the material presented in the publication. This is done in two ways:

- Description of research methods
- References

A scientific publication has one other important feature:

- It is subject to 'peer review' (assessment by other academics).
- The agreements and criteria governing scientific publications were developed with printed material in mind, but they apply equally to information published by electronic means.

2. Description of research methods

A detailed description of an author's research methods enables the reader to critically assess how the author has arrived at the published findings. Most research reports have a formal structure, featuring the following elements:

- **Introduction.** The Introduction substantiates the relevance and problemativeness of the chosen topic, defines the object and subject, structure and methods of research, indicates what is the novelty and practical significance of the results obtained.

- **Description of the method** by which the issue or problem has been addressed. The theoretical justification includes an analysis of literature and other sources on the problem of interest, a presentation of theoretical concepts (philosophical, sociological, pedagogical, psychological, medical) that make up the theoretical basis of the study, an analysis of existing practice, as well as the history of the issue (if these elements are given in a brief form, they can be included in the introduction). In the same part, the main postulates and hypotheses are stated, the logic and search conditions are justified.

- **Results** in the form of observations, measurements and analyses. This is followed by a description of the experimental and experimental work, their analysis and generalization.

- **Discussion** of the results and observations.

- **Conclusions** of the research. In conclusion, conclusions are drawn, the new things that the researcher has introduced into the theory are formulated, practical advice and recommendations are given, leading directions for further development of the problem are indicated.

Source references

Publications differ in terms of where reference details appear. The usual places are:

- At the bottom of each page (in the form of footnotes)
- At the end of each chapter
- At the end of the publication

Popular scientific publications sometimes include a list of consulted sources at the back, without specific references in the body text. Encyclopedias and textbooks often use a similar approach. In a formal scientific publication, however, this would not be acceptable.

Peer review

Scientific articles are often reviewed prior to publication by fellow academics who are in principle independent. The reviewers consider whether the publication is up to the academic standards of the day; only material that passes this review is published. This procedure is known as peer review.

Peer review is used mainly in the context of scientific journals, where it is organized by the publishers. The most authoritative scientific journals tend to have the strictest pre-publication review arrangements.

3. What are the different kinds of scientific publications?

Scientific publications exist in many formats. The main formats are articles and books.

Articles

Individual contributions to newspapers, journals or conference proceedings. The latest research findings are typically published in the form of scientific articles.

Books

Self-contained publications devoted to one or more subjects, with a broader coverage than an article. There are different types of books, such as:

Textbooks. These are specially written for instruction to students. A textbook offers an introduction **Edited books.** Every chapter is written by a different person. The author of a chapter is an expert on a specific subject. The individual chapters are edited by one or more editors and bundled as one book. An edited book is more specific than a textbook.

Thesis or dissertations. These are academic works for which the author receives a degree after the exam (*for example, a Master of Psychology*).

Dictionaries contain definitions of terms used in one or more academic disciplines (*for example - APA Dictionary of Psychology*).

Encyclopedias can contain descriptions of terms and lengthy scientific articles on particular subjects or complete disciplines, reflecting academic knowledge and thinking at the time of publication (*for example Oxford Research Encyclopedia of Psychology <https://oxfordre.com/psychology>. Encyclopedia of Psychology: 8 Volume Set (2000). Alan E. Kazdin, PhD, Editor-in-Chief. Hardcover. 4128 pages*).

Traditionally publications used to be in paper format and were arranged on the shelves in a bookcase of a library. Nowadays the vast majority of publications is digitally published. The content is the same, the format is different.

The main formats are articles and books

Scientific publications don't exist in isolation, but serve as media for communication between academics and are therefore part of the wider scientific process. Academics communicate in various ways:

- through (informal) personal contact (discussions at work, phone conversations, e-mail and paper correspondence)
- orally at scientific conferences

- through scientific publications
- via social media

In this context, the key characteristics of scientific publications are that they are permanent and generally accessible. The limitations are possession (printed works) or license agreements/subscriptions. Academics can use them to keep adding to their own knowledge over time and to make their personal contributions to the advancement of science and human understanding.

In new publications, this continuous passing on of knowledge is reflected in and facilitated by the inclusion of references to earlier publications.

In the course of time, a huge body of scientific publications has been created, distributed around the world in *libraries, archives and databases*, to which the academic community constantly refers.

Methods of working with scientific information scientific information reflects the objective laws of nature, society and thinking adequately to the current state of science. Methods of working with scientific information include methods of information retrieval; methods of processing received information; methods of systematization and storage of scientific information. Therefore, the ability to work correctly with scientific and technical information is of great importance.

Literary search is recommended to be carried out according to a certain plan, which in the most general form can be formulated as follows:

1. General information about the problem (using encyclopedias, reference books, textbooks).
2. Using the found links for further familiarization with the problem.
3. Search for patents, reviews and monographs, familiarization with them, use of references to original literature found with their help.
4. Systematic search using indexes of abstract journals.
5. Familiarization with the original works.

Thus, while working on the topic, they accumulate a large amount of information. To effectively analyze this information, it is necessary to know the methods of its accounting, elaboration and analysis.

Electronic databases in psychology.

What are they used for?

- Search for relevant information on the research topic.
- Compilation of bibliographic lists on the topic.
- Analysis of research directions in psychology (historical dynamics).

For research in psychology and human development, the following databases may be of especial use.

PsycINFO is the premier database for articles and other resources in the psychological sciences; it is the place where most students in psychology will begin their research. Maintained by the American Psychological Association, PsycINFO contains more than 4 million articles from more than 2,500 journals and other resources covering the full breadth of psychological science.

PubMed is the first stop for medical research, including in psychology and neuroscience. You will likely want to search it using the Medical Subject Headings.

Psychology Database Proquest's database of psychology articles. It has many journals not indexed by PsycINFO.

Web of Science is the world's most trusted publisher-independent global citation database.

Questions and tasks for independent work

1. Definition of the concepts of information and scientific information. Properties of information.
2. Basic requirements for scientific information.
3. Sources of scientific information and their classification on various grounds.
4. The main stages of working with scientific information.
5. An algorithm for searching for information in the library and the Internet. Rules for making requests.
6. Databases of scientific periodicals and the principles of their functioning. Russian-language and foreign periodical psychological publications.

Task:

Compose keywords on the topic of the study. Find according to them several scientific articles in various electronic databases.

Lecture 5. The procedural part of the research program

Lecture plan

1. Development of the procedural section of the research program.
2. Planning the research sample.
3. Planning research methods.
4. Data processing planning.
5. Planning of interpretation of results and formulation of conclusions.

Basic concepts: research plan, sample, method, technique, methods of descriptive statistics

1. The procedural section of the program focuses on the issues of procedure and techniques for collecting and processing information. The procedure is understood as a general system of actions of the researcher, both cognitive and organizational in nature. The procedural section of the program includes the preparation of the research plan, sampling, determination of research methods and techniques, as well as the main procedures for data collection, processing and analysis.

The **research plan** (or "work plan") of the study reflects the practical activities of the entire course of the study. The main tasks of this plan are: to

present a list of types of work; to calculate the number of participants; to calculate the time spent. The types of work that are reflected in the plan can be the following:

- a) building a research concept (drawing up a program);
- b) development of tools (methods, questionnaires, observation forms, etc.);
- c) collection of information (survey, survey, observation units);
- d) processing of the data (obtained information) of the study;
- e) analysis and interpretation of the results (data) of the study.

2. The **sample** of the study directly depends on the purpose, objectives and hypotheses of the study. The more specific the goal, the more correctly the sampling issue will be resolved.

In a descriptive study, the sample should be strictly **representative**. The requirement of representativeness of the sample means that according to the selected parameters, the composition of the subjects should approach the corresponding proportions in the general population. However, it is impossible to ensure a strictly representative sample for all the parameters that are important for the research problem, and therefore it is necessary to guarantee representativeness in the main direction of data analysis.

If the experimenter plans to study the psychological characteristics of a particular group of people, the representative sample should be replaced by a **target sample**.

When describing the sample, the program provides the number of subjects, their gender, age, social status, educational institution, place of work, place of residence (name of the locality). Sometimes it is necessary to specify the method of attracting subjects to the sample or the method of dividing the sample into subsamples, if this information is essential for the study.

The minimum sample size is not set and is determined by the topic and methodology of the study.

3. Research methods are ways to collect data and then process it. It is necessary to distinguish between methods and technique of research.

Method – a method or way of knowing the phenomena of the psyche. There are different methods of organizing research, collecting data, processing results, and interpreting them. Psychological methods of data collection include observation, experiment, psychodiagnostic method, biographical method, etc. The processing methods include mathematical and statistical methods of data analysis.

Technique – a specific implementation of the method in accordance with the purpose of the study. An example is an observation scheme, a personal questionnaire, a test, or a drawing technique. Each technique has an author, a name, and is aimed at studying a specific mental phenomenon.

The choice of research methods is determined by the specifics of the object, subject, purpose, objectives, and hypotheses of the study. In addition, it is determined by the methodological basis of scientific work and the accumulated experience of research in this field.

Description of methods and techniques of data collection, which allows for a certain variety of ways of presentation: either the program lists the methods used, or provides a detailed justification for the use of each method, as well as their description with the application of techniques and tools.

Let us list the general requirements for the methods used in scientific research.

1. *Compliance with the theoretical foundations of the study.* When choosing from several methods aimed at measuring a single construct, it is necessary to analyze the theoretical foundations (psychological theories, concepts, approaches) on which diagnostic tools are built. This is necessary in order to understand whether a particular method is suitable for research, whether it does not conflict with the theoretical part of the work.

2. *A credible source.* Methods should be searched in scientific psychological journals (online and printed versions), monographs, collections of scientific articles or theses, methodological publications, and websites of authors-developers. It will be a mistake to search for the right method on random sites, in collections of tests intended for a wide audience, in popular science literature.

3. *Authorship.* A psychodiagnostic technique must have an author / authors. If the methodology was created abroad, then the authors of the adaptation of this methodology should be indicated.

4. *Psychometric data.* This is information about the validity, reliability of the methods, and the sample of standardization.

5. *Modernity of the technique.* When choosing a method, you may find that it has been revised (or translated) several times by different authors. In this case, it is worth paying attention to what scientific works used its versions and what results they allowed us to obtain. If possible, it is worth using updated versions of well-known, proven methods that have undergone critical revision and have a more representative sample of standardization, which determines a higher level of validity of psychometric indicators of the method.

4. Data processing planning. The choice of data processing methods is carried out in accordance with the purpose, objectives, and hypotheses of the study.

There is a distinction between quantitative and qualitative data processing.

Quantitative data processing involves working mainly with numerical values, which can be obtained by a particular technique after its implementation. In the most general form, quantitative methods of data processing can be divided into methods of descriptive statistics and methods of testing research hypotheses.

Methods of descriptive statistics include frequency counting, measures of central tendency (mode, median, arithmetic mean), measures of variability (variance, standard deviation), measures of distribution form (skewness, kurtosis). We emphasize that the choice of methods of descriptive statistics depends on the type of data obtained in the course of the study: for example, data on the sexual composition of the sample, usually taking two values, do not involve calculating the arithmetic mean, etc.

Software for quantitative (statistical) data processing - SPSS, Statistica, AMOS, etc.

Qualitative data processing assumes that in the course of the methodology, the researcher received textual (in the broadest sense of the word) data. The totality of text data is analyzed to translate it into numerical values, after which some methods of testing research hypotheses can also be applied to them.

The methods of modern qualitative analysis are quite diverse. The phenomenological analysis of A. Giorgi, the grounded theory method in the variants of B. Glazer and A. Strauss, qualitative content analysis, thematic analysis, and discourse analysis of J. Strauss are the most widely used in psychological research, narrative analysis, etc.

Almost all methods of qualitative analysis are aimed at *categorizing data, their meaningful rearrangement and reorganization*.

Currently, computer programs for qualitative data analysis (MAXqda, Nvivo, AQUAD, ATLAS.ti, DecisionExplore, Ethnograph, HyperRESEARCH, CAQDAS, Kwalitan, etc.) are widely used.)

5. Interpretation of the results

After processing the data, the stage of interpreting the results begins. Interpretation is an interpretation, an explanation of the facts obtained in the conducted research. In the process of interpretation, it is necessary to return to the ideas and data that make up the theoretical, methodological and empirical foundations of the study, and use them to explain the obtained facts. You should also compare your results with those described in other similar studies, identify the similarities and differences, and explain why they occur.

Conclusions of the study

The conclusions on the research area briefly describe its main results. In the program, they are described in the section "Expected results". Conclusions are drawn in accordance with the theoretical and empirical objectives of the study and should be correlated with hypotheses.

Thus, the procedural section of the program implements the connection between the content (conceptual part) of the study and the actual actions (procedures) of the researcher.

Questions and tasks for independent work

1. How is the hypothesis built?
2. What are the conditions for the validity of the hypothesis?
3. Explain how a psychological hypothesis should meet certain methodological requirements and why?

Task

Describe the stages of your master's research according to the plan:

1. Problem statement.
2. Preliminary analysis of the available information, conditions, theoretical models and applied methods that can solve the selected problem.

3. Formulation of a hypothesis.
4. Planning, organizing, and conducting an experiment.
5. Analysis and generalization of the results obtained.
6. Verification of the original hypothesis based on the results obtained and the final formulation of new facts or relationships.
7. Explanation of the problem and prediction of its further development.
8. Preparation of the research report.

Lecture 6. Theoretical scientific psychological research

Lecture plan

1. Structure of the theoretical proof.
2. Basic concepts of hypothetical- deductive method.
3. Explicit-structured proof.
4. Implicit-structured proof.
5. Integrative-eclectic proof.

Basic concepts: theoretical proof, hypothetical- deductive method, explicit-structured proof, implicit-structured proof, integrative-eclectic proof

1. Theoretical psychology is concerned with theoretical and philosophical aspects of psychology. It is an interdisciplinary field with a wide scope of study. It focuses on combining and incorporating existing and developing theories of psychology non-experimentally.

Elements of the theory

Hypotheses – assumptions about the existence of relationships between the studied aspects of reality (usually causal). These assumptions are based on knowledge, or the observed manifestations of the phenomenon being studied. Being theoretical or empirical constructs, they act as a means of directing the research search.

Operational definitions – definitions of the studied phenomena, events, facts, designated by special concepts, theoretical constructs (nominal definitions) through the enumeration of their most significant manifestations or indicators, implicitly assuming special procedures that allow recording the results of their measurement or description. In traditional models of science, operationalization is a bridge between theoretically based hypotheses and the methods used to test their predictions.

The *hypothetical-deductive method* is a method of reasoning based on the deduction of consequences from hypotheses, which is widely used in the systematization of research results in natural science and empirical sciences in general.

Hypotheses – assumptions about the existence of relationships between the studied aspects of reality

2. Basic concepts of hypothetical - deductive method

A **hypothesis** is a well-formulated assumption about the relationship between variables (it can be based on intuition, personal experience, and, most preferably, on the results of previous research and theories).

All hypotheses must be verifiable, or in other words, the variables that are jointly analyzed must be clearly defined in such a way that any trained researcher can examine them in a similar way. The relations established in the hypothesis should be presented in such a way that it is possible to refute them.

Operationalization-the establishment of all variables contained in a hypothesis in such a way as to provide a means of observing the studied fragment of reality. Operational definitions are the most precisely defined, since they inform how the concept under study should be considered. Operationality is based on a measurement in which precise, usually quantitative, indices of the observed are derived. The measurements are evaluated according to two criteria: validity and reliability.

Control and manipulation. The significance of these factors is determined primarily by the fact that they represent the only way to establish causality. If one set of variables is set as constant (control) and the other as constantly changing (manipulation), then the researcher should identify the influence of the manipulated variable, without paying attention to the other variables as hiding the cause. Control and manipulation can be carried out directly, as in an experiment, or indirectly-through a certain kind of statistical processing.

Requirements for scientific hypotheses.

1. The relevance of a hypothesis is a necessary precondition for its acceptance, not only in science, but also in the practice of everyday thinking. The term "relevant" describes the relation of a hypothesis to the facts on which it is based. If these facts can be logically deduced from a hypothesis, then it is considered relevant to them. Otherwise, the hypothesis is called irrelevant, irrelevant to the available facts.

2. The verifiability of a hypothesis in the experimental and factual sciences is always associated with the possibility of its comparison with the data of observation or experiment, i.e., empirical facts. In this context, we are not talking about the need to test all the hypotheses put forward, but about the fundamental possibility of such a test.

3. Compatibility of hypotheses with existing scientific knowledge. This requirement is obvious, since modern scientific knowledge in any of its branches is not a collection of individual facts, their generalizations, hypotheses and laws, but a certain logically connected system.

4. Explanatory and predictive power of the hypothesis. In logic, the power of a hypothesis or any other statement is understood as the number of deductive consequences that can be deduced from them, along with certain additional information (initial conditions, auxiliary assumptions, etc.).

3. Explicit-structured theoretical proof

Explicitly structured theories are theoretical formulations characterized by the presence of detail and concretization of the elements of the presented theory, as well as their easy conventional empirical verification [Franklin, 1982, p. 39]. In an explicitly structured theoretical proof, all deduced theoretical propositions must be built on certain empirical grounds.

Methods of explicit-structured theoretical proof

Induction-accumulation and generalization of the results of empirical research on the principle of from particular to general.

Deduction-the formulation of abstract concepts and postulates from which lower-order assumptions are derived, which are subject to verification on the principle from general to particular.

Reproduction is a combination of induction and deduction in the process of consistently approaching a theoretical generalization on the principle of from the general to the particular and from the received.

Abduction-grasping the code of the relationship of empirical data when it is impossible to fully verify them.

Verification of scientific evidence in an explicitly structured theoretical proof

1. Definition of concepts involving:

1.1. designation and classification of information units, including special and fixed procedures designed to isolate certain empirical content and clarify it in operational definitions. Experimental design of concepts and their quantitative indices, as well as justification of the validity of the constructed concepts, their properties and measurement levels used in the definition process.

1.2. determination of the properties of the concept or object to be investigated, as well as methods for their evaluation;

1.3. discussion of the measurement level (nominal, ordinal, interval, proportional).

2. Constructing assumptions that should be checked, assuming:

2.1. establishment of cause-effect and correlation relations, aimed at establishing precisely significant for the studied phenomenon;

2.2. development of variables that can be "explanatory", "interpretative", "conditioned", etc.;

2.3. the choice of a research method, usually an experiment, which in turn assumes: (1) the presence of an experimental and control group, which (2) are tested for certain factors to be subsequently checked (dependent variables); (3) presenting the experimental group with a test stimulus (independent variables) that is not presented to the control group; and (4) post-test measurement of the observed factor (dependent variable) in the experimental and control groups in order to determine the influencing independent variable.

4. Implicit-structured theoretical proof

hypotheses, as well as the continuation of subsequent analysis even after achieving the appearance *Implicitly structured theories* – theories characterized

by the presence of all the necessary elements of the theory, but poorly or completely detailed or concretized, as well as poorly structured in terms of determinism or materialization of the phenomenon under discussion.

Methods of implicit-structured theoretical proof:

Descriptive explication is the construction of a theory in the form of a dialogue with an interested qualified reader that allows you to operate with abstractions of a very wide order.

Sensitization is the progression in the conceptualization and study of the analyzed phenomenon.

Analytical induction is an extension of a theoretical explanation by extrapolating it to a boundary class of phenomena.

Necessary steps of analytical induction:

1. Approximate definition of the phenomenon.
2. A hypothetical explanation of the phenomenon.
3. The study of one of the cases suggested by the hypothesis to determine its compliance with the hypothesis.
4. Reformulating the hypothesis if necessary, or redefining or excluding the phenomenon.
5. Achieving practical results and reformulating the hypothesis in case of exceptions to the hypothesis.
6. Continuation of the reformulation of the hypothesis until the establishment of universal rules.
7. Inclusion of cases from other related problem areas in the analysis plane [Franklin, 1982, p. 46].

Many implicit-structured theories, taking the form of analytical induction, are determined by the need to go through a series of successive steps, which in turn test pre-formulated hypotheses and universal explanations. A distinctive feature of such theorizing is the possibility of repeated reformulation of a universal explanation.

Verification of an implicitly structured theoretical proof

The verification of implicit-structured theories is usually carried out by means of methods of investigation, inspection and generalization representing a number of successive phases of proof:

Research phase-represents the descriptive phase of constructing implicitly structured theories and is characterized by the development of basic concepts. In this phase, the researcher is determined in what is relevant and relevant to the problem area. Both the meaning and the sense of concepts are understood mainly through empirical testing. At this stage, general ideas, guidelines, solutions, etc. are formulated. It also prepares for the transition to the second phase-the inspection.

Inspection phase-involves careful consideration of the proposed theory. It represents the phase of analysis in which the discovery of new data makes it possible to determine the methods necessary to complete the construction of the theory. It is characterized by the use of included observation and structured

interviews aimed at clarifying existing qualities, definitions of the situation, shared values, and other aspects of the problem area. It is also possible to use field studies, including deep samples, research reports, etc. The main feature of this phase is the definition of the methods that will be used to complete the construction of the theory. At the same stage, the preparation for the transition to the generalization phase is carried out.

Generalization phase-involves the presentation of conclusions from the analyzed multiple realities. Generalizations should not be considered as absolute and objective, but to the extent that they represent these multiple realities.

5. Integrative-eclectic proof

Scientific rigor and certainty, adequacy and consistency, both in the field of theoretical and empirical evidence, constitute the psychological culture of research. The integrative-eclectic approach, focused on the theoretical and methodological support of scientific dialogue in the existing conditions of multidimensional approaches and solutions, is aimed at the formation of this culture of proof.

In methodological terms, the use of the principle of integrative-eclectic dialogue of alternative traditions is advisable both at the stage of entering into the problem and at the stage of interpreting the obtained data. In the first case, it is useful to get acquainted with alternative research, which creates the basis for the author's self-determination. The implementation of this principle is carried out, for example, through the development of comparative tables that demonstrate the concepts, methods, interpretations and main results used in different approaches. This comparison allows you to clearly determine the advantages and limitations of a particular approach or solution. In the second case, it provides an opportunity to check the completeness and comprehensiveness of the interpretation of the results obtained, as well as to outline the directions, ways and means of possible additional research and interpretation of the data.

Questions for independent work

1. What are the main components of the scientific apparatus?
2. What is the contradiction of the study? How do they line up?
3. Name the features of the choice of the problem and the topic of the study.
4. What is the rationale for the relevance of the study?
5. What is the relationship between object and object?
6. How are the goals and objectives of the study determined?

MODULE 2. THE ESSENCE OF EMPIRICAL RESEARCH DESIGN

Lecture 7. Empirical scientific psychological research

Lecture plan

1. Methods and methodology of empirical research.
2. Quantitative research methods.
3. Qualitative research methods.
4. Methodological triangulation.
5. Types of research designs.

Basic concepts: empirical research, quantitative research methods, qualitative research methods, methodological triangulation

1. Psychologists use many different methods for conducting research. Each method has advantages and disadvantages that make it suitable for certain situations and unsuitable for others.

Methods of empirical research

"Empirical" literally means "what is perceived by the senses". When this adjective is used in relation to the methods of scientific research, it serves to refer to techniques and methods related to sensory (sensory) experience.

Method, scientific-a research process guided by the principles of skepticism and openness, used to generate testable theories based on the generalization of previous observations and the prediction of the results of future observations.

The most important and necessary prerequisite of the *methodology of empirical research* is that it provides the possibility of its reproduction and confirmation / refutation. The predilection of empirical research for "rigorous data" requires a high internal consistency and stability of the means of measuring those *independent and dependent variables* that are involved for the purpose of scientific study. Internal consistency is the main condition for sustainability; measurement tools cannot be highly or at least sufficiently reliable if these tools, which supply raw data for subsequent analysis, do not produce high intercorrelations. Failure to meet this requirement contributes to the introduction of error variance into the system and leads to ambiguous or misleading results.

2. There are many other ways of collecting information; some are general scientific methods, and some are particular to psychology. The research methods used in psychology depend on the kinds of data that are being studied and the goal and breadth of the studies.

Quantitative research methods – methods focused on obtaining strictly objective, i.e. *quantifiable data*. Based on the positivist methodology, which claims

as the basis of scientific research of operationalization and verification, quantitative methods are characterized by a high level of validity and reliability, structurality, while at the same time a low level of realistic naturalness, constructive and environmental validity. Quantitative data can be collected under controlled or in vivo conditions, in laboratory or field studies, in specific populations, or in general sample populations.

The main advantage of quantitative studies is that the data obtained through them can be the subject of a variety of statistical analysis, can be generalized beyond the research sample, allow you to test hypotheses and evaluate the effectiveness of interventions in various areas of interest.

Reliability is considered as the quality of the tool (for example, tests or an observation scheme) that the researcher uses to measure the phenomenon under study. A tool is considered reliable if it consistently reproduces similar results in relation to the same individuals being compared.

Validity is considered as the correspondence of the instrument to the studied phenomenon.

Internal validity represents the ability of the instrument used in the study to measure what it should measure. Internal validity can be evaluated in a number of ways: by correlating the results of an instrument with those obtained through another instrument that has already confirmed its validity (consistent validity), by determining the accuracy of predicting what the instrument should predict (predictive validity), or by determining the ability of the instrument (or inability) to confirm reasonable hypotheses about theoretical constructs whose operationalization is measured by the instrument (constructive validity).

External validity (generalizability) shows the applicability of the measurement results in relation to large population groups.

3. Qualitative research methods

Qualitative research – research that studies aspects of social life that are not available for quantitative measurement. Associated with a variety of paradigmatic and theoretical perspectives, qualitative research uses a wide range of methods that focus on the meanings and interpretations of social phenomena and social processes in the specific contexts in which they occur.

Depending on the paradigm preferences, all qualitative methods have a number of common characteristics: they are conducted in interaction with real people; they focus on the meanings expressed by study participants in relation to behavior; and they draw attention to the social, cultural, and natural contexts in which people live, work, and interact.

The development of this type of research was largely due to dissatisfaction with the "numerical" methods of traditional experimental psychology. Qualitative methods are based on the idea that reality is not an objective reality, but is socially constructed by the participants' descriptions of life experiences or through social interaction.

Validity in qualitative research is considered as the ability of the tool to exhaustively grasp and describe the properties and qualities of the studied phenomenon in the real conditions of its manifestation.

4. Methodological triangulation is a combination of qualitative and quantitative methods, called the third way, which leads to combining the advantages of both methodologies, and as a result-obtaining more reliable data. For the first time in relation to the methodology of psychological research, this term was used by D. T. Campbell [1959].

Types of methodological triangulation

Triangulation-involves checking the consistency of data obtained through various variations of qualitative and quantitative methods.

Complementarity-involves clarifying and illustrating the results obtained by methods of one class, methods of another class.

Development – results obtained by methods of one class, methods of another class.

Initiation – new research questions or changes in the results obtained by methods of one class, methods of another class.

Conditions for the effectiveness of methodological triangulation:

- A clear definition of the issue under study.
- Compensation of the strengths and weaknesses of each method by the productive capabilities of each other.
- The suitability of the selected methods for the phenomenon under study.

Optimal combinations of quantitative and qualitative methods

- Qualitative methods, especially observation or unstructured interviews, allow the researcher to develop a holistic "portrait" of the subject under study. This is especially important for the initial stage of the study.

- Quantitative analysis is more suitable for studying behavioral or descriptive components.

- Quantitative analysis can complement the results of qualitative discoveries by showing the extent of their spread.

- Quantitative methods have a significantly lower explanatory value, while qualitative methods are able to provide the necessary grounds for a deep explanation of the phenomenon under study.

5. Types of research designs

Research of different psychologists is designed with different goals in mind, and the different goals require different approaches. A **research design** is *the specific method a researcher uses to collect, analyze, and interpret data*. Psychologists use three major types of research designs in their research, and each provides an essential avenue for scientific investigation.

Descriptive research is research designed to provide a snapshot of the current state of affairs.

Correlational research is research designed to discover relationships among variables and to allow the prediction of future events from present knowledge.

Experimental research is research in which initial equivalence among research participants in more than one group is created, followed by a manipulation of a given experience for these groups and a measurement of the influence of the manipulation.

Each of the three research designs varies according to its strengths and limitations, and it is important to understand how each differs (Table 1).

Table 1 - Research designs varies

Goal	Research design	Advantages	Disadvantages
To create a snapshot of the current state of affairs	Descriptive	Provides a relatively complete picture of what is occurring at a given time. Allows the development of questions for further study.	Does not assess relationships among variables. May be unethical if participants do not know they are being observed.
To assess the relationships between and among two or more variables	Correlational	Allows testing of expected relationships between and among variables and the making of predictions. Can assess these relationships in everyday life events.	Cannot be used to draw inferences about the causal relationships between and among the variables.
To assess the causal impact of one or more experimental manipulations on a dependent variable	Experimental	Allows drawing of conclusions about the causal relationships among variables.	Cannot experimentally manipulate many important variables. May be expensive and time consuming.

Source: Stangor, C. (2011). *Research methods for the behavioral sciences (4th ed.)*. Mountain View, CA: Cengage.

Correlational Research Methods

Case studies, surveys, naturalistic observation, and laboratory observation are examples of **Descriptive** or **Correlational Research Methods**. Using these methods, researchers can describe different events, experiences, or behaviors and look for links between them. However, these methods do not enable researchers

to determine causes of behavior. A **Correlation Coefficient** measures the strength of the relationship between two variables. A correlation coefficient is always a number between -1 and $+1$. A *Positive Correlation* (+) means that as one variable increases, the other does too. A *Negative Correlation* (–) means that when one variable increases, the other one decreases.

Remember: Correlation Is *not* The Same As Causation. Two factors may be related without one *causing* the other to occur. Often, a third factor explains the correlation.

Surveys

A **Survey** is a way of getting information about a specific type of behavior, experience, or event. When using this method, researchers give people questionnaires or interview them to obtain information. When subjects fill out surveys about themselves, the data is called **Self-Report Data**.

An **interview** is generally a *qualitative research* technique which involves asking open-ended questions to converse with respondents and collect elicited data about a subject. In a *structured* interview, it is assumed that the researcher will always stick to the list of solved questions, regardless of how interesting the conversation with the participants turns out to be. *Semi-structured interviews* offer a considerable amount of leeway to the researcher to probe the respondents along with maintaining basic interview structure. Also called as in-depth interviews, *unstructured interviews* are usually described as conversations held with a purpose in mind – to gather data about the research study. These interviews have the least number of questions as they lean more towards a normal conversation but with an underlying subject.

Observation

When using **naturalistic** observation, researchers collect information about subjects by observing them unobtrusively, without interfering with them in any way. With naturalistic observation, researchers face the challenge of getting a clear view of events without becoming noticeable to the subjects. Unlike observation in a natural setting, **laboratory** observation offers researchers some degree of control over the environment.

Experiment

In science, experiments are the most often-used method of research, and there are principles involved in its employment. **One** is the presence of a control group. This is an individual, or a group of individuals, that is not manipulated. **Another principle** is the control of variables. That is, the experiment should be as free of extraneous data as possible. That factor enables psychologists to repeat the experiment, and that is one requirement of reliable research. **A third principle** is the consistency of measurements. Experiments can be laboratory-controlled such as sleep studies, field experiments which allow the psychologist to manipulate the subject but not his environment, or natural experiments which allow no control and are largely observational.

Psychological Tests

Researchers use **Psychological Tests** to collect information about personality traits, emotional states, aptitudes, interests, abilities, values, or behaviors. Researchers usually **Standardize** these tests, which means they create uniform procedures for giving and scoring them. When scoring a test, researchers often compare subjects' scores to **Norms**, which are established standards of performance on a test. A well-constructed standardized test can evaluate subjects better than self-report data.

Content Analysis can be both *quantitative* (focused on counting and measuring) and *qualitative* (focused on interpreting and understanding). In both types, you categorize or “code” words, themes, and concepts within the texts and then analyze the results. Qualitative content analysis is a distinct procedure from quantitative content analysis. This form of analysis is useful for analyzing large amounts of verbal data collected through interviews or focus groups and also offers possibilities for quantification of categories.

Questions and tasks for independent work

1. What are the classifications of scientific methods?
2. What determines the effectiveness of scientific research?
3. What are the criteria and indicators of psychological research?

Task:

Analyze the article on the research topic: what theoretical and empirical methods are used, the advantages and limitations of the methods used, the adequacy and environmental friendliness of their application, etc.

And also indicate what ethical problems can potentially be and how they need to be addressed.

Lecture 8. Ethical issues of psychological research

Lecture plan

1. Ethical Issues.
2. The APA Ethics Code.
3. Some practical tips for conducting ethical research in psychology.

Basic concepts: ethical issues, research ethics, informed consent, The APA Ethics Code

Psychology develops largely due to the fact that psychologists carry out experimental studies, and then, based on their results, draw conclusions about the work of the human psyche. However, psychology has a certain specificity that imposes special requirements for conducting research. These requirements, in

particular, are related to the fact that the "object" of study in psychology is people. The study of people is fundamentally different from the study of objects of the physical world, but it was only at the end of the twentieth century that psychological scientists began to develop a respectful approach to people who take part in their experiments, i.e. they began to think about ethical standards that psychologists should observe. Professional public organizations that unite psychologists from different countries are engaged in the development of ethical norms and standards.

Psychological research is a field of science where the norms of scientific ethics remain relevant. The ethics of science determines both the ethics of the content of scientific research and its consequences for humanity, and the ethical aspects of professional relations in science.

Investigating the processes of human development, it is necessary to protect the physical and mental health of the study participants, their well-being and self-esteem, which implies following ethical principles.

1. Ethics are broadly the set of rules, written and unwritten, that governs our expectations of our own and others' behavior.

Research ethics focus on the moral principles that researchers must follow in their respective fields of research.

Ethical Issues

Researchers must act responsibly and with integrity. This means carrying out their research in a thorough and competent manner, meeting their professional obligations, and being truthful.

Informed consent is when participants are able to make an informed judgement about whether to take part. It causes them to guess the aims of the study and change their behavior. To deal with it, we can gain presumptive consent or ask them to formally indicate their agreement to participate but it may invalidate the purpose of the study and it is not guaranteed that the participants would understand.

Deception should only be used when it approved by an ethics committee as it involves deliberately misleading or withholding information. Participants should be fully debriefed after the study but debriefing can't turn the clock back.

All participants should be informed at the beginning that they have the Right to Withdraw if they ever **feel distressed or uncomfortable**. It causes bias as the ones that stayed are obedient and some may not withdraw as they may have been given incentives or feel like they're spoiling the study. Researchers can offer the right to withdraw data after participation.

The principle of objectivity of conclusions requires that they be scientifically sound, i.e. they are the result of testing conducted using valid and reliable methods, and do not depend on the subjective attitudes of those who conduct the survey or use its results. Psychologists point out that it is important correctly report the results of the examination to the subjects. They need to be accompanied by explanations. Regardless of the form in which the test data is reported, an important condition is to provide them not only in numerical form, but also in words that would be understandable to any client. It is especially important to observe this condition for

intelligence tests, which are interpreted incorrectly more often than achievement tests. When reporting the results of any diagnostic methods, it is advisable to take into account the individual characteristics, characteristics of the person to whom the information is transmitted. This applies not only to his educational level, but also to the expected emotional reaction to the information. When an individual is informed of his diagnostic results, they should be accompanied by an interpretation compiled by a competent psychologist.

Participants should all have **Protection from harm**. The researcher should avoid risks greater than experienced in everyday life and they should stop the study if any harm is suspected. However, the harm may not be apparent at the time of the study.

Confidentiality concerns the communication of personal information. The researchers should not record any names but use numbers or false names though it may not be possible as it is sometimes possible to work out who the researchers were.

While these issues are indeed a key part of research ethics, there are also wider issues about standards of conduct. These include the importance of publishing findings in a transparent way, not plagiarising others' work, and not falsifying work.

Among the main provisions that can constitute the ethical code of a psychologist-diagnostician, first of all, should be named: 1) the well-being of the examined individual; 2) responsibility, which is based on objectivity; 3) moral and legal standards that meet the moral requirements of society; 4) correctness and restraint in public statements; 5) confidentiality, guaranteeing the safety of information about the individual; 6) relationships with the subject, based on trust, informing him about the purpose of the survey and the subsequent nature of the use of the results; 7) non-disclosure of the results of the survey; 8) precautions in surveys; 9) conditions, possibilities of application and limitations in the publication of methods; 10) interpretation of diagnostic results.

2. The APA Ethics Code

There are several written ethics codes for research with human participants that provide specific guidance on the ethical issues that arise most frequently. These codes include the *Nuremberg Code*, *the Declaration of Helsinki*, *the Belmont Report*, and *the Federal Policy for the Protection of Human Subjects*.

The American Psychological Association (APA) publishes the Ethical Principles of Psychologists and Code of Conduct which outlines aspirational principles as well as enforceable standards that psychologists should use when making decisions. The APA first published their ethics code in 1953 and has been continuously evolving the code ever since.

The APA ethics code provides guidance for professionals working in the field of psychology so that they're better equipped with the knowledge of what to do when they encounter some type of moral or ethical dilemma. Some of these are principles or values that psychologists should aspire to uphold. In other

cases, the APA outlines standards that are enforceable expectations.

The *APA Ethics Code* is the most important ethics code for researchers in psychology. It includes many standards that are relevant mainly to clinical practice, but *Standard 8* concerns informed consent, deception, debriefing, the use of nonhuman animal subjects, and scholarly integrity in research.

Researchers must *respect people's rights* and dignity as human beings. One element of this is respecting their autonomy—their right to make their own choices and take their own actions free from coercion. Of fundamental importance here is the *concept of informed consent*.

Informed Consent

Standards 8.02 to 8.05 are about informed consent. Again, informed consent means obtaining and documenting people's agreement to participate in a study, having informed them of everything that might reasonably be expected to affect their decision. This includes details of the procedure, the risks and benefits of the research, the fact that they have the right to decline to participate or to withdraw from the study, the consequences of doing so, and any legal limits to confidentiality. This means that researchers obtain and document people's agreement to participate in a study after having informed them of everything that might reasonably be expected to affect their decision.

Respect for confidentiality

Another element of respecting people's rights and dignity is *respecting their privacy*—their right to decide what information about them is shared with others. This means that researchers must maintain *confidentiality*, which is essentially an agreement not to disclose participants' personal information without their consent or some appropriate legal authorization.

Scholarly Integrity

Academic integrity is the commitment to and demonstration of honest and moral behavior in an academic setting. This is most relevant at the university level as it relates to providing credit to other people when using their ideas. In simplest terms, it requires acknowledging the contributions of other people. Failure to provide such acknowledgement is considered plagiarism.

Standards 8.10 to 8.15 are about scholarly integrity. These include the obvious points that researchers must not fabricate data or plagiarize. Plagiarism means using others' words or ideas without proper acknowledgment. Proper acknowledgment generally means indicating direct quotations with quotation marks *and* providing a citation to the source of any quotation or idea used.

The APA also suggests that psychologists have a moral responsibility to help ensure that others working in their profession also uphold high ethical standards. This principle suggests that psychologists should participate in activities that enhance the ethical compliance and conduct of their colleagues.

Serving as a mentor, taking part in peer-review, and pointing out ethical concerns or misconduct are examples of how this principle might be put into action.

3. Some practical tips for conducting ethical research in psychology

It is important to remember that ethical issues arise long before you start collecting data, and continue to arise during and after publication.

Know and accept your ethical responsibilities

The first thing you should do as a new researcher is to know and accept your ethical responsibilities.

If any standard, policy, or procedure is unclear - or you don't know what to do about an ethical issue that has arisen - you should seek clarification. You can do this by reviewing the relevant codes of ethics, reading about how similar issues have been addressed by others.

Identify and minimize risks

As you design your study, you must identify and minimize risks to participants. Start by listing all the risks, including risks of physical and psychological harm and violations of confidentiality.

Create informed consent and debriefing procedures

Once you have settled on a research design, you need to create your informed consent and debriefing procedures.

The ethical principles outlined in the codes of the American Psychological Association and the British Psychological Society coincide in that during experiments it is necessary to inform the subjects as fully as possible in order to obtain their consent, protect people from injury and discomfort, maintain confidentiality about the participants of the experiment, at the end it is as possible to tell about the goals and results.

Questions and tasks for independent work

1. Why is compliance with ethical standards in conducting psychological research one of the most important criteria for its effectiveness?
2. List the ethical principles required in psychological research.

Task:

Analyze the ethical principles approved by the ethics committee and compare them with the organization of psychological research in which you had to participate.

Lecture 9. Presentation of the results of scientific psychological research: requirements for the content and design of dissertations (thesis)

Lecture plan

1. Classification of forms of presentation of the results of research work.
2. Requirements for the content and design of dissertations (thesis).

Basic concepts: report, scientific article, monograph, dissertation (thesis)

References: Instruction for Master's thesis

1. Classification of forms of presentation of the results of research work.

The main forms of presentation of research results are: report, literary review, scientific article, monograph, dissertation or thesis, etc.

A **report** is a document that presents information in an organized format for a specific audience and purpose. Although summaries of reports may be delivered orally, complete reports are almost always in the form of written documents.

A **scientific article** reports the results of original research, assesses its contribution to the body of knowledge in a given area, and is published in a peer-reviewed scholarly journal. Research articles generally consist of the following components: a title and abstract, an introduction, a methodology, results, discussion, and references.

Monograph. In the English word, "mono-" means "single" and "-graph" means "something written". Unlike a textbook, which surveys the state of knowledge in a field, the main purpose of a monograph is to present primary research and original scholarship ascertaining reliable credibility to the required recipient. This research is presented at length, distinguishing a monograph from an article. For these reasons, publication of a monograph is commonly regarded as vital for career progression in many academic disciplines. Intended for other researchers and bought primarily by libraries, monographs are generally published as individual volumes in a short print run.

A **dissertation (thesis)** is a scientific qualification work, the successful completion of which is one of the requirements for obtaining a *scientific or academic (master's) degree*.

2. Dissertation or thesis

Not all dissertations are structured exactly the same – the form your research takes will depend on your *location*, discipline, topic and approach.

These requirements establish the procedure for the implementation and defense, as well as the general rules for the presentation and registration of abstracts, term papers, theses, master's thesis, as well as research works of students included in the educational process of the educational institution "VSU named after P. M. Masherov".

The master's thesis should include: title page; abstract; content; list of abbreviations, symbols, symbols and terms (if necessary); introduction; main part; conclusion; list of sources used; appendices (if necessary).

Title page

The very first page of your document contains your dissertation's title, your name, department, institution, degree program, and submission date. etc.

The **abstract** should include: information on the *volume* of the master's thesis, the *number of illustrations, tables, appendices, used literature; list of keywords; the text of the abstract*.

The list of **keywords** characterizes the main content of the master's thesis

and includes from 5 to 15 words in the nominative case, written separated by commas in a line in capital letters.

The volume of the abstract text is 1600-2200 printed characters (one page). The text of the **abstract** should reflect the **object and subject of research**, the **purpose** of the work, the research **methodology**, the **results** obtained and their **novelty**, the degree of **implementation** or **recommendations** for the implementation of research results, the scope, economic efficiency or significance work.

The **content** sequentially lists all the titles of the master's thesis: introduction, numbers and titles of sections and subsections, conclusion, list of used literature and appendices (if necessary), indicating the page number on which each title is placed.

As a rule, a dissertation in psychology consists of **2-3 chapters**:

1. *Analytical review* of the literature on the research problem.
2. *Empirical research* of a scientific problem.
3. *Recommendations for the practical application* of the research results.

The **introduction** consists of:

- **relevance of the topic** of the dissertation research;
- **the object and subject** of the research;
- **goals and objectives** of the study;
- **methods and organization of the research** (methodological grounds; methods; proposed methods of statistical data processing);
- **scientific novelty** of the research;
- **theoretical and practical significance** of the research.

Relevance of the topic. The scientific problem of the research is formulated, the degree of its development is indicated, the place of the research among other similar studies in the same field, the need for research to solve a specific problem (objectives), the development of specific directions in the relevant field.

The object of research is a process or phenomenon that generates a specific problem situation.

The subject of research is the specification of the object of research.

Goal and objectives of the study. The purpose of the study focuses on its final result; the objectives formulate questions that should be answered in order to achieve the goal of the study. When defining objectives, it should be borne in mind that the description of their solution should make up the content of the chapters of the master's thesis.

Methodological foundations of the study. When describing the methodological foundations of the research, the directions, concepts and theories with their authors are indicated, as well as specific provisions that are used in the master's thesis as the basis of empirical research with references to primary sources (e.g. qualitative, quantitative, experimental, ethnographic).

Research methods and techniques. The choice of research methods and techniques should be adequate to the methodological bases accepted in the dissertation. The same sub-item lists the methods and techniques used, known

and developed by the master's student, that allow achieving the research goal (e.g. interviews, surveys, testing).

When describing the methods, their full name, author, and purpose of the method are given. It is mandatory to provide a link to the source that contains this data. Forms of methods, descriptions of scales and keys, as well as the content of little-known methods are provided in the appendix (with links to primary sources).

Methods of statistical data processing. When describing the methods of statistical data processing, specific statistical methods are specified. If the statistical processing was carried out using standard statistical programs, you must provide the name and version of the package. For example, " ... The data was statistically processed using SPSS Statistics v. 16, Statisticav.8" (e.g. means, standard deviations) and inferential statistics (e.g. test statistics, p-values). The purpose of applying specific statistical procedures should be specified. In the case of using non-standard statistical techniques that are not included in the set of software packages, a link to the source and a detailed description of the procedure used are required (e.g. statistical analysis, discourse analysis).

The dissertation **conclusion** should concisely answer the main research question, leaving the reader with a clear understanding of your central argument and emphasizing what your research has contributed. The conclusion refers to the final chapter, where you wrap up your dissertation with a final reflection on what you found. This type of conclusion often also includes recommendations for future research or practice.

References list. Must be issued in accordance with the requirements.

Additional data (including raw numbers, full questionnaires, or interview transcripts) can be included as an **appendix (applications)**.

The general requirements for the order of execution, content, design and defense of the master's thesis are reflected in the file attached to the lecture: Instruction for Master's thesis.

Questions and tasks for independent work

1. What are the main requirements for the design of a scientific study?
2. What are the features of the design of the dissertation?
3. What is an abstract?
4. What are the features of the design of the abstract?
5. What are the structural components of research work?

Task:

Prepare a research project according to the proposed structure

1. Title page
2. The main part
3. List of references.

Lecture 10. Citation rules for scientific papers

Lecture plan

1. Scientific citation.
2. Basic rules for quoting and formatting citations.
3. Examples of the design of the list of references.

Basic concepts: citation, plagiarism, reference

1. A necessary component of any scientific work is a scientific citation.

A **citation** is a statement given in whole or in part from the author's text (scientific, artistic, journalistic, etc. literature or report) with an indication of the author or source.

Scientific work without citation is impossible. The fine line between plagiarism and quoting lies in following the rules. In scientific works, references are given to sources from which materials or individual results are borrowed, or on the ideas and conclusions of which problems, tasks, and issues are developed, the study of which is devoted to the work. Such links make it possible to find relevant sources, check the accuracy of the citation, and get the necessary information about these sources (its content, language, and volume).

Citation is called:

- borrowing a fragment of the author's text;
- borrowing formulas, statements, illustrations, tables, and other elements;
- incomplete, translated, or paraphrased reproduction of a text fragment;
- analysis of the content of other publications in the text of the work.

The most important rule of citation is to accompany the citation with a reference to a specific source from the list of references. The absence of a link in the quotation or the absence of a quote in the presence of a link is a gross error in the design of the work.

Types of references:

- in-text (information about the source is specified in the text of the document);
- subscript (information about the source is taken out of the text down the page of the document, in the footnote);
- out-of-text (information about the source is placed behind the text of the document or part of it, in the callout).

2. Basic rules for quoting and formatting citations

- Be sure to put quotation marks when rewriting the source text verbatim. The quote opens and closes with quotation marks ("...").
- Authors should be cited only for their works.
- When referring to the author, specify his last name and initials. Initials are placed before the last name, for example, "L. S. Vygotsky" or "Z. Freud."

- Bibliographic references in the text of the article are highlighted in square brackets, indicating the number of the source in the list of references (for example, [2]).

- If the reference is given to a specific fragment of the document text, the reference indicates the serial number of the source and the pages on which the reference object is placed, the information is separated by a comma: [10, p. 81].

- If a reference contains information about multiple links, separate the groups of information with a comma: [1, 3, 14].

- Each citation must have a reference, i.e. a bibliographic description of the source. All sources included in the list of references should be referenced in the text.

All references in the work are made in the same style, according to the accepted *standards*.

3. Examples of the design of the list of references (Approved order of the Higher Attestation Commission of the Republic of Belarus No. 159 of 25.06.2014)

1. Book with one, two or three authors:

Brock, T. D. Biology of microorganisms / T. D. Brock, D. W. Smith, M. T. Madigan. – 4th ed. – London : Prentice, 1984. – 847 p.

2. Collective author:

Fundamental issues in strategy : a research agenda / ed. by R. P. Rumelt [et al.]. – Boston, MA : Harvard Business School Press, 1994. – 636 p.

3. Remote access resources:

Reforming the United Nations for peace and security [Electronic resource] : proc. of a workshop to analyze the rep. of the High-level Panel on Threats, Challenges, a. Change / Yale Center for the Study of Globalization. – New Haven : Yale Center for the Study of Globalization, 2005. – Mode of access: http://www.ycsg.yale.edu/core/forms/Reforming_un.pdf. – Date of access: 20.02.2014.

4. Journal article:

Steger, D. P. The future of the WTO: the case for institutional reform / D. P. Steger // J. of the Intern. Econ. Law. – 2009. – Vol. 12, iss. 4. – P. 803–833.

Plagiarism is the deliberate appropriation of the authorship of someone else's ideas or inventions and the publication under one's own name of someone else's work, fragments of someone else's works without specifying the source of borrowing. The necessity to acknowledge others' work or ideas applies not only to text, but also to other media, such as computer code, illustrations, graphs etc.

It applies equally to published text and data drawn from books and journals, and to unpublished text and data, whether from lectures, theses or other.

Thus, when preparing a scientific paper, you must comply with the minimum requirements:

- The facts in the article are presented reliably, there are references to authoritative sources.
- All figures, tables and sources in the list of references are referenced in the text.
- The reference list includes authoritative sources and contains modern works on the topic of the study, each of which should be mentioned in the text of the work.
- The originality of the study is not less than 70-75%.

Questions and tasks for independent work

1. What are the structural components of research work?
2. What should be taken into account when presenting a scientific study?
3. What documents should be prepared?
4. What is the procedure for defending the dissertation? What are the main stages of protection?

Task:

Make a bibliographic list of your research in accordance with the requirements.

BASIC AND ADDITIONAL LITERATURE

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