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FORMATION OF INTERDISCIPLINARY CONNECTIONS IN SCIENCE TRAINING AS A FACTOR OF THE FUTURE PSYCHOLOGISTS' EDUCATION SYSTEM OPTIMIZATION AT HIGHER EDUCATION INSTITUTIONS

У статті акцентується увага на значущості міжпредметних звя'язків природничо-наукової підготовки майбутніх психологів у вищих навчальних закладах як одного з провідних засобів формування цілісної наукової картини світу, усвідомлення місця й ролі людини в ньому, сприяння підвищенню рівня загальноосвітньої і професійної підготовки. Обґрунтовано необхідність установлення міжпредметних зв'язків між дисциплінами циклів фундаментальної, природничо-наукової та професійної і практичної підготовки майбутніх психологів у вищих навчальних закладах із позиції формування всебічно розвинених, освічених, висококультурних, компетентних спеціалістів.

Відмічено, що подальші наукові дослідження будуть спрямовані на визначення шляхів удосконалення природничо-наукової підготовки майбутніх психологів у вищих навчальних закладах.

Ключові слова: *природничо-наукова підготовка, міжпредметні зв'язки, майбутні психологи, вищий навчальний заклад.*

Introduction. The process of European integration, establishment of Ukraine as an independent country, its national recovery and transition to a market economy can not be limited to political and economic factors; they should cover all aspects of life, including education, and dramatically influence the role of specialists with higher education.

In terms of environmental problems worsening and the need for further awareness of civilization development and understanding of human impact on the environment, at this stage of education development it becomes important to teach science for the future specialists of all sectors.

Analysis of relevant research. Science education at higher education institutions in the first half of the XX century due to the reduction in the number of teaching hours and set amount of training material has been subjected to a number of difficulties.

According to V. S. Senashenko and N. R. Senatorova «... until the early 90s courses of biology-ecological model in typical curricula of the most professions were absent» [4, 3].

Since 1994 science training at higher education institutions is declared mandatory for all professions and is reflected in the State national program "Education" (Ukraine XXI century).

Problems of science training at higher education istitutions investigated the following researchers: S. I. Kourova, N. M. Tolokonnikova, I. I. Merdukh, S. M. Podolyuk, M. H. Hapontseva, V. L. Hapontsev, E. V. Tkachenko,

V. A. Fedorov, S. O. Panichev , A. I. Bochkarev, E. A. Vitol, T. J. Dubnyshcheva, V. S. Elahina, S. H. Karpenkov , S. I. Matyukhin , N. R. Senatorova, V. S. Senashenko, S. V. Slinkin, A. V. Usov, S. E. Starostin and others.

According to S. I. Kourova, science training is the process of mastering science knowledge and skills foreseen by the state educational standard in the educational process of the university, which includes formation of knowledge and skills of a whole block of subjects [5, 5].

N. M. Tolokonnikova, I. I. Merdukh, S. M. Podoliuk consider science education to be an education subsystem that provides socialization, mastering it through the sciences of nature development. The science education, according to researchers, reflects the state of society, science and education [12].

Scientists M. H. Hapontseva, B. L. Hapontsev, E. V. Tkachenko, V. A. Fedorov consider science training to be an integral part of the general human culture and is one of the basic components of the content of professional education [4, 3].

According to S. A. Panychev, modern science training allows a person to form a clear picture of the world in which he/she lives, general outlook, professional way of thinking and scientific language [7, 15].

In researches of O. I. Bochkareva, E. A. Vitol, T. J. Dubnyshchevoy, V. S. Elagina, S. H. Karpenkov, S. I. Matiukhin, N. R. Senatorova, V. S. Senashenko, S. V. Slinkina, A. V. Usov and others it is stressed on importance of science training in the formation of a scientific outlook and scientific style of thinking, ecological and aesthetic education, in gaining fundamental knowledge and understanding of the scientific picture of the world and overcoming interdisciplinary sovereignty.

S. E. Starostina believes that in the process of science training professional competence is formed through the formation of comprehensive competencies that are necessary in any professional activity and linked with the success of the individual in the modern world [11, 101].

Analysis of scientific and pedagogical sources connected with the problem of our research indicates that a number of domestic and foreign researchers devoted some of their works to the study of interdisciplinary connections. Let us consider some of them.

N. M. Chernushenko believes that interdisciplinary connections can be viewed as a system and its structure is made in the process of learning and interconnected with the knowledge and skills from different fields [13, 185].

D. A. Vlasov, O. V. Sinchukov noted that "... in terms of philosophical (methodological) analysis the interdisciplinary connections are didactic form of the general principle of consistency; according to psychological aspect of analysis it is a study of forming functions of interdisciplinary connections as a factor of generalization of knowledge and ways of teaching the student; generally pedagogical approach shows interdisciplinary connections as conditions and means of an integrated approach to education and training; according to didactic approach it is identifying structural features of interdisciplinary connections as

didactic principle that transforms the interaction in the system "a teacher – a process of study – a student"; methodological approach is to study the role of interdisciplinary connections as a condition and means of improving learning individual training courses" [2, 56].

In the implementation of interdisciplinary integration of educational content S. M. Stadnichenko sees the need for level approach:

1) interdisciplinary communication, the source of which serves the common structural elements, their transfer is carried out by means of different subjects;

2) didactic synthesis, which involves the integration of form and content for educational classes;

3) integrity, which is characterized by full procedural content integration within the formation of a new discipline that has an integration character and its own subject of study [10, 90].

To improve the quality of education and to optimize the learning process through implementation of interdisciplinary connections, according to A. V. Halusha, it is necessary to address the following tasks:

1) to coordinate with teachers of different disciplines of possible topics or issues for their joint study;

2) to list a number of interdisciplinary connections between academic disciplines;

3) to make changes in the content and hourly planning;

4) to study students' interests in the subject increasing their cognitive activity;

5) to increase teaching experience with different technologies, techniques, forms and methods of learning [3].

S. M. Stadnichenko stresses the urgency of achieving each stage of formation of interdisciplinary connections and identifies some patterns:

1) advantage of integration trends over differential;

2) increase the level of integration between science due to the complexity of the subject, structure and function;

3) progressive integration role in the movement for humane use of scientific knowledge and scientific achievements;

4) profile content of knowledge through interdisciplinary connections;

5) focus on general laws and their role not only in different sections, but also in related subjects;

6) applying the patterns to living organisms (explanation of vital processes, therapeutic measures based on knowledge of the external factors influence, principle of modern medical equipment, methods of diagnosis and treatment, etc.) [10, 90].

Scientists M. S. Prokhorov and K. V. Bulash emphasize that today establishment and strengthening of new relationships between three major fields of sciences i.e. social, science and technical are determined by the

requirements of socio-historical practice, the level of its development and requests. However, the researchers point out, that problem of interdisciplinary connections in pedagogical universities is not enough solved. In most curricula, not only in special subjects, but subjects of socio-economic and psycho-pedagogical cycle, there are no even instructions on the use of interdisciplinary connections, and some curriculums contain only general statements [8, 830].

The problem of interdisciplinary connections implementation in higher school, according to O. N. Berdiuhina and M. L. Platonov, is at two organizational levels. Macro level is drawing up standard curriculum and plans of certain disciplines, development of standards, creation of tutorials in which the integration approach is realized. Micro level is a level of usage of different educational technologies in teaching the subjects [1, 3].

According to O. A. Mashkova and O. V. Sidnev realization of intersubject approach at the universities prevents a number of reasons. On the one hand, the weak development of theoretical aspects of the specifics of interdisciplinary connections in higher professional education, on the other hand, the lack of university teachers training in terms of pedagogical theory and teaching methods, the traditional disunity of both departments and individual teachers within the department [6, 128].

On the basis of psychological, pedagogical, philosophical and special literature, we came to the conclusion that science training in higher education institutions contributes to the development of the future professionals, including future psychologists, science culture, critical thinking, creative personality, spiritual, emotional and intellectual capacities, and ideas about scientific picture of the world.

However, carried out analysis of researches points to insufficient scientific development of content and interdisciplinary connections of the future psychologists' science training at higher education institutions and allows to focus on the urgency of the issues raised.

The article aims to identify and theoretically substantiate the interdisciplinary connections of disciplines of basic, science cycles and professional and practical training of the future psychologists at higher education institutions.

Research methods. To achieve the set goal were used theoretical methods: systematic analysis of scientific and methodological literature, bibliographic analysis of the works of classical pedagogy, content analysis of regulations in the field of higher education in order to ascertain the state of elaborated study of the problem; comparison aimed at theoretically substantiate the interdisciplinary connections of disciplines of basic, science cycles and professional and practical training of the future psychologists at higher education institutions; comparison and generalization.

Results and their discussion. Professional training of psychologists at higher education institutions are carried out according to the curriculum, which

combines three cycles of disciplines: humanitarian and socio-economic, fundamental and science, professional and practical. Each cycle has regulatory and variable parts that consist of two areas – disciplines established by the university and courses for students' choice.

Science training of the future psychologists in M. P. Dragomanov NPU is carried out by regulatory disciplines "Age physiology and valeology" (1 year), "Principles of Anatomy and Physiology of the nervous system" (1 year), "Basic medical knowledge and children health" (1 year), "Ecology" (2 year), "Health and safety training course" (4 year) and optional courses "General biology with the basics of genetics" (1 year) and "Pre-medical aid in emergency situations" (1 year). Average hours of basic and science training in curriculum in a field of 0301 Social and Political Sciences, field of study 6.030103 Practical Psychology, presented in the table 1.

Table 1

Extract from curriculum on hours distribution of basic and science cycles

Discipline	Credits	Hours				
		Total	Lectures	Seminar classes	Laboratory practical	Individual work
Regulatory disciplines						
Principles of anatomy and physiology of the nervous system	3	90	20	24	-	46
Age physiology and valeology	3	90	16	18	-	56
Basic medical knowledge and children health	3	90	20	8	16	46
Health and safety training course	3	90	18	15	-	57
Ecology	3	90	18	15	-	57
Disciplines for a student's choice						
Pre-medical aid in emergency situations		90	14	16	-	60
General biology with the basics of genetics		90	14	16	-	60

This distribution of hours is reflected in developed by us training and work programs of the relevant disciplines.

The course "Principles of anatomy and physiology of the nervous system" in our opinion is one of the basic subjects studied by the future psychologists to form a whole understanding of the structural and functional basis of mind and the central nervous system.

We have developed the curriculum for the course "Principles of anatomy and physiology of the nervous system" that contains current data on major morphological foundation that are responsible for the display of psychic phenomena, integrity and hierarchy of the nervous system since the cellular

level and ending with the most difficult level of the nervous system such as cortex cerebral which is the material foundation of the human psyche.

In our opinion while teaching the subject "Principles of anatomy and physiology of the nervous system" it is necessary to pay attention to interdisciplinary connections with the disciplines of professional and practical training such as "Experimental Psychology", "Social Psychology", "Fundamentals of correction", "Fundamentals psychotherapy", "Psychodiagnostics", etc.

Study of development and specific functioning of the physiological systems at various stages of ontogeny is a key prerequisite for human mental well-being.

Particular attention should be paid to the issue of normal mental development of children and teens and the problems of developing physiological bases of educational process and working out adaptation mechanisms and factors affecting child during life.

To resolve these issues it is necessary to have enough depth knowledge of the child, its structure and principles of child's body development.

Developed by us the curriculum for the course "Age physiology and valeology" provides disclosure features of growth and development, structure, functions and functioning of the body at different periods of ontogenesis valeological requirements and standards required in the work of the future psychologists to provide mental well-being of people of different age groups.

Interdisciplinary links in teaching "Age physiology and valeology" in our opinion, it is advisable to do with such disciplines as: "Age Psychology", "Educational Psychology", "Organization of psychological services", "Rehabilitation Psychology" and others.

In the current conditions of political and economic situation, emergency peace, and in some regions wars, growing influence of science and technology on people including children, the role of teachers and psychologists in monitoring the health of the younger generation sharply increases. This obliges to include medical education to the science training of the future psychologists at higher education institutions.

Program of the courses "Basic medical knowledge and children health" and "Pre-medical aid in emergency conditions" are built according to the demands of credit-modular system of educational process in higher education institutions that are recommended by the European Credit Transfer System (ECTS).

The most important form of teaching the basics of medical education of the future psychologists, in our opinion, is laboratory classes which provide formation of students' skills to provide emergency first aid, according to the level of requirements set by educational qualification characteristics of industry standards for higher education in the direction of 6.030103 Practical Psychology.

Lecture course involves mastering a system of knowledge about the causes, symptoms, illness and emergency conditions, means of providing pre-medical care, role of preventive measures in the prevention of diseases.

Seminars are held to discuss and analyze topics that are given to students for individual training.

The efficiency of interdisciplinary relations in teaching “Basic medical knowledge and children health” and “Pre-medical medical aid in emergency conditions”, we consider to be with such disciplines of professional and practical training as “Psychodiagnostics”, “Psychological consulting”, “Organization of psychological service”, “Rehabilitation Psychology”, “Principles of psychotherapy”, “Fundamentals of correction”, “Pathopsychology and Social Psychology”, “Psychology of stress”, “Child psychotherapy” and others.

The explanatory note to the subject “Health and safety training course” we stated that throughout the history of mankind, it has always sought to take care of its own safety. Initially there was a threat to man from natural and biological world, then the threat of the development of civilization created by people themselves urbanization and technological progress.

In modern conditions the problem of safety is highly relevant.

The main purpose of “Health and safety training course” teaching to future psychologists, aimed at mastering knowledge and skills about recognizing danger, organization and management of safety in everyday life conditions and emergency situations.

The issue of interdisciplinary relations in teaching “Health and safety training course”, in our opinion, should be considered the “Rehabilitation psychology”, “Pathopsychology, psychology and social psychology”, “Organization of psychological services”, “Fundamentals of correction” and others.

The current ecology is one of the major basic sciences for professionals of all fields, including psychology; it’s a kind of philosophy of human survival, strategy for civilization rebuild in the XXI century that should meet modern realities in relations between the world’s population and nature.

During the study students-psychologists should master the ability to analyze complex system of relationships in nature, the role of a man in the biosphere processes, causes of imbalance of a particular ecosystem, and causes of both local crises and global crises that cover huge areas and planet in general.

“General biology with the basics of genetics” is a complex subject about patterns of life, structure and activity of the human body at all levels of life, environmental factors influence on a human. As a fundamental subject it is the theoretical basis for psychology, medicine and pharmacy.

The aim of the course “General Biology with the basics of genetics” is formation of general biological knowledge and skills as essential components of science and environmental vision of the future psychologist. The main tasks to be solved in the process of teaching is theoretical and practical training of the future specialists for: organization of living systems and general laws of their existence; interaction of organisms with environment; the role of living organisms in turnover as the necessary condition for ecosystem functioning; common and

distinctive features of the structure and life of major groups of organisms; general laws and regulations variability and inheritance; modern concepts of evolution theory and role of external factors in this process; biological foundations of human development; study interactions of humans and environment on the basis of biological knowledge; morphophysiological adaptation to environmental conditions in connection with its bio-social substance; the impact of molecular – genetic, cellular ontogenetic, population and environmental factors on human health.

Basics of genetics enables future psychologists better understand the laws of heredity and variation in human populations, hereditary diseases and methods of diagnosis, evolutionary processes in human populations and to investigate the role and interaction of heredity and environmental factors in shaping individual differences on psychological and physiological characteristics.

Avoiding isolation of such courses as “Ecology” and “General Biology with the basics of genetics” from disciplines of professional and practical training, in our opinion, would be possible in case of formation of interdisciplinary connections with courses “Ethnopsychology”, “Psychology of professional career”, “Organization of psychological service”, “Prevention and correction of deviations in behavior”, “Psychology of work”, etc.

According to modern requirements, our proposed structure of training and work programs in the disciplines of fundamental and science cycle are based on competence approach taking into account interdisciplinary connections with disciplines of professional and practical training is essentially new to the students studying in the field 0301 “Social and political Sciences” of training direction 6.030103 “Practical Psychology”.

Conclusions. The analysis of research works allows to state that at present science training of the future psychologists at higher education institutions is one of the major means of forming their integral scientific picture of world, awareness of the place and role of a human in it; helps to increase education and training of the future professionals, and establish interdisciplinary connections of disciplines of basic and science cycles and professional and practical training; it is a necessary condition for the formation of an intelligent, educated, highly cultured, competent professionals-psychologists.

Prospects of further research are seen in identifying ways to improve science training of the future psychologists at higher education institutions.

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РЕЗЮМЕ

Билык Валентина. Формирование межпредметных связей дисциплин цикла естественно-научной подготовки как фактор оптимизации процесса обучения будущих психологов в высших учебных заведениях.

В статье акцентируется внимание на значимости межпредметных связей естественно-научной подготовки будущих психологов в высших учебных заведениях как одного из ведущих средств формирования целостной картины мира, осознания места и роли человека в нем, содействия повышению уровня общеобразовательной и профессиональной подготовки. Обоснована необходимость установления межпредметных связей между дисциплинами циклов фундаментальной, естественно-научной и профессиональной и практической подготовки будущих психологов в высших учебных заведениях с позиции формирования всесторонне развитых, образованных, высококультурных, компетентных специалистов. Отмечено, что дальнейшие научные исследования будут направлены на определение путей совершенствования естественно-научной подготовки будущих психологов в высших учебных заведениях.

Ключевые слова: *естественно-научная подготовка, межпредметные связи, будущие психологи, высшее учебное заведение.*

SUMMARY

Bilyk Valentyna. Formation of interdisciplinary connections in Science training as a factor of the future psychologists' education system optimization at higher education institutions.

The article focuses on the importance of interdisciplinary connections of science training of the future psychologists at higher education institutions as one of the major means of forming coherent scientific picture of the world, awareness of the place and role of a human in it, increase of the level of education and professional training.

It is stressed that science education in higher education institutions in the first half of the XX century due to the reduction in number of teaching hours and set amount of training material has been subjected to a number of difficulties

It is pointed out in the article that professional training of psychologists in higher education institutions is carried out according to the curriculum, which combines three cycles of disciplines: humanitarian and socio-economic, fundamental and science, professional and practical.

The author shows the analysis of research and points to insufficient scientific development of content and interdisciplinary connections of the future psychologists' science training at higher education institutions and allows focusing on the urgency of the issues raised. The author focuses on the relevance of the issues raised.

It is substantiated at the example of science training of the future psychologists in M. P. Dragomanov NPU the necessity to establish interdisciplinary connections between disciplines of fundamental, science cycles disciplines and professional and practical training from the perspective of forming an intelligent, educated, highly cultured, competent professionals.

The author states that proposed structure of training and work programs in the disciplines of fundamental and science training are based on competence approach taking into account interdisciplinary connections with disciplines of professional and practical

training which is essentially new to the students studying in the field 0301 "Social and political Sciences" of training direction 6.030103 "Practical Psychology".

It is outlined in the article the prospects for further studies that are seen in identifying the ways to improve science training of the future psychologists at higher education institutions.

Key words: *science education, interdisciplinary connections, future psychologists, higher education institutions.*

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ТЕХНОЛОГІЯ ФОРМУВАННЯ ЗАЦІКАВЛЕННОСТІ У ПРЕДМЕТАХ МЕДИКО-БІОЛОГІЧНОГО ПРОФІЛЮ У СТУДЕНТІВ ВНЗ

У зв'язку з тим, що вже в юнацькому віці більшість студентів не розглядає своє здоров'я як капітал та не має бажання його зберігати, виникла необхідність винайти спосіб зацікавити студентську молодь вивченням загальномедичних знань для подальшого їх використання з метою збереження особистого здоров'я. У результаті педагогічного експерименту було розроблено схему для формування зацікавленості в дисциплінах загальномедичного профілю у студентів ВНЗ. Використання, у певному порядку, первинного анкетування, активна практична робота із заповнення «Особистих щоденників», формування навичок проведення первинного самодіагностування збільшують зацікавленість у дисциплінах медико-біологічного профілю та розкривають студентам їх практичну цінність.

Ключові слова: *анкетування, захворюваність, моніторинг здоров'я, основи медичних знань, оцінка здоров'я.*

Постановка проблеми. Збереження та примноження здоров'я кожного члена суспільства є однім із пріоритетних завдань держави. Однак слід пам'ятати, що відповідальне ставлення до свого фізичного та психічного стану, яке повинно формуватися ще в дитячому віці, є обов'язком кожного громадянина. У цьому ж віці закладаються ментальні й духовні ціннісні орієнтації – все що в подальшому стає базою для професійної діяльності та дає можливість із успіхом інтегруватися в суспільство. На жаль, помилки у вихованні (як з боку батьків, так і з боку соціальних структур) можуть привести до того, що вже в юнацькому віці більшість студентів не розглядає своє здоров'я як капітал, не прагне його зберегти та примножити. У деяких