ANNOTATION

of the dissertation on the topic "Methodological foundations of professional training formation of students in the conditions of educational field practice in biology" for the degree of Doctor of Philosophy (PhD) in the specialty 6D011300 - "Biology"
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Research topic: Methodological foundations of the formation of professional training of students in the conditions of field practice in biology.

The purpose of the study: theoretical substantiation of the formation of professional training of students in the conditions of field practice in biology and the development of modern effective methods of its organization.

Research objectives:

- theoretical justification of improving the professional training (competence) of students;
- creation of a methodological model for the organization of field practice in invertebrate zoology;
- development of a mobile application for the organization of field practice in invertebrate zoology based on information technology;
- practical testing of the effectiveness of the developed methodology for improving the professional training of students in the organization of field practice in the discipline invertebrate zoology.

Research methods: aimed at the development of creative abilities and independent searches of students in obtaining new knowledge during field practice. Theoretical and empirical methods were used in the course of the study. The analysis of pedagogical and methodological literature served as the basis for the theoretical construction of the study. Empirical research methods have made it possible to generalize domestic and foreign experience in the field of biological education. All forms and types of practical work (integration, systematization, interrelation of educational and research activities, continuity, ways to increase cognitive activity) were used in the organization of educational and field practice. Methods of immobilization, determination of eggs and larvae of invertebrates. Methods of collecting terrestrial invertebrates. Desk processing of research materials collected in practice. Methods for analyzing the relationship of collected materials using observations. Pedagogical experiment, conversation, observation, testing, survey, quantitative and qualitative processing of the experimental results obtained by mathematical and statistical methods.

The main principles recommended for protection (proven scientific assumptions and other conclusions that are new knowledge):

- analysis of the relationship between theory and practice forms the professional competence of students, which serves as the basis for the implementation of practical activities in the field practice;
- the methodological model of the organization of field practice is aimed at improving the quality of students' knowledge in invertebrate zoology;

- the methodology of organizing field practice in invertebrate zoology provides the formation of professional training of students, through the application of practical or laboratory work in the educational process, as well as field practice visits.

The main results of the reserch:

- in the field practice, the stages of experimental and test work on the development of professional and methodological training of students are determined: substantiating, basic and final;

- a system of criteria and indicators necessary for the diagnosis of the results of professional and methodological training developed by students during field practice has been developed;

- materials of experimental and test work in practice have been developed that meet the criteria and indicators for determining the degree of development of professional and methodological training of students.

- a methodological model of the organization of field practice in invertebrate zoology has been created;

- a methodology has been developed for organizing field practice of invertebrate zoology, the effectiveness of which has been experimentally tested;

- a mobile application has been developed, experimentally tested and introduced into the educational process for organizing field practice of invertebrate zoology using information technology.

Justification of the novelty and importance of the obtained results:

- *the novelty of the first result* - on the basis of foreign and domestic experience of conducting field practice, the main measures aimed at the formation of professional training (competence) of students are formulated. A methodology for organizing field practice in the discipline of invertebrate zoology in biology has been developed, the effectiveness of which has been clarified experimentally in practice.

- *the novelty of the second result* - lies in the fact that a methodological model of the organization of field practice in the discipline of invertebrate zoology has been created. The field practice based on the created methodological model was applied in practice for students of the Kazakh National Pedagogical University named after Abai and Taraz State Pedagogical Institute. The proposed model has increased research activity as a way of organizing educational and professional activities of students. This will make it possible to correctly solve important social problems that arise in the future that are relevant for students. Research activity in the field practice forms the professional training of students, developing their skills and scientific search skills.

During the period of field practice, methods and features of the organization of biological research were systematized, which contributed to the increase of knowledge in the organization of field practice.

- *the novelty of the third result* - methodological recommendations and a mobile application have been developed for the organization of field practice in the course of invertebrate zoology through information technology.

The developed methodological recommendations can be used: in the preparation of online classes on specific topics; as visual material; in the organization of group and individual work of students; in the organization of research activities of students.

The use of these teaching methods and improved audiovisual tools have had a great impact on the quality of education, as well as on the management of the education system. Video recording as a means of transmitting information provided ample opportunities for organizing the educational process.

With the help of video recordings, students had the opportunity to make excursions to the natural areas of the corresponding southern region of the country. The proposed methodological recommendations and a mobile application for the organization of field practice significantly increased interest in training. This, in turn, improved the quality of students' knowledge.

- *the novelty of the fourth result* - the results of the study are recommended for use in the process of training biology students in higher pedagogical educational institutions, at teacher training courses. The "Textbook for field training practices", "Handbook for field training practice", "Mobile application", "Electronic textbook for field training practice on the discipline "Zoology of invertebrates" have been published and introduced into the educational process. A methodology for organizing field practice in the discipline invertebrate zoology in biology has been developed, its effectiveness has been experimentally tested and recommended for use.

Compliance with the directions of science development or state programs:

The main idea of the research work corresponds to the state program for the development of education and science of the Republic of Kazakhstan for 2023-2029, the mandatory standard of education, the annual messages of the President of the Republic of Kazakhstan Kassym-Jomart Tokayev to the people of Kazakhstan.

Description of the doctoral student's contribution to the preparation of each publication (the contributions of the author of the dissertation are expressed in percentages of the total text):

According to the content of the research work, 10 scientific papers have been published, including:

1 articles published in a scientific journal indexed on the basis of Scopus (percentile-85%);

3 articles are published in the publications listed by the Committee for Quality Assurance in the Field of Science and Higher Education of the Ministry of Science and Higher Education of the Republic of Kazakhstan;

6 articles have been published in foreign rating (foreign expert) scientific journals;

1 textbook (Taraz State Pedagogical Institute, Taraz-2017,).

1 electronic textbook (Taraz State Pedagogical Institute, Taraz-2023);

1 mobile application (M. H. Dulati Taraz Regional University, Taraz-2023).

All publications have been prepared based on the materials of the conducted research.

Publications in a Scopus or Web of Science indexed journals:

1. Organizationally-Pedagogical Aspect of Preparation of Students to Professional Activity in the Process of Educational Practice. Journal of Social Studies Education Research. Turkey. Ankara. 2018. Vol. 9. Iss. 1. P. 1-10. https://jsser.org/index.php/jsser/article/view/238 (Co-authors: J.Childibayev, B.Yessimov, Zh.Tuleubayev, G.Ziyayeva, M.Alpysbaikyzy - 25%) The contribution of the doctoral student to the publication - 75%. We propose organizational and pedagogical aspects of preparing students for professional activities.

In publications recommended by the Committee for Quality Assurance in Science and Higher Education of MNVORK:

1. Development of populations of soil unicellular organisms in natural ecosystems. Vestnik ENU named after L.N. Gumilyov, series "Natural and Technical Sciences," No. 6(64)/- Astana, 2016. pp. 469-473. (Co-authored with: Zh.B. Childebayev, B.K. Esimov - 20%) The contribution of the doctoral student to the publication - 80%. The article discusses the peculiarities of the development of soil unicellular organisms.

2. Organizational and pedagogical aspects of preparing students for professional activities during educational practice. Vestnik KazNPU named after Abay, series "Pedagogical Sciences," No. 39(55)/- Almaty, 2017. pp. 113-119. (Co-authored with: Zh.B. Childebayev, B.K. Esimov, Zh.S. Tuleubaev - 30%) The contribution of the doctoral student to the publication - 70%. The article discusses effective methods of preparing students for professional pedagogical activities.

3. Functional approach to organizing students' activities during field practice in zoology. Vestnik of Shakarim State University of Semey. Series "Technical, Biological, Agricultural, Veterinary, Historical, Economic Sciences," No. 1(18)/- Semey, 2018. pp. 125-130. (Co-authored with: B.K. Esimov, A.S. Abzhaparov, M. Alpysbay - 30%) The contribution of the doctoral student to the publication - 70%. The article discusses effective methods of preparing students for professional pedagogical activities.

Scientific papers published in scientific journals:

1. The significance of educational and field practice in the training of biology students. Scientific and Methodological Journal "Biology in School." No. 7, ISSN 0320-9660. - Moscow, 2017. pp. 32-39. (Co-authored with: Zh.B. Childebayev, B.K. Esimov - 20%) The contribution of the doctoral student to the publication - 80%. The article discusses the significance of educational and field practice in the training of biology specialists.

Materials of an international scientific-practical conference:

1. The use of modern teaching methods in teaching zoology. International scientific-practical conference "Biological and Ecological Education in School and University: Theory, Methodology, Practice" at A.I. Herzen Russian State Pedagogical University. - Saint Petersburg, 2016. pp. 187-190. (Co-authored with: Zh.B. Childebayev, B.K. Esimov - 20%) The contribution of the doctoral student to the publication - 80%. The article discusses modern approaches to teaching the course of zoology.

2. Activation of research activities of students during educational-field practice on invertebrate zoology. III International Scientific and Practical Conference "Scientific Issues of the Modernity" No. 5(21), Vol. 5, May 2017, Dubai, UAE. pp. 5-9. (Co-authored with: Zh.B. Childebayev, B.K. Esimov - 20%) The contribution of the doctoral student to the publication - 80%. The article discusses enhancing scientific activities during educational-field practice in the study of invertebrate zoology.

3. Influence of training of cognitive - practical activity of students on efficiency of professional training in the process of educational field practice on biology. Periodico Tche Quimica. Porto Alegre, RS. Brasil. 2018. Vol. 15 N.30. P. 322-329. https://www.researchgate.net/publication/326990233 (Co-authored with: B.Yessimov, Zh.Tuleubayev, K.Seitbayev, S.Sagyndukova - 20%) The contribution of the doctoral student to the publication - 80%. The influence of cognitive and practical activity of students on the effectiveness of professional training in the process of educational field practice is considered.

4. Organizational and pedagogical conditions for improving the effectiveness of educational-field practice for biologists. International Journal of Innovative Technologies in Social Science. 3(7), Vol. 2, May 2018. pp. 21-25. (Co-authored with: B.K. Esimov, G.Seribekkyzy, A.G.Rezanov, T.Tleualiyeva - 20%) The contribution of the doctoral student to the publication - 80%. The article discusses organizational and pedagogical conditions for improving the effectiveness of educational-field practice.

5. Formation of a biology-teacher in a student group during educational-field practice. "Science and Innovation in the 21st Century: Current Issues, Discoveries, and Achievements" Proceedings of the XIII International Scientific-Practical Conference. Penza, 2019. pp. 38-42. The contribution of the doctoral student to the publication - 100%. The article discusses the effectiveness of forming students in a collective group during educational-field practice.

Educational-methodical, teaching aids:

1. Educational manual for educational-field practice. - Taraz: ZhK "Qarahan" RBO, 2017. - 152 p. Recommended for publication by the Academic Council of TarSPI. Protocol No. 17, date 25.06.2017. Taraz, 2017 ISBN 978-601-7903-27-5 (Co-authored with: Zh.S. Tuleubaev, G.K. Ziyaeva, S.S. Eraliev - 30%) The contribution of the doctoral student to the publication - 70%.

2. "Reference educational manual for educational-field practice" mobile application. Recommended for use by the Academic Council of TarRU named after M.H. Dulati. Protocol No. 8, date 16.03.2023. The contribution of the doctoral student to the publication - 100%.

3. Electronic educational manual on the subject of invertebrate zoology for educational-field practice. Recommended for use by the Academic Council of TarRU named after M.H. Dulati. Protocol No. 8, date 16.03.2023. The contribution of the doctoral student to the publication - 100%.

These publications and educational-methodical aids are related to the content of the dissertation and, based on the results of the research conducted, are independent works of the doctoral student.