

Vocational training of students when studying biological disciplines

Bibenur Askarovna Baidalinova, Bakhytzhama Bagustarovna Gabdulhaeva, Muhametkali Kalimovich Zhakupov, Gulsara Kanatkyzy Darzhuman, Saltanat Zhumabaevna Kabieva

Pavlodar State Pedagogical Institute, Pavlodar, Kazakhstan

Abstract. Article is devoted to a problem of vocational training of students by means of studying of biological disciplines in the conditions of the changes happening in modern education. As a methodological basis of its decision competence-based approach is offered. Vocational training of students when studying biological disciplines as process of mastering by the competences necessary for professional activity of the biologist locates. In turn, professional readiness of students is understood as existence the of fundamental knowledge of biological disciplines and other fundamental disciplines, an ability to use this knowledge in design activity for the solution of problems of the applied character considering specifics of specialty, motivation existence to the solution of professional tasks and ability to work in team, possession professional competences. The model of vocational training of students means of studying of biological disciplines and pedagogical conditions of its effective realization locates in modern conditions of training of students of biologists to professional activity in pedagogical higher education institution.

[Baidalinova B.A., Gabdulhaeva B.B., Zhakupov M.K., Darzhuman G.K., Kabieva S.Zh. **Classification of Mediation in Bribery and the Issue on Foreign State Officials or International Organizations as Subjects of Giving and Taking Bribe.** *Life Sci J* 2014;11(1s):245-248] (ISSN:1097-8135). <http://www.lifesciencesite.com>. 44

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1. Introduction

In Marissa Harle, Marcy H. Towns [1, p.369], Harold B. White, Marilee A. Benore, Takita F. Sumter, Benjamin D. Caldwell and Ellis Bell [2], Tracey Arnold Murray, Pamela Higgins, Vicky Minderhout and Jennifer Loertscher [3], Thomas Eberlein, Jack Kampmeier, Vicky Minderhout, Richard S. Moog, Terry Platt, Pratibha Varman-Nelson and Harold B. White [4], Michael F. Antolin, Kristin P. Jenkins, Carl T. Bergstrom, Bernard J. Crespi, Subhajyoti De, Angela Hancock, Kathryn A. Hanley, Thomas R. Meagher, Andres Moreno-Estrada, Randolph M. Nesse, Gilbert S. Omenn and Stephen C. Stearns [5], and Sakenov, D. Zh, [6, p. 1431] researches devoted to the higher education, today it is paid much attention to questions of formation of competence, mobility, adaptability, competitiveness of the modern teacher of biology both at a preparation stage in higher education institution, and in the course of professional activity. Various approaches to creation of educational process are offered, conditions and the factors having impact on development of systems of vocational training of the expert in the field of education are defined, models of educational and methodical systems are projected, conditions of efficiency and efficiency of their functioning come to light.

However it is thus noted that process of adaptation of the graduate becomes complicated and the gap between results of development by students of an educational program in higher education institution and opportunities of successful inclusion

in professional activity in the conditions of modern education is more clearly observed.

We believe that one of the reasons promoting creation of current situation, insufficient level of understanding and judgment students of competences of process of vocational training of the teacher-biologist in higher education institution of interrelation of the content of biological disciplines with features of the environment in which they should carry out the professional activity is. Students biologists have to seize the following competences:

Educational competences: to own professional activity, to project the professional development; to project and organize educational process; it is rational to use pedagogical and information technologies. Research competences: to observe, analyze, project and predict educational process; to own knowledge methods; to introduce results of research in the professional activity. Administrative competences: to plan, control, operate educational, educational process in biology. Social competences: to maintain the relations in the professional environment.

The analysis of researches Sakenov, D. Zh, [6, p. 1431], Dornan, T., Carroll, C., Parboosingh [7, p. 767], Larionov, V.V.[8, p. 63], Ishanov, P., Bekmambetova, Z. [9, p.902], Schantz, E.A [10, p.383], Aviv Shachak, Sara Fine [11, p.719] of a problem of vocational training of students in higher education institution showed that among researchers there is no unity in understanding of the term "vocational training of students" at the heart of which there has to be a competence-based approach as an

important component of professional activity. In our opinion, vocational training of students when studying biological disciplines is process of mastering by the competences necessary for professional activity of the biologist. In turn, professional readiness of students is understood as existence the of fundamental knowledge of biological disciplines and other fundamental disciplines, an ability to use this knowledge in design activity for the solution of problems of the applied character considering specifics of specialty, motivation existence to the solution of professional tasks and ability to work in team and as earlier we noted, possession professional competences.

The purpose of our research is justification of vocational training of students by means of studying of biological disciplines.

2. Methods.

For the solution of the set objectives and verification of initial assumptions the following research methods were used: theoretical - analysis of the studied problem in scientific literature, empirical - observation, conversations, questioning, discussions, interviewing, analysis of the best pedagogical practices, analysis of creative works of students, studying of high school documentation (state standards of education, curricula, standard programs, educational-methodical complexes of elective disciplines) experiments, modeling.

3. Main part.

For justification of vocational training of students by means of studying of biological disciplines, we need to develop model of vocational training of students means of studying of biological disciplines and pedagogical conditions of its effective realization in modern conditions of training of students of biologists to professional activity in pedagogical higher education institution.

We agree with researchers that today, in system of high school biological education dominates purely educational, and reproductive, training in biological disciplines, formal, instead of qualitative interrelation with profile biological disciplines [1, 3; 4; 5]. Students can't use further consciously possibility of biological disciplines for the complete solution of professional problems of biological education. On the basis of the carried-out analysis of works of Marissa Harle, Marcy H. Towns [1, p.369], Harold B. White, Marilee A. Benore, Takita F. Sumter, Benjamin D. Caldwell and Ellis Bell [2, p. 297], Sakenov, D. Zh, [6, p. 1431], Larionov, V.V.[8, p. 63] etc. we offer option of vocational training of students means of studying of the biological disciplines:

- a technique of teaching of biology,

- anatomy, histology,
 - cytology, biochemistry,
 - molecular biology,
 - bioinformatics,
 - botany, zoology and others,
- which model is presented in fig. 1.

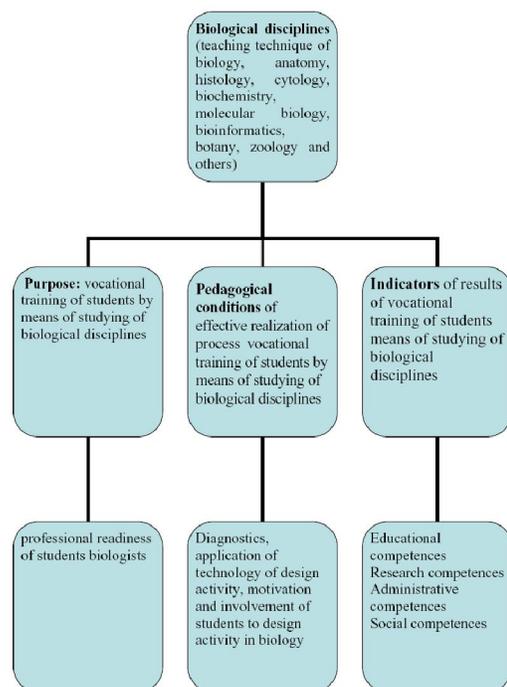


Figure 1. Model of vocational training of students means of studying of biological disciplines

In modern **conditions of training of students** of biologists to professional activity we understand realization of a complex of technological procedures which includes Diagnostics, application of technology of design activity, motivation and involvement of students to design activity in the biology, most realizing training, bringing-up and developing functions, and raising efficiency of vocational training of students of biologists in higher education institution as Pedagogical conditions of effective realization.

In the course of stating experiment problems of diagnostics of a real professional standard of students on the basis of studying biological disciplines (a technique of teaching of biology, anatomy, histology, cytology, biochemistry, molecular biology, bioinformatics, botany, zoology and others) in control and experimental groups, identification of opinion of students about motives of studying biological disciplines (a technique of teaching of biology, anatomy, histology, cytology, biochemistry, molecular biology, bioinformatics, botany, zoology and others), definition of level of

informative activity, identification of degree of formation of competence were solved:

- Educational competences
- Research competences
- Administrative competences
- Social competences

and professionally significant qualities of the identity of the student, comparison and the analysis of the results received in control and experimental groups.

Carrying out a stating stage of experiment allowed us to draw a conclusion on lack of essential distinctions between students of control and experimental groups on the allocated indicators of vocational training of students funds of studying of biological disciplines for the beginning of carrying out forming experiment.

Check in practice of model of vocational training of students by means of studying of biological disciplines and a solvency and efficiency of the developed pedagogical conditions of vocational training of students means of studying of biological disciplines where it should be noted the special importance of indicators of results of vocational training of students means of studying of biological disciplines as created competences are realized as much as possible by unity of training, bringing-up and developing functions of process of vocational training of students became the purpose of carrying out forming experiment and process therefore, rather high potential for increase of efficiency of vocational training of students.

Pedagogical conditions of vocational training of students means of studying of the biological disciplines, designed by results of complex scientific and theoretical research, underwent at this stage testing in educational groups in combination with the control provided by curricula and programs of higher education institution. Essential distinction between control (C) and (E) groups change of character and the organization of educational activity of the last due to realization of pedagogical conditions of vocational training of students by means of studying of biological disciplines became experimental.

In experimental groups control was carried out on specially developed methodical materials intended for systematic check of acquired knowledge, skills. For the purpose of identification of extent of influence of the realized pedagogical conditions of vocational training of students by means of studying of biological disciplines upon termination of forming experiment we conducted total research of the main indicators of vocational training of students by means of studying of biological disciplines, degrees of formation of competence:

- Educational competences

- Research competences
- Administrative competences
- Social competences.

The statistical analysis of the data obtained as a result of experiment, gave mathematical confirmation of the importance of pedagogical conditions of vocational training of students by means of studying of biological disciplines. As showed the comparative analysis of values for each of the studied indicators, Pedagogical conditions have the greatest impact on efficiency of vocational training of students as a whole (table 1).

Table 1. Dynamics of efficiency of vocational training of students when studying biological disciplines (in %)

Level of Efficiency	Group	Before experiment %	After experiment %
Low	C	24	23
	E	25	7
Average	C	37	36
	E	34	36
High	C	39	41
	E	41	57

The data provided in table 1, show that after the organization of experimental work in experimental group are observed dynamics of high and average levels of efficiency of vocational training of students when studying biological disciplines that confirms efficiency of the made pedagogical experiment.

4. Conclusions and recommendations.

The analysis of the results of the research shows:

- a tendency to the growth of the level of knowledge of theoretical material,
- increase of the level of formation of professionally focused designing abilities and
- increase of the level of motivation for professional activity when using this scheme of training.

In pedagogical process of higher education institution it is expedient to use pedagogical conditions of vocational training of students means of studying of biological disciplines (diagnostics, application of technology of design activity, motivation and involvement of students to design activity in biology), most realizing training, bringing-up and developing functions, and raising efficiency of vocational training of students in higher education institution means of studying of biological disciplines.

To use for objective estimation of efficiency of vocational training of students, indicators of vocational training of students means of studying of the biological disciplines, offered in this research.

Told allows to draw the general conclusion that the objectives of research are achieved above; theoretical and experimental materials are confirmed in the established volume.

Corresponding Author:

Dr. Baidalinova, Pavlodar State Pedagogical Institute, **Mira Street, 60**, Pavlodar, Kazakhstan.

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