Research Activities of Students within the Framework of Continuous Education Concept

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Abstract. The ongoing changes in public life and the socio-economic sphere provided all categories of citizens with a historic chance to expand their life choices. In this regard, the possibilities for meeting the educational needs of persons with disabilities are significantly expanded. The main task in the conditions of a new reality is to prepare young people with disabilities to choose a profession, receive a full-fledged education and self-realization. The decisive factor in the choice of a profession is the satisfaction of an individual’s need for self-realization in order to establish himself in society. For persons with disabilities a serious difficulty is the solution of such tasks as the objectivity of self-esteem, the ability to realize the chosen individual educational and professional trajectory. A review of the main types of web quest has been made, the role of the use of this technology in the formation of professional qualimetric culture has been determined.

Implementation of the Educational Process Taking into Account the Function of Social Habilitation

“Education is a single purposeful process of upbringing and training, which is a socially significant boon and is carried out in the interests of the individual, family, society and the state, as well as a set of acquired knowledge, skills, values, experience and complexity for intellectual, spiritual and moral, creative, physical and (or) professional development of a person, satisfaction of his educational need and interest” [1].

The ongoing changes in public life have increased the chances for many categories of citizens in determining their way of life. The main task in the conditions of a new reality is to train young people with disabilities to make a conscious choice of a profession, to get a full-fledged general and vocational education, further self-realization in society.

Intensive development of the labor market, increasing demands on the level of employee training, who should have versatile skills and knowledge, an active lifestyle, the ability to adapt and make decisions in non-standard conditions, a willingness to constantly develop and improve their educational and professional level, has led to the need to create a new universal educational concept, which is suitable for all categories of citizens, and taking into account the specific features of the students due to their health condition. Such a universal educational concept implies the development of the theoretical and methodological foundations of the modern pedagogical theory continuing education using innovative information technologies.

In the process of socialization, persons with disabilities often encounter serious obstacles caused not only by low self-esteem, but also by the lack of social and technical support, which significantly impede objectification of the intended individual educational and professional trajectory. By introducing innovative information technologies [2] into the system of general and vocational education, modern society provides an opportunity for people with disabilities to discover their intellectual potential, totally participate in social life, self-actualize and become a full-fledged member of society.
The concept of continuing education makes it possible to realize the function of social habilitation, it provides, along with training and education, a comprehensive preparation of a person for professional activity, as well as his professional self-realization, which is extremely important for the people with disabilities. The task of habilitation is solved by predicting an individual professional trajectory, using in educational programs functional elements of adaptation to future professional activity and applying the “Russian method” at all stages of continuing education [3, 4, 5].

The "Russian Method" of Training in the Continuing Education System

The features of the “Russian method” are the large-scale merging of theoretical training with practical research. This method is successfully implemented in the framework of technical training in MSTU. N.E. Bauman. The use of the “Russian method” presupposes that the educational organization has a solid laboratory base, well-established ties with municipal services, which provide modern platforms for students to apply theoretical knowledge in practice throughout their studies. The use of the “Russian method” requires powerful information support, which ensures the rapid spread in the student environment of up-to-date information about enterprises, existing positions, and necessary knowledge for holding these positions. This information should contain as many aspects as possible that can attract the attention of students, especially students with disabilities.

In addition, use of the "Russian method" involves the following forms and methods of training:
- seminars and lectures held with the participation of highly qualified professionals in relevant areas;
- field studies to familiarize with the activities of enterprises of a certain profile;
- surveys and test of students to identify potential employees and their initial preparation for work in specific positions;
- coordination of the educational process with enterprises-consumers, adjustment of lecture material taking into account the recommendations of highly qualified employees of enterprises, assistance of enterprises in organizing and conducting seminars
- simplified access to information for students with disabilities, which is provided by the widespread use of information and communication technologies.

The use of the “Russian method” of training in domestic and foreign educational practice is often limited to the training of specialists in technical majors. In the process of training humanitarian specialists, it is possible to implement the “Russian method” by increasing the number of classes using modern information systems, which allow to conduct various trainings, solve game problems, simulate the real function conditions of specialists, carry out simulation modeling, and etc.

Thus, the “Russian method” of training involves the development of a set of special teaching materials and learning technologies, which leads to the reorganization of the entire educational process, as well as to increased requirements for the teacher and his role in the implementation of training process.

The organization of science research development (R & D) of young people should be systematic, aimed at the gradual mastering of R & D methods, as well as the requirements for its implementation, design and protection of the product of research activities. The most effective approach here is the end-to-end program “schoolchild-student-specialist”, which allows you to start training in the pre-university training system, continue while the student is studying at the university, and produce a science-oriented, research-capable specialist.

In order to identify, attract and train high-school students who are inclined to R & D in MGTU. N.E. Bauman created research laboratories, identified initiative groups of teachers, carrying out the scientific management of potential applicants. The activity of the research laboratory involves the training of young people in a group of up to 10 in a special program with in-depth training in the relevant field with a view to further admission to university. Education in a research laboratory can be carried out by university professors or specialists of enterprises in the process of lectures, in laboratory installations and stands, during educational and technological practice. It is also very
important here is the close cooperation with educational institutions, enterprises and research institutes.

Strong experiences going with the creative process, and the gigantic amplitude of transitions from the state of delight to the feeling of complete collapse harden the will, and form the subjective experience of young man, make him stronger and wiser. In the life and development of a person with disabilities, the decisive factor is his internal power “to succeed”, and the role of personal self-development in self- affirmation in life as an independent social individual and a mature intellectually developed personality increases [7,8].

After analyzing the system of professional training, we notice that insufficient attention to the organization of R&D for young people in schools, institutions of supplementary education and universities can lead to a shortage of highly skilled workers in modern enterprises, a weak influx of new specialists and a regular leakage of personnel, while indeed the effectiveness of management depends on personnel that requires an appropriate management system.

It is obvious that professional training of specialists at the present time cannot be effective without the appropriate scientific and methodological support of youth R&D, and consolidation of efforts in this direction of teachers and researchers of universities.

Web-quest Technology as a Means of Formation of Professional-qualimetric Culture

One of the main stages of the formation of professional-qualimetric culture is the technological stage, which includes the diagnosis of basic preparedness, theoretical, practical and optional training, self-education, abstract conceptualization and active experimentation.

In the era of information technology, most students are actively using modern information technologies that simplify the process of searching and processing information. In this regard, web-quest is widely used as a way of modern organization of interactive learning in the process of student’s independent work. Web-quest is an educational website dedicated to the independent research work of students (usually in groups) on a specific topic with hyperlinks to various web pages. [2, 3, 4].

Web-quest technology is an effective means of professional and qualimetric culture formation, as it provides creativity freedom of students in the framework of a collective web project, but at the same time it provides the necessary educational and information resources, thereby increasing motivation for learning and formation of confidence in success. The use of this technology also allows the most effective development of students' analytical and creative thinking skills, to form new competencies, and realize creative potentials [5].

As an educational technology web-quest relies on a constructive approach to learning. This approach assumes the role of teacher-consultant, teacher-organizer, teacher-coordinator of research, problem-oriented and cognitive activity of students. The main purpose of the teacher, according to this approach, is to create conditions for the activation of independent mental activity of students, support and activation of initiative in the learning process. In turn, students share responsibility with teacher for the learning process and results as full partners in the learning process. The term "web-quest" was first proposed in 1995 by Professor Bernie Dodge of San Diego University, who developed innovative applications on Internet to integrate them into the learning process at different levels.

Currently, in other countries, the technology of web-quest is widespread, it is only beginning to gain popularity in Russia. The popularity and effectiveness of this method is due to the use of not only dictionary, encyclopedic articles, summaries of textbooks, but also the most basic - relevant sources, rich media information.

Web-quest technology helps teacher to obtain the attention of students, meet their needs and interests, inspire successful achievement of the goal, make a sense of satisfaction after finishing work. Thus, working on a web-quest, students are on the theory of J. Keller (1983, 1987) a full cycle of motivation from attention to satisfaction. ((ARCS (Attention Relation Cant dance Satisfaction). [2]
The use of web-quest in educational process allows students to develop the skills of discussion, research, and form a professional-qualimetric culture in terms of the development of an ability to build new concepts and relationships in the real world problems, it provides an increase in practical applicability of the created projects.

The main advantages of web-quest technology are:
1. Actualization of the tasks set for students in accordance with the current socio-economic situation;
2. Compliance with the interests of students through the use of Internet technologies;
3. Increase the popularity and research activities among students;
4. The interdisciplinary nature of the technology;
5. Close relationship with the real socio-economic situation;
6. Diversity, boundless and constant replenishment of applied training resources;
7. Multi-aspect evaluation of learning through discussion by teachers, as well as by other students and external experts;

The feature of implementation of web-quest technology concludes as integration of methodological strategies in the real socio-economic conditions and their implementation in educational process.

Let us consider in more structure detail of the web-quest. It should include parts such as:
1. Introduction. This stage provides a description of the basic information, the selection of key concepts, specification of the main issue (goal), on which the quest participants will think. At this stage, the roles of participants should also be defined and described, a scenario and an overview of the quest are given, and a preliminary work plan is drawn up. The main task of this stage is to interest and motivate the quest participants.
2. The central task, as the main goal, key tasks of the quest, problem and ways to solve it. The main objective of this stage is to direct students to the solution of specific tasks, and achieve a specific goal. In this process correct formulation of problem is important, it should be understandable, interesting and most importantly achievable.
3. List of information resources. It is a link to resources on the Internet, addresses of websites on the subject (in electronical form - on CDs, video and audio media, in paper form), which are necessary for completing the task. This list should be annotated.
4. The process. It includes a description of the progress of work, the distribution of roles, responsibilities of each participant, links to Internet resources, and final product. This section contains instructions on how students will perform the task, as well as the order of execution and sorting of information.
5. Evaluation. This section contains criteria for evaluating the completed task. Evaluation criteria should depend on and correspond to the complexity of the training tasks performed.
6. Guide to action. This section should provide information on how to organize and present the collected information, which can be presented in the form of guiding questions, organizing the training work (for example, related to the definition of time frame, the general concept, recommendations on the use of electronic sources, the presentation of "blanks" of web pages, etc.).
7. Conclusion. At this stage, the experience gained in the process of independent work on the quest is evaluated, results are summarized, as a result of the discussion, and the answers to questions are revealed. It is also possible to include rhetorical questions in the final part that encourage participants to further study topics.

Currently, there are several classifications of web-quest:
1. Short-term web-quests: aimed at knowledge acquisition and integration. As result of overcoming this quest, it is assumed a large amount of information on a given topic.
2. Long-term web-quests: aimed at expanding and refining knowledge. The result of the development of this quest should be a deep analysis of the collected knowledge and their transformation into a new understanding, which is presented to the readers in the online mode and outside cyberspace.
In sum, we can say that web-quest is one of the promising direction for formation of professional and qualimetric culture. The effectiveness and efficiency of this method lies in the fact that students do not receive ready-made answers or solutions, but independently solve their task. Also, the reality of this technology in increasing motivation and involvement of students in the educational process is revealed.

References