

# Chapter 16

## Formation of Students' Research Competence in the Framework of Innovative Educational Clusters

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### ABSTRACT

*In this chapter, authors determine the necessity of reforming the higher education system, which should be aimed at training graduates who can independently coordinate their professional activity. The authors point out that this is not possible without the formation of research competence of students during their education at university. One of the main tasks of high school at the present stage of its development is not just to present students with ready-made knowledge but the ability to shape their own ability to get information, to be able to search for innovative solutions. The educational cluster as the organizational form of association of stakeholders enhances the effectiveness of the efforts of the regional system of vocational education.*

### INTRODUCTION

The most important task of modern higher education is vocational training of staff, owning the basics methodology of research activities, which implies the ability to continuously improve their knowledge, increase their professional and personal potential (Fadeeva et al., 2008). The personality of the future specialist is formed in a modern high school on the basis of the development of his abilities in various spheres of its activities: educational, professional, research. The most effective form of creative personality development is a continuous system of research work of students as an inextricable component of the triune educational process: the academic, educational and scientific (Fedosova, 2006).

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In the system analysis, the scientific-research activity of students is considered to a complicated, probabilistic, an open system that is highly dynamic, aimed at the formation of professional skills and having specific structural features (Andreev, 2003).

The main tasks of professional pedagogical training of future specialists are the following: inculcating the students with positive values; creative self-realization and self-development of future professional activity; acquiring by students general scientific system of knowledge, methodological and professional knowledge about the methods of training and scientific knowledge; the system of research and creative skills; development of abilities to create the favorable intellectual and creative atmosphere of academic knowledge (Chernyaeva, 2003).

However, in terms of mass higher education process to identify students who are prone to the scientific work is hampered, the motivation for research activity among youth is weakened at the present time. Consciously not all talented students connect their lives with science. Therefore, for the development of highly qualified personnel is required to identify students prone to the scientific work already in the first training course in high school. This would not only allow to involve them in research, motivate to enroll in graduate school, but also to form the personality of the scientist. A crucial aspect of the organization of research work is the creation of conditions conducive to the formation and development of skills of researchers.

According to the results of cluster development programs it is possible to reveal several meaningful blocks of universities' contribution in the development of industry (within the cluster). The basic direction of interaction between high school and a cluster of organizations, both in terms of funding as well as the frequency of interaction, is to train professionals for the cluster's companies. In this area, there are several types of activities.

First of all, the university usually assumes obligations to conduct labor market analysis as a whole or the industry in which cluster's organization conducts its business. This makes it possible to actualize needs of the cluster's organization in the young professionals, to assess the existing educational potential of high school in order to meet this need.

Following the results of analysis, the university may reveal shortcomings in the amount and quality of training in priority for the cluster and specific industry areas.

To eliminate the deficiency of high school graduates the university will initiate a series of activities and projects aimed at promoting the necessary training areas among students and students. Thus, the analysis of the development programs shows that most universities conduct vocational guidance activities, career fairs, create basic departments with rich programs of training and advanced equipment, arrange practice and training of students on the basis of cluster's organizations. All it significantly improves the motivation of students and the desire to continue working in the cluster's organizations.

On the other hand, universities actively involve representatives of the cluster to the organization and conduct of the educational process. In particular, representatives of the cluster are involved in the development and adjustment of educational standards, basic educational programs of vocational training (in the variable part) and training courses for the benefit of the industry where the cluster operates; the development and opening of new areas of study; to the intermediate and final certification of competencies of students and university graduates.

Thus, clusters with participation of leading universities contribute to the development of the industry, not only by improving the quality of personnel prepared for the industry, but also through the production of innovative products.

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