

Chapter 21

Development of Students’ Research Competency in the Frames of Continuing Education

Ekaterina Egorkina
ITMO University, Russia

Mikhail Ivanov
International University in Moscow, Russia

Natalia Ivanova
International University in Moscow, Russia

Nadezda Vladimirovna Uchevatkina
International University in Moscow, Russia

ABSTRACT

In this chapter, we will pay the special attention to the use of information technologies in the two-level educational process (bachelor-magister), which contributes to the effective formation of scientific-research competences with the direct interconnection of science and production. The main features of forming scientific-research competences are described. The experience in students learning to develop these competences on each grade of education is shown. There are recommendations how to provide the properly quality of scientific-research competences, including using the information-communication technologies.

INTRODUCTION

In accordance with the strategy of innovative development of the Russian Federation for the period up to 2020, the transition of the economy to an innovative socially-oriented model of development must be implemented, while one of the priority areas indicates the development of modern education. The important thing is the competent construction of the educational process, which is in a rigid connection with science, production and the state’s requirements for the formation of a modern world level of sci-

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entific and technological knowledge. In opinion of Kisilitsin (2014) the new educational model, which includes the principles of integration and mobility, should be closely related to the idea of the lifelong learning. Continuing education and the acquisition of appropriate time necessary skills are considered as responses to the growing competition and the use of new technologies.

The mechanism of integrating all the competences obtained in the process of learning among students in a university complex should occur in direct connection with science and production (the real sector of the economy). To create the most effective process for the formation of scientific-research competencies, students should take into account certain factors in the educational process: the level of preparedness, the degree to which students possess research skills.

Formation of competencies within the educational process is now impossible to imagine without information technology and information communications. The usage of these technologies in students learning, in order to form their right skills, opens up new opportunities and perspectives for the development of the acquired knowledge, mastering the practical skills aimed at finding non-standard methods, the ability to work with reference and special literature, various instruments and equipment.

In this chapter, we will pay the special attention to the use of information technologies in the two-level educational process (bachelor-master), which contributes to the effective formation of scientific-research competences with the direct interconnection of science and production.

BACKGROUND

Review of different sources in scientific literature shows the big difference in competence definition and the bigger difference in the meaning of scientific-research competences. According to glossary of labor market terms and European educational standards and programs, the competence is the ability to do something well and effectively; compliance with the requirements to the work; ability to carry out special employment functions. This definition of competence is added by Spencer and Spencer (1993): the competence is given "as five types of competence characteristics in the Iceberg Model, the competence is an individual underlying characteristic (the competence is a fairly deep and enduring part of a person personality and can predict behaviour in a wide variety of situation and job tasks) that is casually related (that the competence causes or predicts behaviour and performance) to criterion referenced effective and superior performance in a job or situation (that the competence actually predicts who does something well or poorly as measured on a specific criterion standard). The visible part of the iceberg knowledge and skill called as qualification is important but not the deepest level of the competence structure. Knowledge understand information a person has in specific content areas and skill describe as the ability to perform a certain physical or mental task are in a certain way cautious while giving comments on knowledge as visible elements of the competence".

Scott Parry (1996) underlines measurement and the fact that competencies can be improved with training. In the Johannesburg Definition the competency was recorded as "a cluster of related knowledge, skills and attitudes that affects a major part of one's job (a role or responsibility), that correlates with performance on the job, that can be measured against well-accepted standards, and can be improved via training and development".

Boyatzis (1982) defines work competency as an underlying characteristic of a person, which can be a motive, a trait, a skill, an aspect of his personal image or of his social role, or a body of knowledge, which the person uses. This definition shows competency to be a mix of a number of things (motiva-

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