Chapter 4
The Problems of Competence Approach: The Estimation and the Control in World E-Learning Systems

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ABSTRACT

In this chapter the authors consider the problems of competence approach, the estimation and the control in world E-Learning Systems. The main attention is on the problem of the formation of evaluation competencies. We consider detailed examples showing how, at a certain stage, learning can be assessed in varying levels of competence. Based on a detailed analysis of the educational standard and assessment of proposed methodology, the authors formalize this assessment and express it by a mathematical formula. The problems of estimation and control are proposed to be solved using feedback based on sliding mode by Prof. Vardan Mkrttchian.

INTRODUCTION

Since the 1990s, the concept of “globalization” has been actively included in the public consciousness. The term “globalization” is usually understood to mean the universal multilateral process of cultural, ideological and economic integration of states, state associations, national and ethnic unity.

The works Kataev et al. (2013) showed one of the most important components of the process of globalization is the process of integration in education. Today we are witnessing an “educational boom” in almost all countries of the world, including the most developed ones. It is not surprising, since the processes of globalization affect the fundamental basis of individual cultures. Among the major trends in world development enabling the integration processes are the following:

DOI: 10.4018/978-1-4666-9489-7.ch004
• Accelerating the development of society, the rapid change in living conditions, which implies the need to prepare people for life in a rapidly changing environment (the problem of adaptation);
• Increase in the many ways information flows, a significant expansion of cross-cultural interaction, and therefore the particular importance factors of sociability and tolerance;
• The dynamic development of the economy, increased competition, reduction of the scope of unskilled labor, the growth of professional mobility;
• The increasing importance of human capital (70 to 80% of national wealth in different countries);
• Expansion of the democratization of society.

At the heart of the European integration of educational systems on the ideas of so-called Bologna Declaration, signed on 19 June 1999 in Bologna by the Ministers of Education from 29 countries. In 2003 Russia joined the Bologna Declaration. In this declaration, the ministers agreed on a common goal of creating a unified and coherent European educational space by 2010. Further development of the idea of the Bologna Declaration occurred in the so-called Bruges-Copenhagen process. The process was supposed to begin November 20, 2002 at the Copenhagen meeting of education ministers of 31 countries, which adopted the “Copenhagen Declaration”, to set the following strategic objectives in education:

• The creation of a common format for documents on competences and qualifications (euro CV, Diploma Supplement; Euro pass, etc.);
• Development of a system for transferring credits for vocational education and training, using the ideas of the European credit system (European Credit Transfer, ECTS);
• The definition of common criteria and guidelines for quality assessment in vocational education and training;
• The development of common criteria and guidelines for the recognition of non-formal education;
• Providing leadership skills development through several years.

In accordance with the “Copenhagen Declaration” quality is the main criterion for relevance and competitiveness of graduates. It is assumed that these qualities can be measured in competencies. Thus, currently being implemented in the education competence approach, according to the glossary of UNESCO, deals with “education, based on the description, study and demonstration of knowledge, skills, behaviors and attitudes required for a particular role, profession or career.” In this case, competence refers to the integrated characteristic qualities of the person, which are the result of training the graduates to carry out activities in certain areas.

Competence approach involves orientation on learning and leads to outcomes which result in acquiring knowledge and development of competence. Currently, the Russian system of higher education is implementing the third generation of the so-called federal state educational standards (GEF) based on the competence-based approach. There are standardized requirements for the competence of graduates (bachelors, masters) in various areas of training.

Despite the fact that there already is a great experience in the implementation of the competence-based approach, so far there is no single system or a common method of estimation of formation of competence of the graduates. Problems with this have risen, and we discuss it in more detail in the next section. Here we only note that along with the assessment of formation of competences in addition to knowledge and skills, it is necessary to take into account the personal characteristics of the student.