Chapter 16

Estimation and E–Control at Educational Routes as Means of Improvement of Cognitive Interests of Bachelors and Masters

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ABSTRACT

In this chapter, the authors show that cognitive interest - a selective orientation of the person facing the field of knowledge, is Key to the very process of mastering knowledge. For the Bachelor / Master student, educational interest may be at different levels of development and the nature of orientation is caused by different experiences use prof. Vardan Mkrtchian last publications about Bachelor/Masters studies. For maintenance and formation of informative interest, the authors suggest the use of various combinations of teaching methods (demonstrations, lessons, study, game technology, problem-based learning, design technology, mind maps, individual educational routes etc.). The authors believe that the most effective method of development of informative interest is the construction of an individual educational route. A unique educational program that provides the Bachelor / Master student with the position of his own subject selection, then developed and implemented in educational programs as well as implemented by teachers to foster students’ self-determination and self-realization.

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INTRODUCTION

Currently, many physics teachers are faced with a serious problem - a lack of informative interest of students wishing to study physics. However, physics has a special place among the school disciplines. As an academic subject, it forms the student’s understanding of the scientific part of the world (Kataev, et al 2013a). Physics has considerable potential for the formation of key competencies and all-purpose learning activities of students. In the study of physics a variety of training techniques are used for students, realized is polytechnic orientation content of the material, demonstrating the possibility of wider applications of knowledge and skills in practice (Kataev, et al., 2013b). These basic learning objectives can be achieved when the learning process will generate interest in the subject. The presence of cognitive interests of schoolchildren contributes to their activity in the classroom as well as to the quality of knowledge, and, as a consequence we have the formation of universal educational activities (Kataev, et al., 2013a). Cognitive interest is a selective orientation of the person facing the field of knowledge and is Key to the very process of mastering knowledge (Kataev, et al., 2013c).

The disciples of the same class educational interest may have a different level of development and this may be caused by different experiences, special ways of individual development.

Allocated are the following stages of cognitive interest (Mkrtchian, 2011):

1. Stage of curiosity.
2. Stage of theoretical interest.

It is important not only to develop cognitive interest, but to disallow previously held interest from fading away. For the maintenance and formation of cognitive interest, you can use different combinations of teaching methods (demonstrations, lessons, study, game technology, problem-based learning, design technology, mind maps, individual educational route, etc.)

BACKGROUND

The quite effective, but rarely used method of cognitive interest is the construction of the individual educational route. The individual educational path is defined by scientists as a purposefully projected differentiated educational program that provides a student with the position of his own subject selection, then developed and implemented in educational programs as well as implemented by teachers to foster students’ self-determination and self-realization (Mkrtchian, 2012).

The use of individual learning educational route gives an opportunity to form the core competencies of students, to take into account and build cognitive interests and needs of students, and to create a situation for student success. In addition, in objective terms, this makes it possible to eliminate the gaps in students’ knowledge because of missing classes, implement the ability to increase scores, and to be creative. This route is convenient to develop the study of a particular subject area of any physics course (Mkrtchian, & Stephanova, 2013).

The author of individual educational routes used a study of the topic “Thermal Processes” in the 8th grade. The Individual route is designed for groups of students with different stages of cognitive interest (Nº1 - lack of cognitive interest; Nº2 - stage of curiosity and inquisitiveness stage; Nº3 - the stage of theoretical interest):