International Conference on Knowledge Based and Intelligent Information and Engineering Systems, KES2017, 6-8 September 2017, Marseille, France

Motivation and social aspects of competence-based learning process

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Abstract

Motivation and social aspects as interaction among teachers and students are essential for a competence-based learning process in an Open Distance Learning environment, and the goal in this article is to develop an interactive model to manage motivation between process' participants. The article contains the concept of developing a motivation model aimed at supporting activity and cooperation of both the students and the teacher. The structure of the motivation model and formal assumptions are presented. The proposed model constitutes the theoretical formalization of the new situation, when a teacher and the students are obligated to elaborate on a didactic material repository content in accordance with the competence requirements. The mathematical method, based on game theory and simulation is suggested. Conditions for using simulation in the model are analysed in two simulated cases.

Keywords: motivation modelling, competence-based learning (CbL), tasks repository, simulation

1. Introduction

Competence-based learning Systems (CbL) can be considered as a new stage of information system evolution in the distance learning domain [1]. Basic concept comes from Open and Distance Learning (ODL), which is an idea of

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the learning/teaching process organization in higher education institutions [2]. The "distance" aspect describes an educational situation, where the student is situated in a different place than the source of knowledge and the other participants of the teaching/learning process. All the communication and socialization is maintained by the information system. The "open" aspect of ODL is visible at many levels: social, technical, computer and organizational [3].

Implementation of Competence-based learning Systems [4] will most probably introduce changes to the entire organization of the education process at higher education institutions, and consequently - changes in the role and relationship between all participants of the learning process while still maintaining status-quo regarding the traditional mission of a university: preparing highly-qualified staff.

In traditional education, the level of competence a student obtained at a university depended on various factors [5], the main of which are: education process organization at all levels (starting from the curriculum, syllabuses, up to the classes themselves), equipment, ergonomic conditions, and most importantly – the staff qualification. The position of each university among others is decided on the basis of a ranking [6] that considers basic activities of each teacher and the university as a whole: didactic, research, and educational.

CbL in ODL environment can be considered as a new teaching technology, it is as good as well it expands everyone's possibilities to learn in every life-situation, practically without constraints, however, the teachers charisma [7], one of very important motivation factors, becomes lost. Competence-based learning joined with the open distance learning mode requires students to become active, almost equal to teachers participants of the education process. It is cause by two factors:

1. In CbL conditions students' preferences highly influence the market position of a university.
2. Lack of direct contact with the teacher calls for an conscious student, creating his or her cognitive process independently.

Under the influence of these factors, the education organization management system should consider the new position of the student and reflect it in the frames of a proper motivation model. Source of the research behaviour/attitude:

- Teacher and students should elaborate a new product – the didactic materials repository.
- There is the opportunity to direct collaboration between students and the teacher.
- Student has opportunity to consciously choose a task in accordance with his/her own criteria (e.g. level of task's complexity).

The final result of the student's learning process depends on his/her involvement in the repository development.

The problem of motivation is one of the more important research subjects of psychology and pedagogy. There are many definitions of this concept [8][9], according to which motivation as a phenomenon can be seen as:

a) a system of factors (needs, motives, goals, plans, etc.) determining human actions.
b) a process that supports human activity at a certain level.

When developing a motivation model as a part of an information system aimed at managing an education organization in CbL conditions, one has to define the place of this model in the system, its criteria function and solution method.

In the article, we present a model of a system, in which students and teachers are focus on a new goal - creating the repository with the high quality didactic materials. To achieve this goal, the motivation factors of the learning process participants should be considered, and the analytical mechanism for the assessment of the learning process constrains should be proposed. Our model covers the formalization of the learning process environment based on the motivation and offers a simulation as a mechanism supporting the teacher to influence on his/her and students motivation taking into account the typical learning process constrains (eg., work time).

2. Model of the Didactic Materials Representation

In the conditions of no direct contact between the teacher and students, the scope and way of performing the knowledge-based actions (didactic, research, educational) changes significantly [10]. It occurs due to the various reasons. In the traditional learning, the didactic materials play the complement role to the teacher's charisma and their improvement requires a long time because of the source of knowledge (books, journals, scripts etc.). However, such accumulating and improving of knowledge resources often does not fulfil its purpose due to rapidly changing