



Original Contribution

DIDACTIC AND TECHNOLOGICAL ASPECTS OF EDUCATIONAL ENVIRONMENT IN THE TRAINING ON INFORMATICS AND INFORMATION TECHNOLOGIES

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ABSTRACT

A model of educational environment, structured on the basis of systematic combination of approaches, means, goals and conditions to achieve the goals in cooperation with all subjects in the educational process, is presented. The didactic and technological aspects of the environment can be found in the process of its structuring as an environment that correspond to the individual needs of the trainees. In the educational environment there are multiple impacts, influences and constantly changing interactions. In training on informatics and information technologies, the educational environment is provided by computer and the associated computer technologies. These constitute the basic defining factors and they provide the main ways and means for automation of information activities.

Key words: educational environment, information components, pedagogical impact

INTRODUCTION

Growing achievements in the technologies of storage, processing, distribution and reproduction of information have given rise to a global information environment

The information and communication technologies, combined with the modern educational technologies, present a powerful tool for the realisation of educational goals as well as effective means and approach for training in an education and information environment. In many editions specialised ones in the area of education and training as well as the ones that are designed for the general public have been reported by Jack Delore, Chairman of the International Educational Commission at UNESCO (1). His four main ideas- to learn to know, to learn to do, to learn to live together and to learn to be ourselves- have become the paradigm of education that is necessary for the changing world, where we should change as well. In the globalising society, in which there is usually globalisation of knowledge, we are inundated by information. And this situation makes it

essential that young people are trained to select the essence, to be able to handle with the means of communication facilities and extract information that is necessary for achieving competence, other than encyclopaedia knowledge, while still at school (2).

The main goals of training in informatics and information technologies, as contained in the state educational standards for educational content as well as the National Educational Strategy for informatics, have been geared towards information and communication technologies that are based on the ideas that should contribute to the development of young people as well as moulding their personalities. These are attributes that would make them realize themselves in a United Europe. The factors that influence the implementation of these ideas are many, but one of the main factors is the qualification of teachers of informatics and information technologies.

This article is culled from my five-year experience in the preparation and training of teachers of informatics and information technologies.

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PURPOSE OF RESEARCH

This entails the creation and approbation of a

model of educational environment as an organisational, methodical and didactic system that includes selection and structuring of educational content. It also includes active training approaches, methods for preparation and utilisation of the didactic materials and the suitable microclimate that predisposes cooperation and working in a team.

RESEARCH METHODS

These comprise theoretical analysis, modelling and pedagogic experiment.

Didactic and technological aspects

According to M. Yakova, the category, “educational environment” is new but is necessary in the modern socio-cultural training. Its structure is defined by three components:

- Subject-material training conditions;
- Cognitive-emotional relations that are based on the definite educational content, mechanisms of acquisition, learning strategies as well as the position and the role of the modern teacher;
- Multiple impacts, influences and constantly changing interactions between the subjects of the educational environment (3).

In the training process on informatics and information technologies the use of computers, information and communicative technologies, the utilisation of local and global networks, the maintenance of databases and knowledge-based systems and the use of multimedia combined with educational-methodical materials created a unique training environment. Gradually, a uniform information space was formed where personality attained some significant importance. We put many efforts on structuring of educational environment at teacher-training where beneficiaries acquired additional qualification on teaching informatics and information technologies. Our expectations required that the trainee teacher acquired creative interpretation and multiplication of the acquired knowledge, skills and adjustments in the mass practice in schools in accordance with the cliché, “a teacher trains the way he/she was trained”.

We were mindful of the fact that the utilisation of modern means of training would not solve the problem of creation of an optimal training environment for a definite person. Rather, the role of the teacher and his ability to use his pedagogical experience were of great essence. Equally important were the matter of competence in the area of

informatics and information technologies and the skill to present this knowledge in a way understandable to trainees. And lastly, but by no means the least, the keeping of constant emotional contact with the trainees was an effective attribute.

Within the context of this article, an educational environment could be defined as a combination of conditions (technical and programme devices, organisational and scientific- methodical equipment, etc) that contribute to the development of the processes of information- educational interaction between trainees and teacher in the implementation of qualitative and effective teacher-training in the area of informatics and information technologies. In this environment the traditional methods of interaction between the participants in educational process were upgraded thus contributing to the formation of new roles for the teacher: Teacher and trainees had equal access to information, implying that the teacher was no longer the only source of knowledge in the form of theories, facts and principals. The new roles of a tutor, an organiser, and a consultant were increased with respect to implementation of interactivity and with didactic tasks for development of global and critical way of thinking. Equally increased were the roles for acquisition of skills to work in a team and partnership and for acquiring skills for fast adaptation to the constantly changing information and communication technologies.

The educational environment was structured on the basis of methodological approaches, pedagogical means, goals and conditions for their implementation in the process of interaction among participants in the educational process (teachers, students, authors of student books and training aids, the authors of program and methodological supply) that presumed:

- Integrality of the methodology-uniformity of presentation of goals, of principals of organisation and the means for realisation of these goals;
- Compliance with the educational standards- this provided the integrity of the environment as global purposes of training; state educational standards, training-methodical materials, requirements for apparatuses and program devices;
- Opportunity for different variations-provided possibility for optimal combination of conditions for realisation of the environment in respect of definite special features and limitations. (4).

RESULTS AND DISCUSSION

Theoretical analysis were executed in the following areas: structuring of educational environments, virtual educational environments, information- educational environments in different subjects, analyses of school documentation, school content and pedagogical practice, observations and inquiries, in respect of the difficulties at equipping with modern techniques and programme supply in schools. Results obtained as they concerned training on informatics were as follows:

High competence - the educational environment was an environment that included many components including technical and programme devices, materials for practicum, materials for diagnosis of knowledge; it also included skills and adjustments in all chapters and modules of educational content, worksheets with tasks

and exercises; information- reference books containing different technologies, instructions, tables, graphics for illustration, presentations, websites, etc, formed part of it.

Integrity – this involved information components of the environment included in school modules and comprised the necessary integrity of base knowledge defining the profile of the definite module to realise internal- subject and inter-subject relations as well as possibilities for detailing and deepening of the problems in the module;

Easy adaptation- the educational environment that must allow flexible modification of information components to include every participant in creative activity that contributes for development and optimisation of the environment.

Figure 1 shows the structure of educational environment.

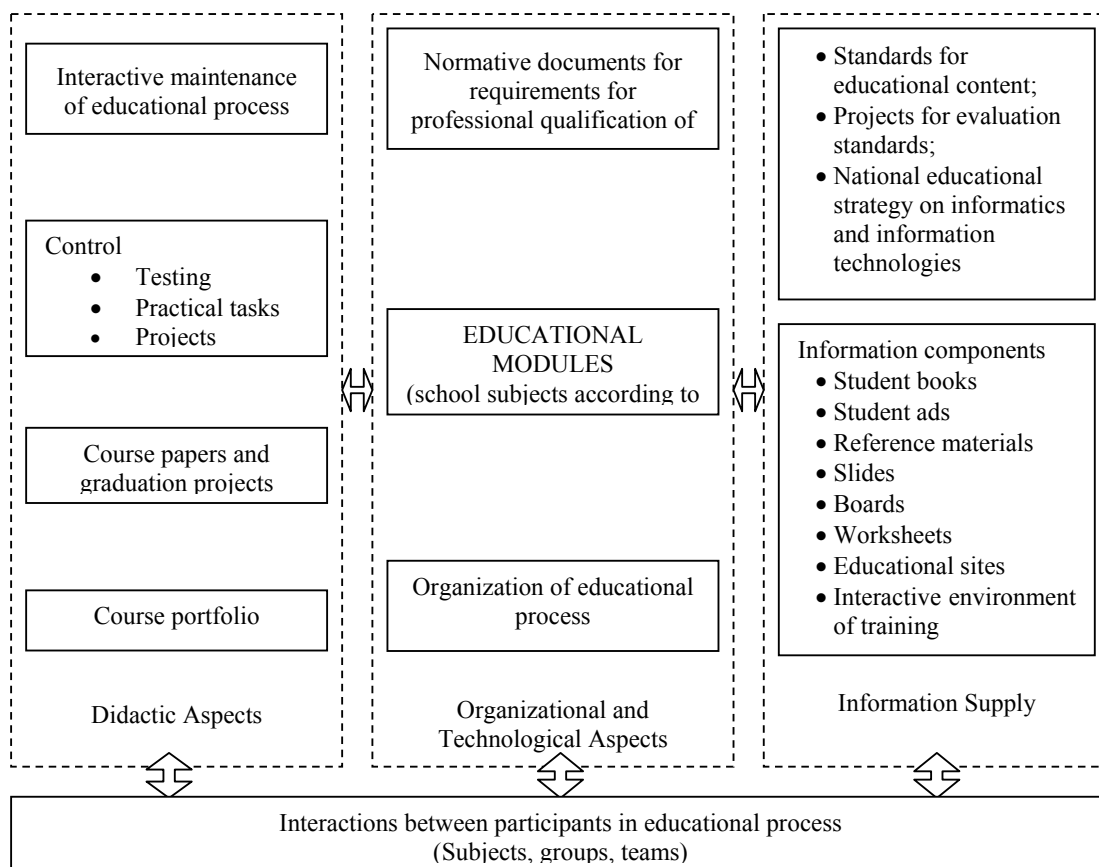


Figure 1: Structure of Educational Environment

CONCLUSION

The didactic and technological aspects of educational environment at training on informatics and information technologies are connected to the individual needs of trainees and to the constantly changing interactions

between all subjects of training process. Computers, information and communication technologies facilities are the main factors necessary for the training on informatics and information technologies and they define the educational environment as an educational-informational or as a didactic- computer

environment.

Structuring of such an environment is a constant process of researches, approbations, analyses and searching for an optimal combination of all components in the environment.

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