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The structural functional learning Model as a European Challenge of 21st Century of “Knowledge Economics”

Introduction: Succession of events of higher education in Europe, starting in 1960s, as well as rapidly increasing number of countries which participate in functioning of the Council of Europe in the areas of educational and cultural cooperation induced the Secretary General to appeal in the letter of the 30th October 1992 with a proposal for development of co-operative convention of the Council of Europe/UNESCO. Lisbon strategy has appeared to be a result of these actions and one of the most important events in the system of higher education since time of industrial revolution. At that time the necessity of conversion from elite to mass education emerged; moreover, it was marked by the appearance J. Comenius’s didactics (the class and lesson system).

Key Words: Functional learning Model, Education, Knowledge in Economics

Nowadays the necessity of changes in the system of education occurred again, i.e. transition from a reproductive scientifically based specialist training to action-oriented (based on acquiring knowledge essential for economy). Naturally these turnabouts entail fundamental changes in structure, organization, methods of education and learning technologies in the system of vocational and continuing education for adults.

Thus, on 24th – 25th of March in 2000 at the Council of Europe in Lisbon was made the decision which proclaimed that essence of economy might be based on knowledge, rise of employment level and economic growth. Goals set by Lisbon strategy were not considerable for production sphere and information but at the same time they became important for educational system and specificity of knowledge acquirement directed at achievements of results in production.

As a result the following plan of action was adopted (Europe 2005) plan of the development of the information society for all citizens of the EU in five aspects [1]:

- dynamic environment – development of electronic commerce;
- productivity improvement of modern online state service;
- design and adoption of electronic management;
- extension work on electronic education (information technologies);
- adoption of electronic public health services.

A year later the Council of Europe in the area of educational cooperation and the European Commission adopted 10-year work program which realizes within the bounds of coordination method.

The Council of Europe (consisted of heads of EU member states) confirmed the agreement, having created new strategic conditions of cooperation in education and vocational training between EU member states.

There are three main goals adopted by Ministers of Education for benefit of the EU which have to be achieved by 2010:

- improving and effective increase of education and vocational training in the EU;
- providing all the citizens of the EU with an access to acquiring of education and vocational training;
- opening of other educational systems in the world.

In addition, 3 specific goals concerning different kinds and levels of education were defined (educational institution, additional forms of getting qualifications and experience).

In general, according to these goals system of education must be improved in different areas: teaching training, basic skills in using ICT in education, efficiency in investment in education, the language of education, career-orientation and flexibility of learning system; that makes an access to European education, mobility, citizenship, etc. possible.

Prior to starting the discussion concerning specificity of modern educational processes in Europe, it should be noted that each educational process has three constituents: teacher, audience and book. In other words, it consists of three elements:

that who teaches, those who are taught and the way a teacher transfers knowledge to those who are taught.

With regard to history, the class and lesson system adopted by J. Comenius has become a basis for any system of education for more than 400 years already. Quality of this model, its clear structure (almost perfectly trained procedures of conducting lessons of different types) and accessibility of such kind of education to a wide quantity of people are the reasons that any innovations and considerable changes of this structure will entail indignation and will be apprehended as “heretical”.

According to the example illustrated in the model (Figure 1) known as the model of frontal education, students are grouped into classes depending on their age specific index, and communication between students and a teacher is realized frontally.

Educational requirements to the type and level (of acquiring education) of the lesson are fundamental for the given model. They also define educational goals within the borders of the describing model. It is known as planning of learning stages. Within this model educational process is organized in the following way – the teacher appears in front of the students, conducts a lesson. At intervals the teacher asks questions and controls knowledge to assess students' level, thereby, feedback is implemented.

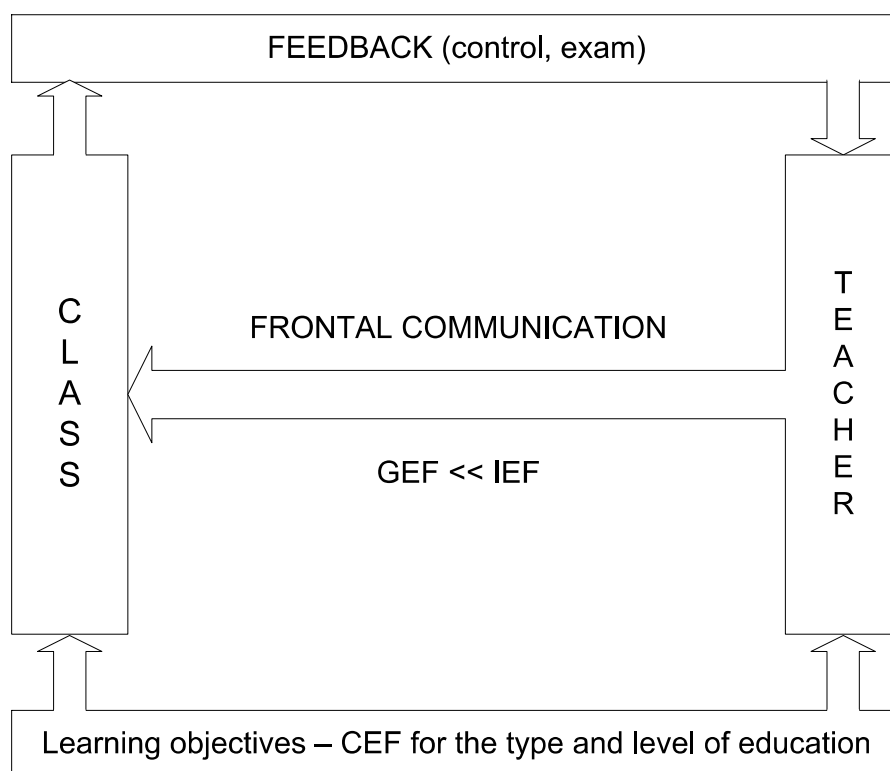


Figure 1: Frontal Communication, Source: Author's Workout

To a certain degree, such advantages of this model as simple determination of educational goals; uncomplicated selection of educational content; effective principle set of educational content selection and organization of educational process; resultant group of educational methods; detailed and practically perfect systems of education for different types of lessons; qualitative group of methods of knowledge control and assessment can be singled out.

However, it should be mentioned that all that worked and is working perfectly, but on condition that teacher and book are the only sources of knowledge. In the light of the fact that technological and information revolutions, which have started and are still continuing, lead to the loss of advantages this model is undergoing. It is connected with the reasons that nowadays methods of getting information through the Internet, in virtual libraries, by radio, television, mass media, etc. have appeared and spread, becoming more and more popular. Needless to say that access to these sources has become easier for the last decade.

From our point of view, these disadvantages of the class and lesson system can be avoided due to taking into consideration transition to structure functional model during planning of education. Due to this model planning of preparation will be successfully proceeded according to the scheme “one student – one teacher”. But by no means it defines that the class and lesson system of educational organization must be absolutely refused of.

Otherwise, it rather means that changes of forms, methods and learning technologies and assessment forms of education must be made. Offered model, besides description of educational process structure, moreover, defines functions inherent to the participants of this process.

The structure of offered model is based on the following elements: group of students, results, state standards, incoming control; individual plan; educational environment; monitoring control; individual plan correction; assessment.

Functionality of the model consists of six stages, educational process undergoes: goals instantiation; incoming control; individual plan development; students' activity in educational environment; monitoring control; assessment.

Thus, let's handle a problem in detail. Group of student can be presented by any physical person (children, teenagers, youth, adults) who aims to acquire a definite type and level of education (primary, secondary, vocational or retraining courses).

Result in this model are defined by knowledge and skills, which must be acquired by the group during educational process.

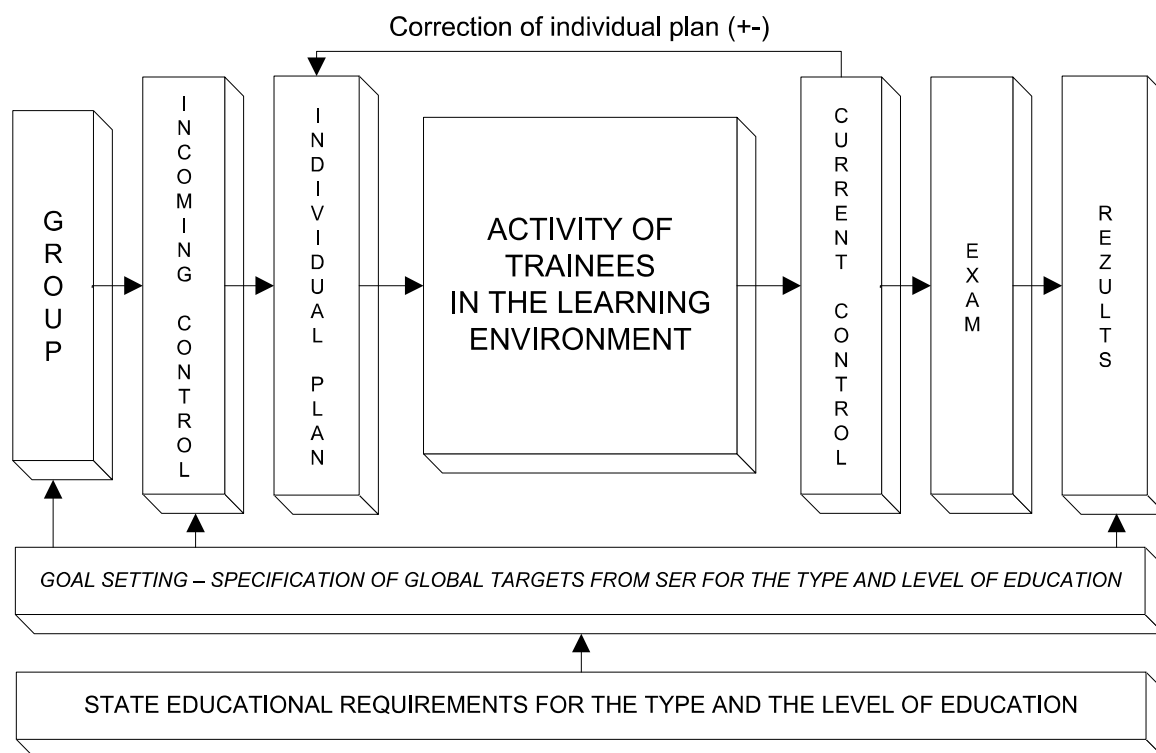


Figure 2: Structural and functional model of learning, Source: Author's Workout

State standards are considered to be an educational minimum for each type and level of education, extension of which will provide transition to the next stage of general education or vocational training.

Incoming control in the structure of described model turns out to be an essential condition, and individual plan is an instrument for individual training.

Work in educational environment is means for realization of goals, which are the constituents of individual plan.

Monitoring control and individual plan correction of a student in this model are regarded as instruments in managing each student educational process.

Exam is intended as means for checking accordance between expected result and result the student can achieve.

From functional point of view, as it has been already mentioned above, the model passes through six stages which are now under consideration [2].

1) Stage of setting a goal. Goals are set in compliance with global educational needs, possibilities of educational institutions (of school, educational environment) and capabilities of students.

However, it should be noted the necessity of goals concretization still exists in accordance with educational requirements to make them accomplishable in definite educational environment with definite students.

2) Stage of incoming control. At this stage the following factors are defined: presence or absence of motivation in education; either presence or absence of necessary knowledge acquired earlier and basic knowledge of teaching discipline; personal qualities of students (extrovert, introvert).

In other words, the main goal of incoming control is to analyze teaching audience, i.e. to define whether motivation is present or not to learn an offered academic discipline; whether basic knowledge in a studying discipline acquired before or during other courses have remained or not (especially during studying of such disciplines as Information Science and Information Technologies), to analyze each student individually (extrovert, introvert), which is very important during educational process. Such means of education as tests, interviews, observations, etc. can be used at this stage.

3) Stage of student individual plan development. The goal of this stage is to design an individual plan of each student which would contain all necessary tasks and measures to realize during the whole studying course.

An individual plan must contain: motivation of activities (for student whose motivation has not been found at incoming control); guidelines for knowledge renovation acquired during studying of preceding courses (if such knowledge has not been found at incoming control); setting goals of a learning subject (study of literature, researches, problem-solving, etc.) to achieve necessary results.

It is held according to the level of organizing taken from Bloom's Taxonomy. Individual plan serves for self-organization and self-control of each student.

4) Stage of student activity in educational environment. This stage includes: attending of lessons (lectures, practical trainings and seminars); work in libraries and laboratories; independent work at home; attending of tutorials (verbal and virtual).

The goal of this stage is organization of student activity in compliance with individual plan to achieve set goals.

5) Stage of monitoring control. The goals of this stage:

- for a student: to find out how successfully formation of knowledge and realization of individual plan are implemented;
- for a teacher: to correct an individual plan if it becomes necessary to add/omit essential for education process tasks.

6) Stage of final exam. The main goal of the stage is a complex assessment of a student consisted of his participation assessment in group forms of education; assessment of each task included in individual plan; final assessment (oral, written tests, etc.).

Final assessment turns out to be a combination of all three constituents. For the above-mentioned reasons, it must be admitted that the structural functional model is not connected with a definite organizational form of education, for instance, with such learning model as the class and lesson system it can be used for arranging educational process in various forms like full-time, correspondence, group, individual, e-learning courses, etc. Given model allows to arrange individual education, which main ideas can be marked out in constructionism learning theory.

The letter must be described in detail. Constructionism doesn't support the idea that knowledge exists irrespective of a person, that a person is Tabula Rasa.

This educational philosophy bases on ideas that a person implements his/her understanding and acquiring of knowledge through interaction with that he/she has already known and what he believes in, i.e. ideas, events, activity, he/she is faced with (J. Bruner, 1966) [3].

Learning is considered to be a process of adaptation and management of our mental models in compliance with gained experience.

It is known that effectiveness of learning depends on many factors, one of which is students involvement in academic activity. Traditionally educational

practice relies on knowledge which is imparted directly to students by their teachers. Passive-oriented learning with traditional content and organization of educational process has been already accepted as a norm for a long time.

Unfortunately, practice when encouragement of “active” learning (interactive) is commonly used can be rarely found.

As it is obvious from Table 1, considerable differences between characteristics of traditional and interactive learning models can be still observed.

Table 1:

Traditional learning Model vs. Interactive learning Model

traditional learning model	interactive learning model
Studying of the information which is needed for successful passing of the exam.	Awareness of the necessity of getting information.
Identification and solving of the problems in structural and static environment	Identification and solving of the problems in dynamic environment
Application of knowledge and skills in specific occasions and situations	Adaptation to informational recourses. Transformation of the information into convenient recourse for application
Is based on the interaction “teacher – pupil”	Is based on the interaction “pupil – pupil” and common work
A teacher estimates learning activity of a pupil and provides the feedback	A teacher and a pupil coordinate and estimate individual results and organize the feedback together

On the assumption of presented characteristics in the table it is shown that the interactive learning model is very similar to the offered structure functional model so long as both of them are aimed at learning individualization on the basis of each student experience.

Taking everything into consideration we can draw a conclusion that, in the first place, changes of the learning model can ensure increasing quality of vocational training, use of various forms of education (e-learning, individual, in-service education, etc.).

In the second place, the structural functional model can ensure the transition from learning of knowledge acquirement to active learning, from skills formation to formation of competences; and finally formal vocational training must have a goal to

make student form skills to search for and find information, i.e. knowledge, for the purpose of getting an opportunity to solve emergent problems.

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