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## THE UNIVERSITARY EDUCATIONAL SYSTEM, CIBERNETIC SYSTEM

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### Abstract:

The national system of higher education shall solve one of the most difficult and most important social and human issues – the education and training of the young generation, of the labour hand. The system of higher education appears as a subsystem of the national educational system and of the society.

That is why it appears the urgency of the artificial unrestriction of the university educational subsystem by the economy system. Economy's vision of the university's education subsystem must respond in these conditions to the following questions: What services and under what form should give the university at a time? Who should provide these services? What methods and strategies will be addressed and who will be the beneficiaries of these services?

**Key words:** social system, education system, optimization

**JEL classification:** A2, H52, H75

The development of education, in general, and of educational system, in particular, have led to the appearance, in each country, a series of institutions of higher education of different levels, shapes and forms, which form the national system of higher education of that country<sup>1</sup>, *system designed, organized and operating under the general principles of general educational principles with organizational character, and others with legal character*<sup>2</sup>.

Thus, the university national system of education in Romania analyzed from the cybernetics perspective (Fig. 1) is a *subsystem of the global economic and social system*<sup>3</sup>, which presents on the one hand the requirements of contemporary economic and social education on the younger generation, the training of the and labour hand and specialists and on the other hand - the purpose, recovery and efficiency of institutions of higher education and, materialization in its specific product - trained people, labour force, professionals able to integrate themselves efficient and creative spirit in the economic and social activities. Always between the *entry and exit flows* act over a *loop of adjustment and optimization*, called *reverse connection* (feedback), which is characterized by dynamism and openness to new, developing and acting in accordance with the economic and social requirements, according to the scientific, cultural and technical progress, with the Romanian people's aspirations, in terms of civil society and the democratic state<sup>4</sup>.

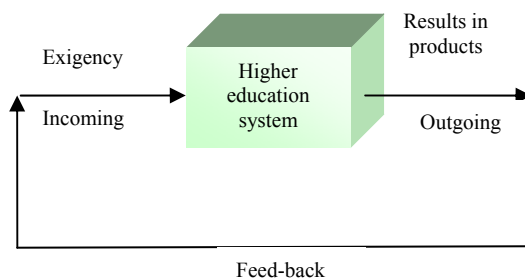


Fig. no.1 The cybernetic representation of the higher education system

As a subsystem of the *educational system*, the contemporary **higher educational system from the cybernetic perspective**, has few *defining characteristics*<sup>5</sup>:

- it is an opened system influenced by the global social and economic system and by the other social subsystems (politic, cultural, social) under the organizational aspect, the circulated contents and the used methods;
- has a **global character** because it engages the assembly of the school organizations;
- has a **teleological character**, oriented toward reaching some finality on long and medium term;
- has a self **controlling character**, it analyzes all the time its own results, under which implement alternative strategies to achieve their educational purpose.

Inside the higher educational system are united specialised institutions involved in the process of academic training, research and culture, responsible to realise in an organised, planned and methodical way the educational desiderates, high level institutions which are organised and function correlated, following some principles, in order to realise some educational finalities, specific for a historical era. *The design and the realisation of the academic educational functions* through specific contents and methods, organised formal and informal are realised according to some general educational principles and correlated with the degree of the society's economic, social and political development.

In the post-modern vision, *the higher education system* contains the assembly of the institutions which participate to the organization of the "school's architecture", the general development of the studies on cycles, majors etc<sup>6</sup>. From this perspective the higher education system it is an **open cybernetic system** including besides the academic institutions with a *formal* character and specialised institutions in the informal training, like *professional training centres, clubs, camps, tv and radio programs*, on one hand and on the other hand various social agents with which the university establishes relationships based on contracts (organizations, professional schools, church) or consensual (family, local community)<sup>7</sup>.

*The analyses of the higher education system*, in a limited sense, creates the methodological premise necessary for correct definition of its main cybernetic subsystem – educational process- where take place: *training*, base activity, designed and directed by the teachers and *learning*, realised by the student as an effect of the training.

The higher education system<sup>8</sup> as a cybernetic system it is characterised through a high *complexity*, its structural elements being more numerous then the one mentioned frequently when is about the *higher education system's structure*<sup>9</sup>:

- **the elements of command and control**: principles and values used as reference criteria in various appreciations and decisions; educational politics which are finalised in priorities and strategic options; objectives at the system's level, training cycles, study years and disciplines; curriculum, inclusive the procedures of current appreciation and examination; legislation, settlement including the one of authorization or institutional accreditation;

- *structural elements*: the segmentation on cycles and training forms;

- *resources*: the human resources (teachers, pre school and scholar population, managers and administrators at different levels and its characteristics – repartition on age and sex groups, professional competences and cognitive abilities, motivation etc.); material infrastructure (buildings, facilities, educational means etc.); financial resources.

The most important **factors** with a significant effect over the educational system, are:

- intellectual elements of the university's educational offer, attached to the training process (curriculum, plans and training programs, majors and academic training profiles);

- financial management of the training processes at the university level;

- the human resources trained in the educational process (the number of the teaching staff, personal implied in the teaching activity, management ability for leading the academic process);

- the institutional and organizational frame at the level of the academic institutions;

- the material base of technical, informational and communicational endowment at the academic level.

**The higher educational system** can be analysed from the point of view of the *external interaction* having in view the fact that *out of the cybernetic system's properties it is known that any other cybernetic system it is opened, therefore interacts with the exterior through entrances and exists*. If there are analysed **the reports** between the *educational system* and the exterior world, in general, can be used a relatively simple **pattern**, which emphasised the *entrances* at the level of goods and services, the

academic human resources and *the system's exits* at the graduates level, the specialised labour force on a certain field of activity.

**Because of the fact that the academic educational system can be analysed as a subsystem of the global social and economic system**, the organization, the content and the principles which stay at the base are determined by other economic and social systems characteristics<sup>10</sup>. The higher education system can influence other systems. **The economic system** offer a pragmatic justification of the educational subsystem, and the higher education system having in view the economic state can propose itself either to *answer to some economic and social needs* of the moment, either to meet the needs of the educated one, or to prepare the necessary labour force for new types of activities and economic products which are expected to predominate in the future. For example the economic and social processes which can defined for the *industrial economic revolution* (computerized the production processes, to transform the science into production factor) ask for the development of some superior human qualities, based on a high system of personal values, necessary for compensating the impersonal nature of technology, what implies the conception of some *educational system* which can prepare and to offer the opening toward the forms of *permanent education*<sup>11</sup>.

At its turn *the politic subsystem*, through dominant ideology, influence the *value's principles of selection* which can be transmitted through the academic education: an *doctrinaire* educational system, preoccupied only by the transmission of some doctrines, an militant educational system, beside the doctrine, can be transmitted a number of essential values, an educational system directed through essential values of humanities or *nondirective* based on persuasion, without the intention of imposing something. The politic subsystem influence equally, the *population's access at different levels of education* (limited, free, through various contests) of *the access to decision making regarding the educational system*, as well as the participants to the decision making and to the levels of taking a decision (national, regional, institutional).

*The cultural subsystem* offer the philosophical justification of the cultural opening toward an *differentiated education having in view the skills* or an educational system leveller, having in view the force with which are imposed in society the conceptions regarding the need of a *leveller education, democratic or aristocratic*, or the prestige that have some scholar cultures conceptions: eclectic culture ("only what it is more profound and better"), the open culture ("everything that it is made by the man in the society") or the necessity of a selective culture, produced by cultural elite.

*Social system* (the state, territorial communities) influence the orientation and the functioning of the educational system through multiple *mechanisms of regulation of the reports between the state and educational system*<sup>12</sup>: normative regulations (laws, governmental decrees ministerial decisions, regional agreements); institutional mechanisms of organising and administration of the educational system at national level, regional, local and institutional (ministerial organisms, school inspectorates, administration boards etc.); financial mechanisms (budgetary allocations, financial control etc.); control mechanisms through objectives and results (the evaluation of the academic institutions based on the obtained performances); the market mechanisms (the introduction of the competition's mechanisms and the fulfilment of some efficiency criteria, especially for the higher education system institutions).

*The natural and demographic subsystem* influences the size and the compositions of the *student's flux which enter in the system*, but the extension or the retraction of the school network, of the academic staff having in view the birth rate, age weight etc. The demographic drop in the Romanian rural communities, as a follow up of the birth rate's drop and the young population's migration to the urban environment was strong, was dramatic diminished or disappeared completely of the school population. In some villages there are no more students, and the schools are left. In other villages the number of students is small being a big problem regarding the profitability of maintaining some schools<sup>13</sup>.

**The higher educational systems** are differentiated between them by the institutional openness, some of the being rigid (allowing only a limited access to an initial education), other are supple, in the sense that they allow a permanent education and a continuous training, valuing the other informal educative influences and non formal which people receive from the society meant to satisfy the demand of the population's training, trying to correlate the training offer with the labour market's needs. The institutions which answer to the need of the population's education are numerous, but there is a lack of flexibility having in view the training offer.

**The analyses of the educational system** supposes not only the component elements and the existent relationships between its structure, its internal process, as well as the connections which they develop with a economic, cultural and social environment in which it is integrated.

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