



## The Manageability of the Educational System: Characteristics and Optimization

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### ABSTRACT

Modernization of education implies substantial changes in the management of educational systems and processes for the transition of educational systems to a qualitatively new state and to a higher level of functioning. The aim of the article is to describe the phenomenon of manageability of education systems, which consists in the real possibility to influence on the course of processes in order to improve their performance in a high dynamism and activity of the managed elements of the system. The basis of the research is the stakeholder approach, which establishes an increasing degree of responsibility of all agents of education for their actions within the system. The authors identified the specifics of educational systems' manageability based on the characteristics of educational agents and the balance of their requirements and expectations. The principles of the stakeholder approach's implementation in education are proposed, which allowed offer a way to increase the controllability of educational systems. The paper submissions can be useful for experts of education authorities, teachers of pedagogical and management profile, managers and staff of educational organizations, researchers who are involved in the manageability of educational systems and processes.

**Keywords:** Education, Educational Systems, Management, Manageability, Stakeholders Approach

**JEL Classifications:** I21, I25, I28

## 1. INTRODUCTION

### 1.1. Background

Under the educational system, basing on the definition of Novikov and Glotova (2004), a set of educational institutions can be understood implementing successive educational curricula of different levels and profile. The development of the education system depends on the other following systems - Economic, political, technological and social, so when these systems are changed the priorities, goals, structural elements, conditions of implementation of education also are changed (Muhametzyanova, 2005; Shamova, 2005; Novikov, 2009; Kalimullin and Masalimova, 2016; Kozhanova et al., 2015).

Considering the manageability as a universal characteristic which is peculiar to any system or process, it is necessary to take into consideration some aspects: The definition of the specificity of this concept in the system of categories of sociology; description of the characteristics which are inherent to manageability, and identifying of properties of manageability. These aspects give to the social phenomenon some new quality (Zarubin and Nachkin, 2015; Sabirov et al., 2015; Klimentyeva, 2013). Management of educational systems, like any other object, seeks to change its current state and trajectory of development in order to achieve goals. Thus, goal setting is the start point and means the setting of parameters, conditions and mechanisms of management.

## 1.2. Status of a Problem

The vocational educational system is complex and dynamic one and is variable in time and is active when controlled elements of the system can change their state independently (Novikov, 2009; Borytko and Solovtsova, 2006; Potashnik and Solozhnin, 2012; Nizhegorodtsev, 2015). Representatives of the synergetic approach formulated the understanding of the problem of complex systems' management which was based on the analysis of internal trends in the self-development of the systems and the detection of environmental areas and temporal moments of unpredictability and lack of controllability (Vasiliev and Glukhov, 1999; Prigozhin, 2015). Followers of the synergetic approach recognize the importance of manageability, paying attention to the ratio of the organization and self-organization, and effects of management thinking.

Within the scope of any social system, including the educational one, there is a continuous oscillatory development of the interaction participants' preferences, which depends as on the expectations of everyone so on the variable (perhaps not always adequate) individual or public manifestations that reveals not only problems of management (impact), but also the problems of manageability (institutional response).

## 1.3. The Research Hypothesis

Taking into account the complexity the content of the category "manageability" means the maintenance and development of socially significant standards, the complexity of the managerial process and the qualitative transformation of the social environment. As a result the "manageability" is presented not as an abstract category or many everyday judgments, but as a cognitive model designed to describe the actual practice of any organization, due to economic, social, political and spiritual processes.

## 2. MATERIALS AND METHODS

### 2.1. The Stakeholder Approach to the Management of Educational Systems

For educational system a specific set of stakeholder groups is formed, influencing the formation of external and internal environment of the educational system. Educational agents or stakeholders implement the activities or accept the educational systems activities' results, which include: Government authorities; business structures, personality, society, staff of educational institutions.

Management of vocational educational system, like any active system should "take into account the activity manifestation of the managed entities" (Novikov, 2009), which depending on their own level of preferences, values and motives change managerial impact. Then, under these conditions, the managerial problem is reduced to finding of optimal trajectory of management with its maximum efficiency's achieving.

Currently, in the studies on the development of institutional strategies and strategic management, there is a formation of the so-called stakeholders approach (Ivashkovskaya, 2008; Gumerov, 2012; Levina, 2015), which shows the growing degree

of responsibility for the results of their activities in the economic, social and political sphere. A similar function in this sense belongs to educational systems, with the level of responsibility of the system to the community is not only significantly higher but also determined by personal characteristics of each member. Social responsibility of education is of global significance because it acts as an indicator of social, scientific and technological progress of society, setting the framework for actions, the states' boundaries and the mechanism of interaction between agents of the educational system on the basis of the current ideals and values.

The implementation of this approach in the framework of transition to state-public management means the increasing role of education in economic, social and political sphere of society and at the present time there are following steps for the implementation of this idea: High integration of all kinds (horizontal and vertical) of educational systems; implementation of corporate and cluster education; the interaction of educational agents in the form of non-profit organizations, carrying out public monitoring of educational processes (associations), etc.

### 2.2. The Specifics of Educational Systems' Manageability

The research works of scientists in the study of agents' behavior allows state that the determination of the behavior largely depends on the institutions, institutional arrangements and the institutional environment, i.e., existing and newly created restrictive ties and motives.

Thus, Weber (1994) points to the fact that interaction between agents determines the individual behavior that affects the normative characteristic of society. Veblen (Yadgarov, 2000) believes that the needs and desires, goals and aspirations, ways and means, scale, and orientation of the individual's behavior – all these institutional regularities, the nature of which is extremely complex and absolutely unsustainable. Frank Knight (Yadgarov, 2000) believes that the needs in the short term really are represented as the driving forces of economic or other activities, while in the long-term needs are dependent variables, for largely because they are formed in the result of the emerging economic and social reality. Therefore, based on the deduced by Murdal (Yadgarov, 2000) a pattern which defines that an object of scientific research should be the entire social system, including, in addition to the so-called economic laws, anything that can influence future events, we believe that speaking about the research aspect of education it makes sense to mention about heterogeneous natural manifestations of society and of individual relationships and institutional relations as various structural subsystems of education.

On the basis of this idea it is worth to systematize the main characteristics of the educational agents (Table 1).

## 3. RESULTS

### 3.1. Principles of Implementation of Stakeholder Approach in Education

One of the tasks of the modern period of educational modernization and the transition to state-public management is a structuration

**Table 1: The main characteristics of the agents of educational systems**

Group	Characteristics of the group
“Personality” (pupil, student)	Implements his/her learning needs based on personal features and abilities; is a consumer of educational services
“Society”	Provides social regulation of educational systems’ activities, defining the public opinion, the level of social responsibility and other factors; is a consumer of educational services
“Employees of educational organizations”	Provides educational and organizational activities in the framework of educational institutions, by type of activities interacts with the other educational agents, taking into consideration their interests; is the producer of educational services
“The business community” (employers)	Uses the results of the educational system (graduates’ employment) for profit; is the consumer of educational services
“The authorities”	Carry out education’s management, training and implementation of development’s strategies, setting targets and regulatory base of educational activities

and interests’ providing of educational agents (stakeholders) taking into account their interaction, inherent conflict of interest and level of influence. The analysis of the situation, regulatory documents and research in the field of formation and development of state-public management of education, allow us to identify a number of principles and conditions that determine the methodology of its implementation.

The principles of implementation of state-public management of education:

- Justification and determination of educational agents’ positions in the educational systems’ management as a social task;
- The activity of educational agents in the management of educational systems;
- The definition of the legal boundaries of the constructive engagement of educational agents;
- The achievement of a balance of the educational agents’ interests in the field of efficiency of education systems.

Implementation conditions of state-public management of education:

- The formation of normative base of educational agents’ definition and interaction at all levels of educational systems;
- The formation of resource (material-technical and informative) base of educational agents’ interaction at all levels of educational systems;
- The dissemination of ideas of state-public management of educational systems at all levels of education;
- The formation of motivation of educational agents’ interaction at all levels of the educational systems in management field;
- The development of the concept and programs of public administration at all levels of educational systems and in educational organizations;

- Development of scientific-methodological support of interaction between educational agents at all levels of educational systems;
- Staff training (managerial and pedagogical) for implementation of the state-public management at all levels of educational systems and in educational organizations.

At this stage of state-public management system’s formation an important role belongs to the definition of authorities’ boundaries for all educational agents, the development of an adequate regulatory framework and system of educational agents’ interaction (agent networks) through different forms, which are appropriate to the available resource, territorial and institutional conditions.

### 3.2. Optimizing of Educational Systems’ Management

This process of management of the education system is limited by the time during which the system needs to achieve the objectives and comply with resource constraints, that is, in the framework of educational courses (quarter, semester, academic year, the learning cycle at the stage of education) the planning of scheduling parameters of the process is assumed, which are characterized by the degree of manageability and are determined by the ratio of controlled and uncontrolled parameters.

Basing on research in management and using the qualitative performance evaluations’ possibilities of the educational system we associate the manageability of the educational system with quality of management and quality of reactions (system response) on the management, relying on the possibility of rational intervention in the process by all educational agents and improvement of their social responsibility’s level while maintaining a possible balance of the needs and expectations (Table 2).

A prerequisite for strategic decision-making in the balance formation of the educational agents’ interests the economic factor (such as cost of capital or profits achieving in commercial organizations) cannot act. The position of educational systems in society and the achievement of its performance is quite difficult to evaluate, there are obvious contradictions in the interests of educational agents.

Here are some examples:

- Standardization of education (the agent “authority”) is contrary to the interests of personal development (the agent “person”);
- Businesses need professionals with certain narrow professional qualities (competencies) that causes problems and contradictions related to the fundamentalization of education (the agent “personality”), and requires pedagogical readiness to innovate (agent, “employees of educational organizations”);
- The demand for certain professions in the labor market (agent “business”) can contradict the possibilities of educational systems (agent, “employees of educational organizations”) or the students’ desires (the agent’s “personality”) and so on.

The optimization problem setting in educational systems’ management consists of:

**Table 2: The demands and expectations of educational systems' agents**

Agent requirements	The type of agent	The expectations of the agent
Systematic development of educational curricula, profession mastering, realization on the market of labor	"Personality" (pupil, student)	Implementation of educational needs, personal development, quality education, the demand on the labour market
The positioning of educational systems at any level as a factor of socialization	"Society"	Socialization of students, employment of population, quality education getting, active and industrious member of society
The provision of quality educational services	"Employees of educational organizations"	Provision of jobs, adequate working conditions, the demand on the market of educational services, personal, creative and pedagogical development
Provision of jobs, demand regulation for training directions and identification of requirements to the quality of the graduate of educational institutions	"The business community" (employers)	Cooperation with educational systems at all levels, the demand for graduates' training needed by the labor market, taking into account of the demands
The transparency of the management of the education system, normative and other regulation, control of activities, development of educational systems	"The authorities" (management of education at all levels)	The active participation of the educational agents in the management and governance of educational systems, social partnership of all interested agents, the increasing of agents' responsibility

1. The definition of the parameters of the managerial function  $F(x_1, x_2, \dots, x_n)$  and the optimization criterion;
2. Taking into account of the restrictions (conditions) on the parameters of development's management;
3. Corridors' identifying of parameters' variation, which are created by an active system.

According to the theory of active systems (Burkov and Novikov, 1999), the model of active educational system is characterized by a set of parameters:

- The totality of participants in the system (learners, their families, social and professional groups, administrative institutions and the institutions of civil society);
- A set of relationships between the entities of the system (managerial, hierarchical, information);
- By sequence of operation (focusing of managerial and information flows);
- Dynamic nature of functioning (length of cycles to manage the entities of the educational system);
- The level of impact (the degree of influence of system's entities on the state of the system);
- The performance efficiency parameters of the system's state (management criteria);
- The operation conditions (the set of acceptable states for the entities of the system);
- The certainty of participants and stakeholders of the system (the level of awareness when making decisions).

These parameters define the mechanism of interaction of its elements, i.e., the possible mechanism of its functioning management from different positions.

### 3.3. The Manageability's Criteria Defining of Educational Systems

The applied aspect of the study of the category "manageability," according to Prigozhin (2015), includes decisions' capability to be implemented; consistency of purposes and actions; stability of the organizational order, and each of these indicators, definitely, cannot be absolute and attainable.

As a result, the dimension of manageability takes several parameters.

First of all, consistency of purposes and actions of managing elements and entities which implement the solutions. Manageability presented as the coherence of the objectives and actions is defined by purposes' quality, namely, clarity, coherence, consistency and accessibility. Quality parameters of the objectives are: High strategic objectives (desired image of the future); long-term goals of the organization (mission and strategy); operational objectives (utility functions of departments and employees); the degree of motivation of the entities of education on the achievement of these objectives; state of educational and organizational processes. Thus, manageability, represented in the decision-making process, is considered as a process of influence on the level of the individual, group, organization.

In addition, the manageability detects the restriction of freedom in the decision-making process by personified dominant entity. The manageability process is possible only if it is possible to form adequate to the existing problem the personalized sociocultural "body" and create such a dominant entity, which is able to build up into a social process some adaptive mechanism of managerial type. In this dimension the specifics of manageability is that the creative nature of social processes predominates over their destructiveness, and the definition of the manageability boundaries and retention mechanisms of social processes within these boundaries is a more significant goal than practical results' achieving.

Finally, the content of the category "manageability" is expressed in the intensity's indicators of the process. It is characteristic that determines the degree of influence of relationships and connections in the organization. Manageability can be high, average and low. The design includes not only the conceptualization and operationalization of the category "manageability," but the creation of a typology of this phenomenon depending on the type of organization (Zarubin and Nachkin, 2015).

## 4. DISCUSSIONS

Prigozhin (2015) determines the category of "manageability" as a complex integrated indicator of the organization's functioning, efficiency of its management. In this regard, he offers the most general measuring of manageability in the relationship between

organizational goals and the results achieved. Moreover, the approach is applied as to broad planning objectives so individual management decisions. Tambovtsev (1997) believes that this approach takes place only in the case when the targets are measurable, quantitative. Based on these attitudes and taking into account the specificity of the educational systems, we believe that the objectives of the educational processes can perform qualitative and quantitative characteristics inherent in the requirements to the process of education – educational standards, developed on their basis educational curricula with clear targets (norms, levels of assimilation). This means that to improve the manageability of the educational system, harmonization of educational agents' requirements is necessary to conduct at the design stage of the educational process, the selection of content considering the time lag between the beginning and the end of the learning process. The high dynamism and heterogeneity of the educational system, the differences and complementarities in a temporary gap between the management (the impact) and manageability (the crowd) are should be taken into account (Deming, 2014).

## 5. CONCLUSIONS

To improve the efficiency of management or of manageability of the educational system is possible, while ensuring of the adequacy of the object's model and purposes of management, compatibility of the method in the description of the controlled object and types of the applied managerial impacts taking into account the requirements and expectations of educational agents with their high level of social responsibility for their actions within the system. In this dimension the specifics of manageability is that the creative nature of educational processes predominates over their destructiveness, and the definition of the boundaries of manageability and mechanisms of retention of educational processes and systems within these boundaries is a more significant goal than achieving of utilitarian results.

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