

## MAIN COMPONENTS OF SCHOOL MANAGEMENT MODEL USING INFORMATION AND COMMUNICATIONS TECHNOLOGIES

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### ABSTRACT

*This article is an attempt to cover the main components of ICTs'-based school management model, with special reference to the respective principles, styles, strategies, competencies, as well as their implementation and application mechanisms. An attempt is made to show how the content and functional characteristics of the mentioned components change during and as a result of the use of ICTs. The use of ICT in schools has become increasingly prevalent, and effective school management requires a comprehensive approach that integrates these tools into all aspects of operations. The article identifies the key components of this model, including communication systems, information management systems, learning management systems, and administrative management systems. The authors explore the benefits and challenges of implementing such a model and provide examples of successful applications. The efficiency of the proposed model is substantiated from the point of view of ensuring the organic connections of its components.*

**The purpose of the article** is to present analytically the main components of the school management model using ICTs.

**Methodology:** The methodological and theoretical framework derives from the management technology research (B.N. Gerasimov), educational information technology explorations (H.A. Gerbekov, S.K. Baichorova, M.S. Laipanova), school management system analyses (A. M. Moiseyev), innovative management technology research (A. S. Khasanova, A.A. Remnev, A.A. Tumabekova, Yu.V. Sorokopud, L.N. Kharchenko, A.H. Chalaeva), media education model research (A. . Fedorova, Chlisheva), and the identification of features of management models and styles (T. Bush, J. Quinn).

**The novelty of the article** is that it shows the content and functional changes of the components of the school management model that occur as a result of the use of ICTs. The main components of the school management model with the use of ICTs have been studied, their progress, which occurs as a result of the introduction and use of ICTs, has been revealed.

*Its results can be used by people involved in school management, teachers and students teaching at the pedagogic university.*

**Keywords:** *organizational mechanism, strategic planning, diagnosis, forecasting, control function, organizational function, information environment, multimedia principle.*

## INTRODUCTION

As known from Educational Sciences, the organizational forms of school management imply such relationships between management subjects (formal and informal, traditional and novel, direct and indirect), which are organized by the principles of interaction and equality, requiring consistency and stability, that are aimed at the fulfilment of specified goals.

The proposed model is dynamic because any individual organizational form has a number of key variables: composition of participants, time and place of holding, frequency and duration, purpose and objectives, expected results, types and methods of activities, distribution of roles, nature of interaction and communication flow of participants, norms and standards of interaction, conditions of education, etc.

The school management model using ICTs has a rather complex structure, because when creating it, both classic and alternative general management models, as well as school management models and those models in which ICTs are an important component / informational, communicative, were taken into account as much as possible, technologies/. It is obvious that management technologies are an important component of any management model.

## THE AIM

The research aims to analyse the main components of the school management model based on ICTs, their content and functional characteristics, pursuing the genesis of school management theories from the ICT-in-the-field-application standpoints.

## THE RESEARCH OBJECTIVES:

1. to compare traditional and alternative school management theories
2. to justify the importance of applying ICT in school management system,
3. to analyse the main components of proposed school management model from the standpoint of applying ICT.

## THE METHODS APPLIED

The research has been conducted through historical-comparative, extrapolation, content and functional analysis methods.

## THE HYPOTHESIS SET FORTH

The introduction and use of ICTs in the school management system will create more favourable conditions not only for management, organization of work of various departments, control, monitoring of educational work, if the persons in charge of the school management process try to invest ICTs equally in the processes of management and teaching, as well as education. ensuring not only horizontal but also vertical connections of management subjects and objects.

## DISCUSSION

To manage, - wrote Fayol, - means to lead the enterprise to the goal, trying to make the best use of its resources, to ensure the correct progress in the implementation of the six main functions (forecasting, planning, organizing, managing, coordinating and controlling)" (Fajol, 1992).

The school management model through ICTs can be based on Bush's classification of management models, according to which educational organizations are divided into six subgroups or clusters: formal, collegial, political, subjective, ambiguous and cultural. Bush aligns the mentioned models with nine leadership styles (Bush, 2011, pp. 17-18). Accordingly, the nine management styles are managerial, participative, transformational, distributive, transactional, postmodern, emotional, contingent, and moral" (Bush, 2011, pp40-42). According to Bush, the formal model is hierarchical. In other words, the reputation of the head of the given institution is paramount. He is responsible for the implementation of all decisions of the institution.

A participative leadership style can facilitate the implementation of ICTs, as cooperation and a collegial decision-making approach are brought to the fore. The collegial model is also characterized by the style of division or equal distribution of power, which can also contribute to the implementation of ICTs. The implementation and application of ICTs can also be facilitated by the transactional style, since those managers who prefer this style are involved in unique constructive activities, cooperate with staff, and teachers, exchange their experience and tools.

Later, many authors repeatedly revised and supplemented this list of functions, including such functions as coordination, research, forecasting, accounting, analyses, motivation, decision-making, and coordination, etc.

In classical managerial approach, any management process includes six technologies:

1. - management by results,

2. - management based on needs and interests,
3. - management based on staff activation,
4. - management in exceptional/extraordinary/out-of-routine cases,
5. - management through constant checks and instructions,
6. - management based on "artificial intelligence" (Gerasimov, 2006, pp. 29-39).

## **MEDIA EDUCATION MODELS**

From the point of view ICT implementation, the media education models are brought to the fore, which allow modelling the information space in educational activities (Fedorova A., Chlisheva, 2004, 34-40).

. The integration of educational technologies and ICTs includes the creation of an interactive mode in educational processes, enabling learners to act as independent subjects, and teachers – as consultants, partners, facilitators and/or supporters. The use of ICT in the field of school management can increase the quality of students' knowledge and the speed of assimilation of information. ICTs are successfully embedded with other traditional and alternative technologies in education.

They can help the school management staff to ensure the objectivity and completeness of the information fed, the consistency of its application, processing this information and identifying the deficiencies in management, as well as outlining the ways to correct them. ICTs might be helpful in developing the educational institution's work strategy, correctly choosing the appropriate methods for solving managerial problems, effectively using resources (human, material, technical, financial), evaluating the achievements of educational theory and practice as objectively as possible, with particular focus on final results of the educational institution's mission and activities (quality in the "result"). At the same time, they might also be used for optimising achievements and studying the dynamics of development at institutional level (Slastjenin, Isajev, Mischenko, 2002).

For strategic school management, many types of organizational structures known in science and practice are used in various combinations: linear, functional, headquarters, departmental, programmatic, project, and matrix.

The school management model through ICTs stems from the idea that the organizational forms of school management are likely to change functionally and substantively.

**The organizational mechanism of school management:** The organizational mechanism of management in the school management model via ICTs is a priority highlighted since it refers to the most important component in school management system: it determines the procedures for performing school management functions. The content analysis of school

management's organisational mechanisms allows getting a clear idea of specific entities within school management, the scope of their activities, their interaction content, the organizational structure, and clarifying the methods, means, forms, and management resources to be used both in school management and educational work.

If the real process of school management can be understood as the reproduction, implementation and deployment of the appropriate organizational mechanism, as a working mechanism, then the organizational mechanism itself can be legitimately considered as an internal logic, an idea of this process, which leads to the establishment of an organic connection of the components of the management system.

At the same time, different organizational mechanisms of school management differ significantly from each other in their potential and results, and the overall effectiveness and quality of such a management system are determined primarily by the quality of implemented organizational mechanisms.

The organizational mechanism, to some extent, depends on the personal characteristics of those involved in its development and implementation; however, it is formed and constitutes the basis of a real process, acquiring a suprapersonal nature.

The general organizational mechanism can be understood as a set of separate elements of the logical structure of the management process, private mechanisms for the implementation of its individual functions. Of greatest importance to understanding the organizational mechanism is the actual decision-making mechanism in the school.

The organizational mechanism can be realized and perceived by management subjects using it to different degrees. at a low level of awareness, it functions as spontaneously formed patterns and procedures of actions, at the highest level, it is a special result, the design and justification of a system with the possibility of further correction.

In the absence of system design and control system development, the organizational mechanism is shaped as a consolidation of current operation order, following the hierarchically imposed tradition and recommendations and, most likely, the mixed action of all the aforementioned possibilities.

As already mentioned above, ICTs contribute to the rapid formation of a cooperative, transparent school management environment.

The environment of the school management system implies the set of circumstances in a certain situational context that affects it and its activity (Moiseyev, 2019, pp.1-16).

**Main functions of school management:** It is known that the essence of management is revealed in its functions: analysis, planning, control, correction, diagnosis, forecasting. The basis of optimal control is pedagogical analysis, the content and orientation of which are

determined by specific goals and problems, which allows us to talk about different types of analysis: final, thematic, based on the results of the educational process, retrospective, parametric.

Implementation of in-school control is also an important condition for optimization of management activities. It is no coincidence that in popular models of school management, the control function comes to the fore.

It is noteworthy that the control function is characteristic of authoritarian, democratic, liberal, and educational school management models. Another question is how effectively the introduction of ICTs is carried out in schools managed by the mentioned models, because the introduction of the mentioned technologies accelerates first of all in schools that have chosen a democratic style of management. No one can deny that innovation is faster and more effective in a collaborative or management environment.

Especially important is the organizational function in the model of school management using ICTs, the essence of which is to support the creative initiative of teachers, provide them with support and create conditions for the development and implementation of adapted, modified or copyrighted programs, modern educational technologies. The head of the school, performing his organizational function, should have appropriate information competence" (Gubanikhina, 2016, pp.288-291).

The goal of providing comprehensive assistance to teachers in the sustainable improvement of professional skills is the methodological function of supervision.

The continuous clarification of the individual educational tracts of the students implies the constant correction of the goal, content and management methods of education, the clarification of the functions of the subjects involved in the management process, ensuring the continuous growth of the cognitive motivation of the students, and the constant improvement of the cooperative atmosphere.

The use of ICT creates a basis for clarifying the work of the school staff, the functions of the headmaster and his deputies. The headmaster, as presented above, can use ICT to control the educational process or the execution of his orders. Educational and financial informants collect and import data about students and employees of the institution into the database, present various reports, prepare draft orders, plan the educational process, make class assignments, etc. The latest ICT technologies help them analyze the educational course, certify teachers.

### **Creating the information environment of the school:**

As already mentioned above, the creation of a modern information environment is a necessary condition for school management. "It includes the information centre, which includes

the library, the audio library, the video library, which perform the function of distributing information streams and connecting to the Internet for students and teachers, as well as parents" (Remnjev 2002, pp. 443-446).

At the organizational and managerial levels, the school management model ensures the implementation of the functions of the content and technologies of educational activities, the educational process (class list, occupancy of educational spaces, class allocation), personnel, and logistics management. The functions of this model include the use of information technology for diagnosis, the quality of education and the evaluation of the effectiveness of educational work.

It is fundamentally important for every leader to be able to predict the results of his leadership, to develop a strategy for further activities. At the current stage, it is difficult to imagine school management without developing an appropriate strategy. Moreover, it is also possible to develop a development concept of any educational institution based on the vision of future activities. It is necessary to develop several "working" scenarios. Simulation of scenarios can also be done quickly using ICT. According to L.A. Regush: "Pedagogical prediction is a multidimensional phenomenon. One represents the research process. The other is cognitive activity, which under certain conditions is oriented towards the future. In other words, cognition is based on description, explanation, diagnosis and, in the next stage, prediction" (Regush, 2003).

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"Technological innovations have a significant impact on the development of educational systems at all levels. Online courses, tutorials, educational programs, social media tools, and other new technologies are disrupting the traditional classroom environment. Understanding



the impact of technological innovations on students, teachers, and schools is essential to being a technologist in education

Strategies and competencies to implement and apply ICTs:

The school principal should develop an appropriate strategy for introducing and using school ICTs. For that, he must have a sufficient level of professional, reflexive, managerial, communicative, as well as technological competences. It is important that reflexive-professional, management-communicative competences are interconnected. It is not possible to achieve high results in the fields of professional activity and management, if the reflexive and communicative competences of the school principal and staff are not sufficiently formed and developed.

The solution to the problem of the continuous development of the IT competence of the school staff and teachers is also a difficulty.

"UNESCO pays special attention to the development of teachers' ICT skills. In 2011, UNESCO developed a framework of recommendations for ICT competence building for teachers, the so-called competences for lecturers or teachers. They are developed for all countries of the world. Work is currently underway to localize these recommendations for each country. The new generation of children, the inhabitants of the digital society, UNESCO attaches special importance to the work aimed at the formation of ICT competence of teachers" (Tokareva, 2019, pp.519-521).

Thus, by including ICT in educational work, learners are formed

- moral competences, which implies living according to traditional moral laws,
- communicative competences, which implies the ability to engage in dialogue, to listen,
- information competences, which implies knowledge of information technologies,
- autonomy competencies, which implies the ability to self-determine and self-educate, competitiveness,
- social competences, which implies the ability to act in society, taking into account the goals of other people" (Gerbekov, Bajcharova, Lajpanova, 2017, pp.233-238).

Thus, it can be concluded that ICTs are used insufficiently in the process of school management. The reasons are different. Sometimes the number of modern computers is not enough. Sometimes software issues are not resolved in time. In many cases, the principal, vice-principals, and teachers do not provide a sufficient level of IT competence.

It should be noted that the professional competence of the head of the educational institution and ICT competence are directly interrelated. It follows from what has been said that the ability to use ICT technologies is at the core of the professional competence of the school director.

## CONCLUSIONS

An important component of school management with the use of ICTs are management styles: managerial, participative, transformative, distributive, transactional, postmodern, emotional, casual and moral, as well as classical management technologies.

From the point of view of ICTs, especially media education models are brought to the fore. ICTs help to develop the educational institution's work strategy, correctly choose the appropriate methods for solving management problems, effectively use resources. The organizational mechanism of management in the school management model with the use of ICTs is highlighted, the essence of which is revealed in its functions: analysis, planning, control, correction, diagnosis, prognosis.

In general, the optimal model of school management through ICTs includes modern principles of education management, traditional and modern innovative technologies of school management, school management styles, strategies, professional, communicative, reflexive, as well as information technology competencies of the persons organizing school management, various school control mechanisms of units, monitoring processes.

The principles of rational combination of centralization and decentralization, collegiality and administration, multimedia, personalization, feedback, inspection are also important components.

An important component of the modern school management model is the personal reflexive-professional, management-communicative, as well as moral, communicative, informative, autonomy, social competencies of the students involved in its management.

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