

INNOVATION SCIENCE AND TECHNOLOGY



Scopus || Electronic journal specializing in Scopus

ISSUE 3

 Acceptance of papers **March, 2026**



Acceptance of papers

Published monthly



Topics

economics, technology, social sciences



EDITOR-IN-CHIEF:

Mirzaliyev Sanjar Makhmatjon ugli

DEPUTY EDITOR-IN-CHIEF:

Makhmudov Nosir Makhmudovich
DSc., Prof., Academician

DEPUTY EDITOR-IN-CHIEF:

Ochilov Bobur Bakhtiyor ugli – Senior
lecturer at TSUI

THE SCIENTIFIC-POPULAR ELECTRONIC
JOURNAL **"INNOVATION SCIENCE AND
TECHNOLOGY"** HAS BEEN REGISTERED
UNDER THE NUMBER **C-5669633** BY THE
AGENCY FOR INFORMATION AND MASS
COMMUNICATIONS (AOKA) OF THE
REPUBLIC OF UZBEKISTAN, EFFECTIVE
FROM OCTOBER 9, 2024.

CONTACTS

Phone: **+998 50 737 87 88**

Website: <https://ist-journal.uz>

Email: innovationist2025@gmail.com

The scientific electronic journal "Innovation Science and Technology" has been included in the list of scientific publications recommended for the publication of main scientific results of dissertations for the award of PhD and DSc degrees in economics and technical sciences, in accordance with the Resolution No. 370 of the Presidium of the Higher Attestation Commission of the Republic of Uzbekistan, dated May 8, 2025.

Editorial board:



Sharipov Kongiratbay Avezimbetovich,
Doctor of Technical Sciences (DSc), Professor



Abdurakhmanova Gulnora Kalandarovna, Doctor of
Economic Sciences (DSc), Professor



Cham Tat Huei,
Doctor of Philosophy (PhD), Professor (Malaysia)



Muhammad Imran Sadiq
Doctor of Philosophy in Economics (PhD), Professor,
Malaysia



Ahmed Aziz Ismail
Doctor of Technical Sciences (DSc),
Professor (Egypt)



Lee Chin
Doctor of Philosophy in Economics (PhD), (Malaysia)



Asongu SImplice
Doctor of Philosophy in Economics (PhD), Cameroon



Rui Dang
Doctor of Chemistry (DSc), Professor, China



Zahoor Ahmed
Doctor of Philosophy in Economics (PhD), Turkey



Shujaat Abbas
Doctor of Philosophy in Economics (PhD), Russia



Tina A Coffelt
Doctor of Philosophy in Educational Sciences (PhD),
USA



Abdikarimova Dinara Rustamxanovna
Doctor of Economic Sciences (DSc), Professor

Kurbonbekova Mohichehra Turobjonovna
Doctor of Economic Sciences (DSc), Professor

Alimardonov Ilkhom Muzrabshokovich
Doctor of Economic Sciences (DSc), Professor



Razakova Barno Sayfiyevna
Doctor of Philosophy in Economics (PhD)



Khasanov Sarvar Ulugbek ugli
Doctor of Philosophy in Economics (PhD)



Kholikova Rukhsora Sanjarovna
Associate Professor (PhD)

CONTENTS

FINANCING OF SMALL BUSINESSES THROUGH INVESTMENT LOANS BY COMMERCIAL BANKS.....	15
Yangiboyev F.B.	
INTEGRATION OF THE TRANSPORT SECTOR INTO THE GREEN ECONOMY AND IMPACT ON SUSTAINABLE DEVELOPMENT: ECOLOGICAL TRANSFORMATION AND INNOVATIVE SOLUTIONS	20
Narziyev Umidjon Bakhriylayevich	
FOREIGN EXPERIENCE IN INCREASING THE INVESTMENT ACTIVITY OF JOINT-STOCK COMPANIES	24
Begamov. S.X.	
AN ENHANCED FINANCING MODEL FOR STARTUP PROJECTS IN HIGHER EDUCATION INSTITUTIONS OF UZBEKISTAN	27
Kasimova Nargiza Sabitdjanovna	
STRATEGIES FOR ENHANCING INVESTMENT POTENTIAL.....	32
Tillayeva Barno Ramizitdinovna	
THE IMPORTANCE OF USING ARTIFICIAL INTELLIGENCE IN HOTEL MANAGEMENT.....	36
Husenova Madina Farkhodovna	
MARKETPLACES AND ECONOMIC SECURITY IN UZBEKISTAN: RISKS AND REGULATION	42
Umarkhodjayeva Zaynabkhon Nodirkhonovna	
TECHNOLOGICAL STRENGTH AND PROPERTIES OF METAL OF AUSTENITIC JOINTS DURING WELDING WITH VARIOUS FLUXES.....	47
Khudoykulov Nurilla Zikirillaevich, Khudoyorov Sardor Sadullaevich	
MODERN SYSTEMS OF PRODUCT COST CALCULATION: METHODOLOGICAL FOUNDATIONS AND DIRECTIONS OF PRACTICAL TRANSFORMATION	51
Abdumalik Abdiraximovich Tulyaganov	
SUPPORTING ECONOMIC EXPANSION AND MAXIMIZING PRODUCTION EFFICIENCY WITHIN A MARKET ECONOMY.....	56
Aytmuratov Qutlimurat Jalgasovich	
SUCCESS FACTORS OF DIFFERENTIATION STRATEGY IN A MARKET ECONOMY.....	62
Sodiqov Miraxror Abbos ugli	
THE “MISSING MIDDLE” PROBLEM IN SOCIAL PROTECTION SYSTEMS AND MECHANISMS FOR ADDRESSING IT	67
Farrukh Juraqulovich Bafoev	
IMPROVING POPULATION INVESTMENT ACTIVITY THROUGH THE DEVELOPMENT OF BANK BROKERAGE SERVICES AND FINANCIAL LITERACY IN FORMING A SECURITIES PORTFOLIO IN THE KHOREZM REGION	72
Bakhtiyorov Khudaybergan Hamdam ugli	
DEVELOPMENT OF THE SERVICE SECTOR AND ITS IMPACT ON POVERTY REDUCTION.....	79
Dauletmuratov Adilbay Mirzabaeovich	
THE ROLE AND IMPORTANCE OF A SYNERGETIC APPROACH IN DEVELOPING THE MANAGEMENT SKILLS OF SCHOOL DIRECTORS.....	84
Yusupova Dilnoza Fayzullayevna	

THE ROLE AND IMPORTANCE OF A SYNERGETIC APPROACH IN DEVELOPING THE MANAGEMENT SKILLS OF SCHOOL DIRECTORS

Yusupova Dilnoza Fayzullayevna

Doctor of Philosophy (PhD) in Pedagogical Sciences, Associate Professor
National Institute of Pedagogical Excellence named after A. Avloni

Abstract: This article analyzes the theoretical and methodological foundations of a synergetic approach to developing effective management skills among school principals, its impact on the management process, and its practical significance in the education system. Synergetic theory views the school as a complex, interconnected system and offers effective mechanisms for strengthening synergy and systems thinking in management.

Key words: synergetic approach, management skills, school principal, educational management, systems approach, synergy.

INTRODUCTION

The management skills of school principals are: strategic management, organizational and administrative, leadership, communicative, pedagogical management skills, analytical and diagnostic skills, innovative and developmental skills, psychological and emotional skills.

Rapid changes in the global education sector, pedagogical innovations, and complex social conditions require high-level management skills from school leaders. Traditional management approaches often do not provide sufficient results in solving complex systemic problems. Therefore, the synergistic approach in the field of educational management is recognized as one of the theoretical and practical foundations of modern management practice.

Synergetics is a scientific direction that studies self-organization, interdependence, and systemic changes in complex systems. One of the theoretical foundations is that new qualities are created as a result of the interaction of system elements — synergy.

Educational institutions are complex, dynamic systems in which teachers, students, parents, and external environmental factors are inextricably linked. The synergistic approach directs school principals to think systematically, coordinate resources, and form collective synergy.

REVIEW OF LITERATURE ON THE SUBJECT

The concept of synergetics, which forms the theoretical foundation of the synergistic approach in management and education, was systematically developed by Hermann Haken. In his work *Synergetics: An Introduction*, Haken explains that complex systems are capable of self-organization through the interaction of their internal elements. According to him, when different components of a system interact, new qualitative characteristics emerge that cannot be explained by analyzing the elements separately. This theoretical perspective has become an important methodological basis for understanding how educational institutions function as complex social systems. Within school management, the interaction between teachers, administrators, students, and external stakeholders creates conditions where collective efforts produce results greater than the sum of individual actions.

In the context of educational management, the ideas of synergetics have been actively integrated into modern pedagogical research. P. Karadzkhova emphasizes that the synergistic approach represents a new educational paradigm that promotes cooperation, systemic thinking, and adaptive management. According to Karadzkhova, educational institutions should not be viewed as rigid hierarchical structures but rather as

dynamic systems capable of development through interaction among participants in the educational process. The researcher argues that the synergistic model allows school leaders to manage complex educational environments more effectively by fostering collaboration and encouraging innovative problem-solving strategies.

Further development of the synergistic perspective in school management can be observed in the research of A. Issabekova, B. Turgunbayeva, and A. Katenov. Their study on the organization of methodological activities in schools demonstrates that a synergistic platform enhances the coordination of pedagogical work and professional collaboration among teachers. The authors highlight that methodological activities structured on synergistic principles promote knowledge exchange, collective learning, and professional development. As a result, school administrators are able to develop more effective management strategies that rely on cooperation and shared responsibility within the educational community.

The theoretical foundations of collaborative and systemic leadership in educational institutions are also reflected in the concept of the learning organization developed by Peter M. Senge. In *The Fifth Discipline*, Senge argues that organizations achieve sustainable development when their members continuously learn and collectively improve their capabilities. His theory highlights the importance of systems thinking, shared vision, team learning, and reflective practice. These principles closely correspond with the synergistic approach, as both emphasize the importance of interaction, feedback mechanisms, and collective problem solving. In the context of school leadership, this perspective encourages principals to cultivate environments where teachers and staff actively participate in decision-making and organizational development.

The application of a synergistic approach in preparing future education managers has also been explored by S. V. Panina and colleagues. Their research indicates that training programs for educational administrators should incorporate principles of self-organization, collaboration, and systemic analysis. The authors emphasize that the development of management competencies among future school leaders requires not only theoretical knowledge but also the ability to manage complex interactions within educational systems. The synergistic model helps future managers understand how different elements of an educational institution interact and influence each other, thereby improving their strategic and organizational decision-making skills.

Another important contribution to the study of synergistic approaches in education is provided by N. V. Shuldeshova, who investigates the role of synergetics in multilingual educational environments. Shuldeshova demonstrates that educational systems characterized by linguistic and cultural diversity require flexible and adaptive management approaches. The synergistic framework enables school leaders to coordinate diverse educational processes and integrate different cultural perspectives within the learning environment. This approach contributes to the creation of inclusive and cooperative educational settings, which are essential for modern schools operating in multicultural contexts.

The importance of leadership and systemic change in education has also been emphasized by Michael Fullan. In *The New Meaning of Educational Change*, Fullan highlights that successful educational reform depends largely on effective leadership and the ability of school administrators to coordinate various stakeholders in the learning process. He argues that school improvement is achieved through collaborative leadership, shared responsibility, and continuous professional development. These principles align closely with the synergistic approach, which views educational change as a dynamic process emerging from the interaction of multiple participants within the educational system.

Overall, the existing literature demonstrates that the synergistic approach provides a strong theoretical and methodological foundation for improving the management skills of school principals. The works of Haken, Senge, Fullan, and other scholars emphasize the importance of systemic thinking, collaboration, and adaptive leadership in managing complex educational environments. Modern educational research confirms that school management based on synergistic principles enhances organizational effectiveness, promotes collective innovation, and supports the sustainable development of educational institutions.

RESEARCH METHODOLOGY

This article is based on the results of a literature review and existing scientific research on educational management. The sources analyzed include international and regional scientific articles, theoretical literature, and studies on educational management.

ANALYSIS AND RESULTS

The synergistic approach prepares school principals to correctly understand the context in complex educational systems, plan long-term strategies, and make effective decisions in changing conditions. Systems thinking inextricably links school goals and resources. The relationship between systems thinking and strategic management. For strategic management to be effective, systematic thinking is necessary. These two approaches complement each other:

Systems thinking — strategic management

Sees the problem as a whole — gives direction

Analyzes cause and effect — sets goals

Explains relationships — creates an implementation mechanism

If school leadership thinks systematically, strategic management will be more effective. In schools where a systematic and strategic approach is used:

The quality of education increases.

Teacher motivation increases.

Cooperation with parents improves.

Innovative projects are successfully implemented.

Competitive graduates are prepared.

Strategic decisions are multifactorial and complex. External and internal factors interact. Long-term results are often not immediately visible. For example, a price reduction strategy may increase sales in the short term, but in the long term it is likely to lead to a decrease in brand value or a decrease in profits.

Synergy increases management effectiveness by building trust and cohesive, active collaboration among team members. The principal, as a team leader, establishes effective communication with educators, parents, and community representatives.

A synergistic approach forms an innovative culture in the school and prepares the leader as a strategic coordinator in the implementation of pedagogical innovations. This increases the quality of educational processes and has a positive impact on student learning outcomes.

A synergistic approach improves school management as follows:

A stable organizational structure: school activities are systematically planned.

Creating an open communication environment: effective communication is established between team members.

Integrating resources: financial, human, and pedagogical resources are optimally combined.

Innovative management mechanisms: strategies that are flexible to change are used.

A synergistic approach is important in developing the management skills of school principals. It guides the leader to systematically manage a complex system, form team synergy, and effectively implement innovations. A synergistic approach develops new leadership qualities in the education system and ensures continuous growth and flexibility in school management.

1. Implementation of a systematic and integrative management model
2. Creation of a self-developing management mechanism
3. Development of a collective decision-making system
4. Increasing digital management competence
5. Development of adaptive and crisis management skills
6. Creation of an innovative environment

Below is the mechanism of the algorithm for implementing a systematic and integrative management model (Figure 1).

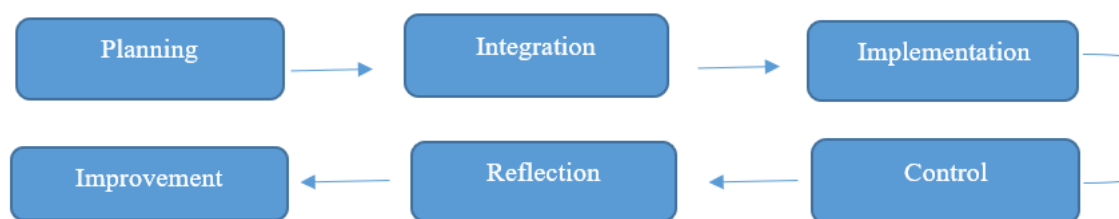


Figure 1. Model operation algorithm (Circular synergetic cycle) ¹

The systematic and integrative management model algorithm focuses on the following:

Planning — clarity of strategic goals (specific, measurable, realistic), adoption of the mission and vision by the team, setting KPIs and result indicators, analysis of resources (staff, time, finance), preliminary assessment of risks.

Integration — requires all areas to serve a single goal, division of tasks and delegation, interdisciplinary cooperation, effective internal communication, and compatibility with digital systems.

Implementation — action according to the plan, responsibility and executive discipline, teamwork, rapid problem solving, motivation and encouragement.

¹ Source: Author's elaboration

Monitoring — KPI implementation level, learning outcomes and quality indicators, analysis of staff performance, use of digital data, parents' and students' opinions are analyzed.

Reflection — cause and effect analysis, team discussion, generalization of experience, comparison, innovative ideas, creative projects, self-assessment and study of internal characteristics, as well as the development of criteria based on indicators. This serves to ensure effectiveness in decision-making. If the director does not analyze his management, planning functions, and management decisions, synergy will not be created in the system.

Improvement — development of corrective measures, updating the strategy, introducing innovative approaches, increasing flexibility, preparing an updated plan for the next cycle. We analyze synergistic interactions through the principle of synergism (Figure 2).

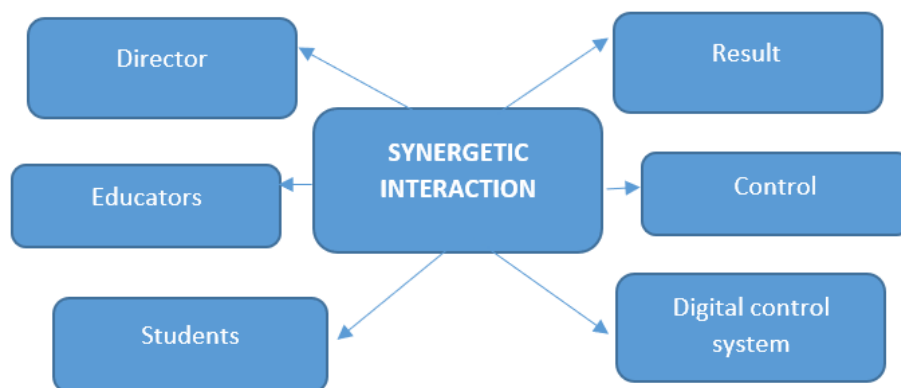


Figure 2. Synergetic Interaction²

All elements of the school system — the director, teachers, students, parents, and external partners — when working separately give a certain result, but as a result of their harmonious and cooperative activities, they create a higher, integrative result than expected. That is, the overall effectiveness of the system is greater than the sum of its parts.

The principle of synergy means that a new level of quality arises as a result of the interaction of these elements.

Director + teacher cooperation → team leadership.

Teacher + student interaction → high academic results.

Monitoring + reflection → creates the need for innovative renewal.

This principle is manifested in school management in the following aspects, in particular:

Mutual reinforcement — the actions of each subject increase the effectiveness of others. For example, the director provides strategic direction, the teacher enriches methodologically, and the student actively participates, and the result increases.

Self-organization — the system develops through internal resources without external orders. Teachers take the initiative, innovative projects arise within the team, and the director only plays the role of a catalyst.

Feedback — the process of monitoring and reflection is a mechanism for system development. Results are analyzed, problems are identified, and strategies are improved.

Flexibility and adaptability — a complex system adapts to a changing environment, responds to new educational requirements, digital transformation, and social needs.

Nonlinearity — a small change in the system can lead to a big result. For example, improving the motivational environment or effective lesson observation significantly increases the quality of education.

Synergistic interconnections scientifically provide the following in school management: analysis of the school as a complex, interactive system; integration of strategic, tactical, and operational processes; creation of a self-developing and innovative system; application of data-driven management through feedback and monitoring; creation of new qualities and results through nonlinearity; ensuring flexible and sustainable development.

CONCLUSIONS AND SUGGESTIONS

In conclusion, the results of the study show that the formation of the school principal's management skills based on a synergistic approach allows the transformation of an educational institution from a simple

² Source: Author's elaboration

administrative structure into a self-developing dynamic system. In synergistic management, the director is not just a commanding officer, but also a moderator who unites the internal capabilities of the team and creates a “resonance” effect. It ensures the operation of the principle of mutual integration of strategic, leadership, and innovative skills.

In short, the synergistic approach provides the director with a strategy not only to maintain stability in a complex and changing educational environment, but also to enter a new stage of systemic development.

List of used literature:

1. Haken, H. Synergetics: An Introduction. Springer, 1983.
2. Karadzova, P. Synergetics in Education as a New Educational Paradigm. Tereni Journal, 2024.
3. Issabekova, A., Turgunbayeva, B., Katenov, A. Synergetic Approach Platform in Organising Methodological Activity at School. Physics Journal, 2024.
4. Senge, P. The Fifth Discipline: The Art and Practice of the Learning Organization. Doubleday, 1990.
5. Panina, S. V. et al. Synergetic Approach to the Learning Process Organization for Future Education Managers' Training. Revista ESPACIOS, 2017.
6. Shuldeshova, N. V. Synergetic Approach in the Educational Environment of Multilingualism. DOAJ, 2023.
7. Fullan, M. The New Meaning of Educational Change. Teachers College Press, 2016. Top of Form

Proofreader: Zokir ALIBEKOV

Layout and Designer: Oloviddin Sobir ugli

2026. № 3

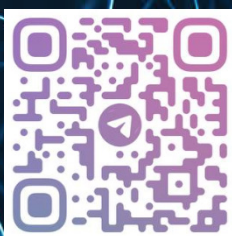
© When materials are reproduced, the INNOVATION SCIENCE AND TECHNOLOGY journal must be cited as the source. Authors are responsible for the accuracy of the information in materials and advertisements published in the journal. Editorial opinions may not always align with those of the authors. Submitted materials will not be returned to the editorial office.

To publish articles in this journal, you may submit articles, advertisements, stories, and other creative materials through the following links. Materials and advertisements are published on a paid basis.

You may subscribe to the journal at any time using the following details. Once subscribed, please send a screenshot or photo of your payment confirmation to our Telegram page @iqtisodiyot_77. Based on this, we will send the latest issue of the journal to your address each month.

“The journal “INNOVATION SCIENCE AND TECHNOLOGY” has been registered by the Agency for Information and Mass Communications under the Administration of the President of the Republic of Uzbekistan from 09.10.2024 under the registration number №390637. License number: C-5669633. PNFL: 30407832680027

Our address: Tashkent city, Yunusobod district, 19th block,
House 17.



Acceptance of articles

Published every
monthly



Directions

Social, economic, political,
technological, scientific



Scopus || Scientific electronic journal specializing in Scopus

CERTIFICATE NUMBER: №390637

**ORDER NUMBER ACCORDING TO
THE LICENSE REGISTER: C-5669633**

CONTACT:



Contact us
+998 50 737 87 88



Telegram channel
t.me/scopus_IST2100



Journal official website
<https://ist-journal.uz/index.php/IST>