Research on the Structured Operating Mechanism of University Management and Education from the Perspective of Systems Theory

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Abstract: *Based on the theoretical perspective of systems theory, this paper constructs a four-dimensional structure model of the management and education system in colleges and universities, revealing the evolution path of management and education from the dispersion of elements to system integration, and providing a theoretical framework for solving the problems of "insufficient element coordination" and "rigid mechanism" in the current management and education in colleges and universities. Research shows that the management education system achieves structured operation through three major characteristics: hierarchical nature, integrity, and dynamic balance. Its effectiveness depends on the coordinated effect of the decision-making guarantee mechanism, incentive and restraint mechanism, innovation leading mechanism, and cultural guarantee mechanism. During the dynamic operation process, the interactivity between the subject and the object is the core driving force for the evolution of the system, while the neutrality of the medium and the plasticity of the ring together constitute the environmental support system.*

Keywords: *Systems Theory Management Nurtures People; Structured Operation Implementation Mechanism; Higher Education Management*
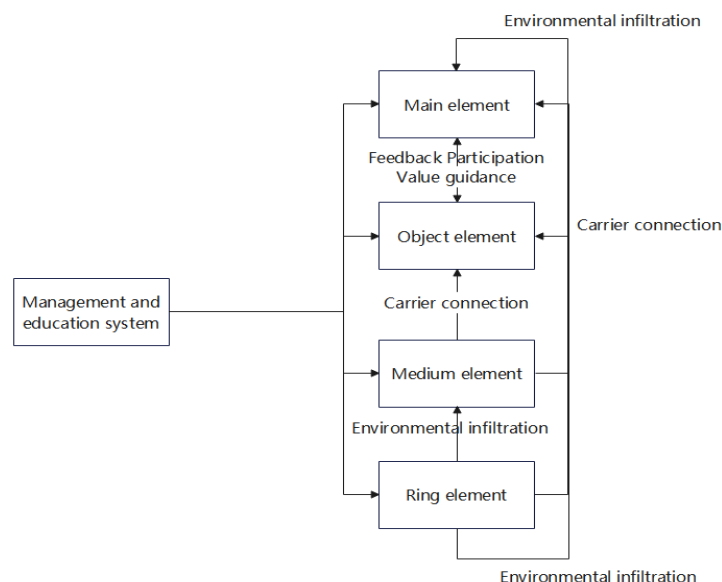
1. Introduction

Figure 1: A four-dimensional structure model of the management and education system in colleges and universities

Management education, as a core component of the "education system" in colleges and universities, is a key link in enhancing the effectiveness of ideological and political education [1]. However, in current practice, there are widespread prominent problems such as "unilateral drive by the subject" and

"disruption of element coordination", on the one hand, the work of nurturing talents overly relies on the administrative promotion of the management subject, while the subjective participation of the object is seriously insufficient; On the other hand, the various subsystems of management and education are operating in a fragmented state and lack systematic integration [2]. Tracing back to the root cause, these predicaments stem from the lack of understanding of the systematic nature of management education - management education is essentially an organic whole composed of subjects, objects, mediators and rings, and its effectiveness depends on the depth and breadth of the nonlinear interaction among the elements.

Systems theory provides a methodological basis for analyzing this complex system. Bertalanffy put forward the core proposition that "the whole is greater than the sum of its parts", emphasizing that the function of a system depends on the interrelationship structure among elements rather than the isolated elements themselves [3]. Meanwhile, the hierarchical order and dynamic equilibrium characteristics of the system provide a theoretical lens for understanding the operational mechanism of management education. Based on this, this paper constructs a four-dimensional structure model of management education in colleges and universities (Figure 1), focusing on discussing core issues such as how the structural elements of the management education system interact to form an overall function, what the driving mechanism is for the system to evolve from a "discrete state" to an "integrated state", and what paradigm transformation the system operation faces in the digital background.

2. The Theoretical Coupling between Systems Theory and Management Education

2.1 Core Principles of Systems Theory and Their Applicability

Systems theory emphasizes examining objects from an overall perspective, and its three fundamental principles have significant applicability in management and education [4].

The principle of hierarchical order is that the management system presents a vertical hierarchy of "decision-making level (university level) - execution level (department) - operation level (teachers and students)", and different levels undertake differentiated educational functions [5]. The decision-making level formulates strategic goals for education, the executive level converts them into specific systems, and the operational level implements educational practices, thus forming a chain of goal transmission.

The principle of overall emergence is when the subject (manager), the object (student), the medium (system and technology), and the environment (campus culture) form a deep interaction, it will generate an "educational emergence effect" that transcends a single element - that is, non-linear educational achievements such as moral internalization and value recognition [6].

The principle of dynamic balance requires that the system maintain a steady state through feedback regulation [7]. For instance, student evaluation of teaching data drives the optimization of teaching management, forming a closed-loop mechanism of "practice - feedback - adjustment".

2.2 Analysis of the Structural Elements of the Management Education System

From the perspective of systems theory, the management education system is composed of four core elements (Table 1).

Table 1: Element Structure and Functional Positioning of the Management Education System

Element category	Constitute an entity	Core function	System function
Subject	Managers, teachers, administrative staff	Value guidance, system design, and resource coordination	System power source
Object	Student group	Active participation, feedback regulation, and self-education	System target body
Medium	Rules and regulations, digital platforms, and curriculum systems	Information transmission, behavioral norms, interactive media	System connection link
Ring body	Campus culture, social environment, and online ecology	Value infiltration, behavior shaping, and atmosphere creation	System environment field

The main element: As the driving force of the system, its subjectivity is reflected in the self-awareness of nurturing people and professional ability. The traditional perception limits the subject to the management level, but in fact, it includes a "community of all-staff education" - professional course teachers permeate values through teaching, and administrative staff convey humanistic care

through service.

Object element: Students have a dual nature of subject and object, as educational objects, they exhibit object attributes, but in the process of internalizing values, they exert the initiative of the subject. The enhanced sense of autonomy among contemporary students demands that management shift from "control" to "empowerment", and increase participation through feedback mechanisms.

Medium element: Undertakes the connection function of the system. In the digital age, mediators are showing an intelligent trend: learning analysis systems monitor academic progress in real time, and AI teaching assistants provide personalized guidance, breaking the time and space limitations of traditional mediators.

Ring element: The environmental field that constitutes the system. The hard environment (campus facilities) and the soft environment (cultural atmosphere) jointly shape behavioral patterns. It is necessary to pay attention to the value isomorphism of the environment and the subject - for instance, strengthening patriotic education through red landscapes.

3. The Structured Operation Mechanism of the Management Education System

3.1 Element Interaction Mechanism

The system functions are realized through the nonlinear interaction among elements. The core interaction includes subject-object interaction, discarding the traditional one-way "command-obedience" model and establishing a two-way construction relationship. Managers guide students' behaviors through institutional design (subject → object), while students' demands influence decision-making in reverse through channels such as student representative assemblies (object → subject). Media-environment collaboration, with media-environment adaptation - in campuses with a strong culture of innovation and entrepreneurship, management policies should strengthen flexible academic systems and competition support. In an academic environment, it is necessary to optimize the mechanism for allocating academic resources. The transmission between levels and the vertical operation of the system rely on the decomposition of targets layer by layer. The university-level "all-round education" program needs to be transformed into detailed implementation rules for each department and college, and ultimately implemented by the mentors in the research teams, forming a "goal - responsibility - action" transmission chain.

3.2 System Operation Dynamic Model

The key driving force for the evolution of the management education system from an inefficient discrete state to an efficient integrated state comes from the dual-loop feedback mechanism (Figure 2). The internal circulation (element adaptation cycle) achieves element quality improvement through subject ability training, digital upgrade of the medium, and optimization of the environment, etc. The external circulation (efficiency feedback cycle) takes the development effectiveness of students as the yardboard and adjusts system parameters through evaluation data.
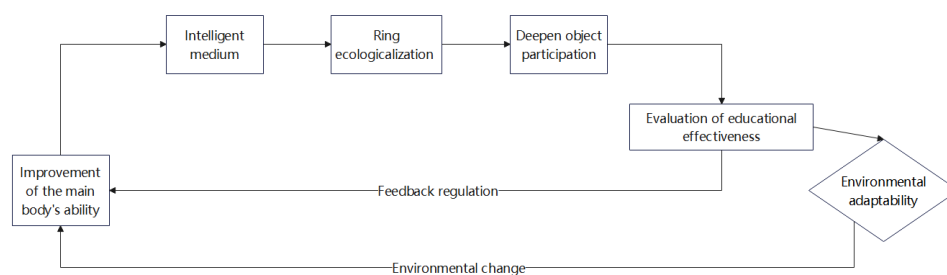

Figure 2: The dual-cycle feedback dynamic model of the management education system

3.3 Pathological Analysis of System Failure

When the connection of elements is broken, it will cause system dysfunction, mainly manifested as the disconnection between the subject and the object. The "check-in and sign-in" system formulated by

managers neglects the actual needs of students, leading to formalism. In an environment where mobile learning is widespread, the mandatory submission of homework in paper form still reduces the enforcement of the system. The hierarchical transmission is blocked. The school-level policies are mechanically copied in the implementation of departments and colleges without being adapted and transformed in line with the characteristics of the disciplines.

4. Systematic Construction of the Implementation Mechanism

Based on the operation rules of the system, a four-dimensional implementation mechanism is constructed to ensure the efficient operation of the system (Table 2).

Table 2: Four Implementation Mechanisms of the Management Education System

Mechanism type	Functional positioning	Key implementation strategies	System effect
Decision-making guarantee mechanism	Goal setting and resource integration	Teachers and students' participation in decision-making, scientific revision of systems, and democratic consultation procedures	Enhance the cohesion of the system
Incentive and restraint mechanism	Behavioral guidance and regulation	Capacity building for managers, reform of the post staff system, and strengthening of demonstration effects	Enhance the initiative of the subject
Innovation-driven mechanism	Method iteration and carrier update	Infiltration of living Spaces, application of new media platforms, and reconstruction of learning Spaces	Optimize the conduction efficiency of the medium
Cultural guarantee mechanism	Value cultivation and environmental shaping	Hard environment cultural empowerment, soft environment emotional infiltration, and online ecological purification	Strengthen the supporting force of the ring body

4.1 Decision-making Guarantee Mechanism: Building System centripetal force

The university administration should institutionalize the participation of teachers and students, establish a fixed channel for student representatives to attend school affairs meetings as observers and for teachers to participate in departmental decision-making, so that the decision-making process can incorporate diverse demands. The revision of the system should be scientific, forming a closed loop of "formulation - implementation - feedback - revision", and management policies should be adjusted in a timely manner in accordance with the changes in students' ideological trends [8].

4.2 Incentive and Restraint Mechanism: Activate the initiative of the subject

Capacity building involves enhancing the awareness of nurturing students through management literacy training [9], such as conducting specialized studies in educational management and psychology. By setting an example and leading the way, managers demonstrate the spirit of the system through their own actions - for instance, the principal having lunch with students conveys the concept of equality.

4.3 Innovation-driven mechanism: Optimize the medium transmission efficiency

Field penetration involves implanting educational functions in living Spaces such as dormitories and canteens. For instance, the "college system" places the mentor's office within the dormitory building, achieving zero-distance management and service. Digital empowerment: Utilize the "Smart Student Affairs" platform to integrate behavioral data and warn of psychological crises. The university should push customized ideological and political content through the MOOC platform[10].

4.4 Cultural Guarantee Mechanism: Strengthen the support capacity of the ring body

The hard environment is empowered by culture, and the campus landscape carries value symbols - the school history museum presents the tradition of striving, and the laboratories post slogans about the spirit of science. Soft environment emotional infiltration, fostering an organizational culture that "puts people first", managers replacing control with service, and enhancing a sense of identity.

5. System Generational Optimization in the Digital Age

With the penetration of technologies such as artificial intelligence, the management and education system has presented new features. The medium is intelligent, and AI teaching assistants achieve

personalized management. For instance, the intelligent system identifies students with academic difficulties and automatically pushes assistance resources. The reconstruction of the subject-object relationship, blockchain technology enables students' participation in the governance process to be traceable, promoting the equalization of power. The integration of the virtual and the real in the ring body, the extension of the educational field in the metaverse campus, and the virtual school history museum provide immersive love education for the school [11]. Against this backdrop, the system needs to undergo three generational upgrades. Firstly, data-driven decision-making is required, integrating multi-source information such as learning behaviors, consumption data, and social networks to build a "student digital profile" and achieve precise management intervention. Secondly, algorithmic ethical regulation is needed, establishing an algorithm review committee to prevent the reinforcement of biases in data analysis and ensure educational equity. Finally, the synergy between virtual and real fields, the educational value of online communities and physical Spaces is isomorphic. For instance, the online honor wall and physical commendation simultaneously enhance the exemplary effect.

6. Conclusions and Prospects

This study constructed a four-dimensional structure model of management and education in colleges and universities based on systems theory, revealing the mechanism by which the system achieves structured operation through element interaction, hierarchical transmission and dual-loop feedback. Research findings reveal that the key to maximizing the effectiveness of management in nurturing talents lies in the depth of nonlinear interactions among elements rather than the intensity of individual elements. Currently, it is necessary to focus on addressing structural issues such as insufficient subject-object interaction and weak media-loop collaboration. Through the co-evolution of system elements, the ultimate goal is to achieve a paradigm leap in management and education from "mechanical execution" to "organic generation".

Acknowledgement

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