



# Analysis of Integrated Strategy of Information flow of Education and Teaching Management in independent Colleges and Universities

Ya Wen

School of Civil Engineering, Wanjiang University of Technology,  
Ma'anshan, Anhui, 234000, China

chgcwenya@163.com

**Abstract.** The information flow integration of education and teaching management in colleges and universities includes human resource integrated management, teaching operation integrated management, scientific research operation integrated management and university service integrated management, which has the basic characteristics of brand new, global and comprehensive. In the process of practice, it is necessary to clarify the technical elements, human elements and capital elements of the integration of information flow of education and teaching management, promote the implementation around the system investigation, demand analysis, program configuration and evaluation feedback, and on this basis, smooth the application mechanism of the integration of information flow of education and teaching management. In addition, we should also do a good job in the integration of education and teaching management information flow from three aspects: overall planning and construction, formulating standard system and strengthening information service.

**Keywords:** integration of information flow in education and teaching management; Scheme configuration; Technical elements; Evaluation feedback

## 1 Introduction

The integration of teaching management information flow refers to improving the standardization of information management by means of centralization, and then promoting the effective improvement of the informatization level of university education management [1]. Looking at the educational situation of colleges and universities in the past, the application of information management is relatively insufficient, resulting in the overall management effect is not satisfactory. Under the background of informatization, strengthening the informatization management of colleges and universities is the key means to improve the existing management problems, enhance the management level and achieve sustainable development, and it is also the inevitable trend of the future development of colleges and universities. Although many colleges and universities have begun to apply information-based education and teaching sys-

tems and achieved good application results, there are still many shortcomings in such systems. Therefore, it is necessary to deeply understand the development reality, promote resource sharing based on information flow integration, reduce informatization costs, and provide a strong guarantee for the steady development of college education.

## **2 Contents and Objectives of Integrated Information Flow of Education and Teaching Management in Colleges and Universities**

### **2.1 Integrated Content of Information Flow of College Education and Teaching Management**

In order to fully realize the informatization of university education management, information flow integration is one of the very important tasks <sup>[2]</sup>. Information integrated management mainly includes the following four aspects: human resources integrated management, teaching operation integrated management, scientific research operation integrated management and university service integrated management.

The integration of human resource management involves a wide range of contents, mainly including human resource allocation, reward and punishment incentives, training and development, among which the most critical is the recruitment mechanism and the development of teaching and research and management capabilities. Training more high-quality talents is inseparable from the integrated management of teaching operation. In the development of this management work, enrollment is the entrance, employment is the ultimate goal, and teaching implementation and management run through the whole process <sup>[3]</sup>. The integration of scientific research operation mainly includes the management of scientific research work and the application management of scientific research results. The integration of university service mainly includes the various links of school management service and logistics work, which are essentially different, but both serve the education and teaching work of universities.

The four aspects of information integrated management are the use of organizational optimization and adjustment, through the seamless connection of various departments, to create four three-dimensional aspects, that is, to provide decision-making information for the school's decision-making level in a four-in-one way, and to provide management information for the implementation level, so that the campus system can achieve efficient operation, rather than a simple flat. By adopting this integrated management mode, colleges and universities can maintain their competitiveness better, extend their living space continuously, and stand out in the fierce competition. Information integrated management has a direct relationship with the quality of talent training in colleges and universities. The teaching operation integrated management system mainly includes two information integrated modules of core basic education teaching and teaching management, each of which has its own value. Through the value integration between modules, the quality of talent training can be effectively improved <sup>[4]</sup>.

## **2.2 Integrated Characteristics of Information Flow in College Education and Teaching Management**

The integration of information flow in college education and teaching management has three characteristics: new, overall and comprehensive, which is the integration application of information technology and integration technology in modern school education management under the background of information society.

One is novelty. For the aspect of newness, its meaning mainly includes the following two levels: first, update the old concept of managers; Second, based on the background of informatization, new integration technologies and methods are used to create an information flow integration model that meets the requirements of college education and teaching management. Planning, organization and coordination work are carried out under the guidance of new technologies according to the new integration solution, so as to form an extremely complex integration scheme with wide coverage, promote the safety and reliability of information management process and improve management efficiency<sup>[5]</sup>.

Second, the overall situation. Information flow integration involves a large number of contents and is an extremely complex project. It is the main channel for universities to obtain teaching management information and an essential content for improving the overall management quality of universities<sup>[6]</sup>. The construction of the integrated information flow system needs to make scientific planning according to the school's school-running philosophy, development positioning, long-term development goals, etc., integrate school-running characteristics and medium - and long-term development goals into the integrated system, build a forward-looking mechanism to provide guidance for the school's forward-looking decision-making, so that the integrated system design and the school's long-term development can be coordinated.

Third, it is comprehensive. The information process integration system not only needs to do a full range of planning work, but also should do a detailed deployment of teaching management work, fully investigate and analyze all the elements involved in the system, the content of each link of the information flow, and the departments involved in the work, compare the integration goal of the system, and clarify the difference between the overall goal of the system and each unit sub-goal. In addition, the decision-making level of the school should formulate feasible measures based on the overall situation of the school to promote the efficient development of management and ensure a high degree of sharing of resources.

## **3 Research on the Integration Strategy of Information Flow in Higher Education and Teaching Management**

### **3.1 Clarify the Key Elements of the Integration of Information Flow in Education and Teaching Management**

To effectively integrate the information flow of college education and teaching management, we must gather all the forces to do a good job in planning, and fully implement the basic work related to the work in three aspects: technical elements, human

elements and capital elements. Technology, manpower, capital any element is indispensable, and each other is irreplaceable.

### **Technical elements.**

In the process of integration work, technical elements are the indispensable core basis for building the integration, which mainly includes software, hardware, data standards and so on. Hardware content mainly refers to the necessary network facilities, computer equipment, computer external equipment and so on in education and teaching management. These physical equipment is an indispensable material condition for the construction of integrated management information flow system, is an important carrier to ensure the efficient transmission and exchange of data, the importance of material basis is self-evident. Software refers to the information flow data sharing mechanism, all levels of user information collection, processing, feedback mechanism. The software system contained in the integrated information flow system of colleges and universities mainly includes enrollment information management, student registration information management, course arrangement management, human resources management and other subsystems. In the information flow integration mode, the management systems maintain a certain connection, which can be regarded as the whole to do a unified planning and effective coordination, otherwise it is easy to appear the problem of low efficiency of system management. In the information flow integration technology, data standards and specifications are the most critical link. The comprehensive integrated management system involves many departments, and the tasks are extremely complex. There are numerous information collection points, and the points are too scattered among them, and the data to be processed is huge. Lay a solid foundation for the subsequent role of the system.

### **Human Factors.**

Whether the construction of information flow integration can be carried out smoothly, human factors play a decisive role. Changing people's concept is the most basic work, and the concepts of education informatization and management modernization need to be rooted in the heart to ensure that the subsequent construction work can give full play to people's subjective initiative. When the integration work is implemented, structural restructuring, process reengineering and functional restructuring are the key contents. If the relevant workers actively cooperate with the implementation of these works, the efficiency of information flow integration construction will also be greatly improved. In addition to advanced management concepts, relevant managers should also have a solid technical foundation. However, in the past, most of the managers in colleges and universities had a low quality level. In order to change this situation, colleges and universities should build learning organizations and adopt ways such as arranging personnel for further study and regular training on campus to improve the overall level of the management team. No matter which position the manager is in, the system integration work requirements can be met, which can well avoid the sudden absence of a certain position, and other personnel can not take the place, which leads to the difficulty of smooth work.

**Capital elements.**

In addition to manpower and technology, capital is also very important in information flow integration. In fact, the investment of funds is the embodiment of the importance of information flow integrated system, if the investment in this aspect is insufficient, it will inevitably make the basic construction work can not proceed smoothly<sup>[7]</sup>. The school must do a good job in the analysis of advantages and disadvantages, balance all aspects of the factors, as far as possible to increase the capital investment of information flow integration construction, to provide guarantee for the smooth construction and continuous operation of the system. If a school pays attention to teaching management, it will inevitably make more efforts in information construction, and the degree of information can directly reflect the school's attention, and also reflect the school's philosophy and thought. Human, material and financial resources are important supporting forces for the integrated construction of information flow, and only when technology, manpower and capital are put in place together can they provide a strong guarantee for the construction of information flow integrated system<sup>[8]</sup>.

**3.2 Construction Steps for Building Integration of Information Flow of Education and Teaching Management**

The integration of information flow in university education and teaching management is a complex project, which involves many departments, and the integration effect can only be realized under the cooperative management of various departments. If any one of the departments does not do the job, it will have a negative impact on the overall work. For the system, the specific construction and implementation steps are as follows:

First, systematic research. In the early stage of information flow integration construction, we must do a good job of systematic research, which is the most basic preparatory work for the whole system construction. Systematic demonstration and research work can be carried out to benchmark the overall development status of domestic and foreign colleges and universities in this construction work, but also through the comparison of domestic and foreign situations to diagnose their own school management, and then lay the foundation for policy formulation, planning and program formulation.

The second is demand analysis. In the process of information flow integration construction, after carrying out systematic research and clarifying corresponding goals, we should conduct in-depth analysis of related links of integration, clarify the actual needs of various departments for the system, and ensure that the subsequent construction work can meet the needs of various teaching management departments. In the process of analyzing system integration requirements, we must pay more attention to the following contents: First, we should take into account the rights and responsibilities of each management department and post, these are the point groups of the system, the acquisition, processing, storage and management of each post are indispensable content in the information flow, and each point group should be properly handled in the specific demand analysis. The second is to take into account the positions

at all levels of the department and adopt the form of hierarchical and decentralized management of information to ensure the safe operation of the information management system. The third is to pay attention to the effective handling of the relationship between various departments, so that all departments and posts can cooperate efficiently, and then realize the management positions in the integrated system to perform their duties, but there will be no work conflict, and closely cooperate towards the common goal.

Third, the solution configuration. According to the results of the research, the design of information flow integration scheme is carried out, and the construction of the optimal scheme architecture is carried out. In this link, it is necessary to clarify which educational concepts to apply, what hardware environment to provide support, how to scientifically configure the software system platform, the direction of the construction of the teaching management database, how to behave the users of teaching management, how to ensure the effective integration of the information flow in the middle layer, how to ensure the security of the integrated system, etc. Only after specifying the contents, Only then can the subsequent construction work be carried out normally [9]. At the same time, according to the design concept and principle of the campus network, the relevant parties should be organized to demonstrate and compare, and the construction plan that best matches the management situation of the school should be formulated to pave the way for the future system role.

Fourth, evaluation feedback. Whether it is teaching work or school management work, the evaluation feedback is often ignored. In fact, to ensure the smooth development of the work, we must use the evaluation work to determine the advantages and disadvantages of the system, so as to provide a strong basis for the subsequent adjustment. In the process of information flow integration system construction, the system must include evaluation, monitoring, feedback mechanism and other contents, and make overall planning according to the characteristics of each content. The main function of the evaluation mechanism is to evaluate the integrated efficiency of the whole system and each link within the system. The monitoring mechanism is mainly to monitor whether the operation of each link in the integrated system is standardized, and whether the information flow in the integrated body can be seamlessly connected; The function of the feedback mechanism is mainly to classify the system information, clarify the positive and negative factors for the system, make full use of the incentive effect of positive feedback and the inhibitory effect of negative feedback, and provide effective help for the optimization and development of information flow integration<sup>[10]</sup>.

## **4 Safeguard Measures for the Integration of Information Flow of Education and Teaching Management in Colleges and Universities**

### **4.1 Overall Planning and Construction to Promote the Effective Implementation of Information Flow Integration**

The integration of information flow in higher education and teaching management is not a simple project, which reflects the characteristics of complexity and systematization. Therefore, the design of the program requires the university management to go through detailed data collection and information research, and then combine these data and research data to carry out the overall planning and construction. In the process of overall planning and construction, colleges and universities must effectively combine the overall development plan of education and teaching management information flow integration with the overall development plan of the school, so as to make it conform to the school philosophy of colleges and universities, information technology must be effectively integrated into the teaching management of colleges and universities, and at the same time, plan the work of the management part and business department of colleges and universities. It is not only necessary to carry out an overall plan for education and teaching at various stages, such as graduate, undergraduate, junior college, adult continuing education, but also to carry out a unified deployment and planning for the information construction of various management departments in colleges and universities. Such as relevant departments of educational administration, admission office, employment office, student management department, equipment management department, financial management department, logistics service department, teaching management department, etc., so that the teaching management of colleges and universities can achieve cross-academic and cross-departmental integrated management, and promote the seamless connection between various departments of education and teaching management information flow. Implement information flow integration effectively<sup>[1]</sup>.

The integration of information flow of education and teaching management in colleges and universities not only needs to unify the planning and design of each academic level and each department, but also needs to comprehensively reform and adjust the current internal operating mechanism of colleges and universities in combination with the actual informatization development level of colleges and universities and the practical application level of information flow integrated management. In the context of the rapid development of information flow technology, some colleges and universities still have the phenomenon of fragmentation in management, and lack of scientific and effective integration measures for some related resources, which not only leads to a large amount of management resources being wasted, but also is not conducive to the integrated management of college education and teaching, and it is difficult to improve the efficiency of teaching management. Therefore, in the process of integrated construction of information flow of education and teaching management in colleges and universities, relevant information needs to be integrated, the internal organizational structure needs to be reorganized according to the requirements of

integrated information flow management, and the functions of various departments in colleges and universities should be reconstructed in a targeted manner, and then various management services should be re-integrated to realize the standardized development of information flow management process. Effectively improve the management efficiency of universities.<sup>[12]</sup>

#### **4.2 Formulate a Standard System to Realize the Standardized Operation of Information Flow Integration**

The integration of information flow of education and teaching management in colleges and universities is an innovative breakthrough of traditional education and teaching management based on the current advanced Internet technology. In order to give full play to the advantages of information integrated management and improve the efficiency of management, it is necessary to constantly optimize and improve in the practice process and establish a standardized system of information flow integration.

The first is the problem of data specification in the integrated management of information flow, which is one of the most critical elements to promote the operation of the integrated specification of information flow. It is necessary to optimize the rules of information coding according to the actual situation, and promote its development towards standardization. In the actual design, the information that needs to be managed should be classified and coded in a scientific and effective way, and then the information coding should be handed over to relevant organizations. After further summary and improvement by professional organizations, a set of information coding principles and methods suitable for the integrated management of information flow in education and teaching in colleges and universities should be formulated and submitted to the competent authorities for review and release. To provide standards for information coding and data processing in institutions of higher learning. It can be said that in order to promote the sustainable and high-quality development of the integration of education and teaching information flow in colleges and universities, a scientific and standard information coding system is indispensable, so that colleges and universities can have a standard basis for data collection and processing<sup>[13]</sup>.

The second is the management standard problem in the integrated management of information flow. On the one hand, the concept of information flow integrated management should not only include the latest education management policy issued by the Ministry of Education, but also combine the theory of information management integration, so as to promote people to effectively change the traditional management concept; On the other hand, universities should formulate relevant policies and systems for the integrated management of information flow, which not only enables the management to achieve rapid standardization and standardized transformation, but also optimizes and adjusts the management process and methods in time through the evaluation and feedback mechanism. Finally, colleges and universities should promote the standard and improvement of the management system, so as to make the internal development of each organization more closely, and further improve the efficiency of integrated information flow management<sup>[14]</sup>.



The third is the technical specification of information flow integrated management. The technical specification system mainly includes the following aspects: Technology construction of college campus network, hardware equipment related to education and teaching information flow integration, technology platform, Internet architecture and other technology specifications, information flow software research and development technology, information flow technology application specifications, etc. Only by gradually standardizing and standardizing these technologies and applications, can we promote the sustainable and high-quality development of information flow integrated management in colleges and universities.

## 5 Conclusion

To sum up, China's education has achieved rapid development in recent years, under this background, colleges and universities should reform with The Times, master the latest information technology, so as to better empower the development of education and teaching. In the actual process, in order to promote the smooth progress of the integrated management of information flow, it is necessary to carry out innovative reforms in management, technology, application and other aspects, change the traditional management concept and management mode, and accelerate the application of information technology, so as to enable the sustainable and high-quality development of college education and teaching.

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