

# Construction of Fuzzy Comprehensive Evaluation Model for Administrative Course System

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**Abstract**—The purpose of administrative management specialty in Colleges and universities in China is to cultivate professionals who can engage in administrative management, policy research, Management Prediction and analysis, organization and personnel management, organ management and administrative management teaching and research in Party and government organs, enterprises and institutions. However, the employment situation of graduates of this major is not optimistic, theoretical teaching and practice are seriously disjointed, and the unreasonable curriculum system is the primary reason. This paper constructs a fuzzy comprehensive evaluation model to evaluate the curriculum system, and finds out the defects in the curriculum system of administrative management specialty in Colleges and universities, so as to put forward a targeted strategy to improve the curriculum system, and finally achieve the teaching goal of combining theory with practice.

**Keywords**—administration, evaluation model, fuzzy synthesis

## I. THE CONSTRUCTION METHOD OF EVALUATION INDEX SYSTEM FOR THE COURSE SYSTEM OF ADMINISTRATION MAJOR

From the determination of indicators in the evaluation model of curriculum system setting of administration specialty, the distribution of weights of indicators at all levels, to the illustration of examples, the obtainment of the membership matrix of each index evaluation is based on the expert's score. The results of expert's score and evaluation directly affect the accuracy and rationality of the evaluation of curriculum system setting of administration specialty, so the selection of experts is very important. Representativeness and authority, and we assume that the importance of experts is the same.

## II. DETERMINING THE KEY INDICATORS IN THE INDEX SYSTEM OF ASSESSING THE SETTING OF COURSE SYSTEM

### A. Determination of Key Indicators

In order to make the evaluation index system of the curriculum system of administration major as accurate and reasonable as possible, the author consults a large number of relevant research materials, collects expert opinions and studies the module division of the curriculum system of administration major in Colleges and universities through interviews and surveys, and refers to the basic courses of administration major determined by the "Administrative Management Teaching Standards" of the Ministry of Education. Cheng, referring to a large number of domestic literature on the curriculum design of colleges and universities, and consulting relevant experts, divides the curriculum system into the following six modules on the basis of the traditional theory of dividing the curriculum system into three modules, corresponding to the formation of six first-level indicators. Firstly, public basic courses, according to the current regulations, are essential courses for undergraduates in higher education, including Marxist philosophy, Mao Zedong Thought, Deng Xiaoping Theory, political economy, computer culture, advanced mathematics, English, ideological and moral character of College students, military theory, sports and so on. Secondly, the core course of the major is the basic theory course of the administrative management specialty, which mainly includes the principles of management, the introduction of law, the principles of politics, macro and micro economics, sociology and organizational behavior. Thirdly, professional basic courses are compulsory courses for administrative management majors, including history of Chinese administrative system, local government science, government economics, administrative organization, municipal science, introduction to public policy, contemporary Chinese political system, administrative ethics, history of Chinese administrative thought and comparative administrative system. Fourth, professional methods and skills courses are applied methods and skills courses of administrative management specialty, mainly operational research, administrative case studies, quantitative analysis techniques and methods, social survey research methods, government performance evaluation, logic, personnel assessment and administrative professional ability test, public sector human resources management, archives management, public secretarial science, document writing and processing, e-government and politics. Government information construction, office automation and application. Fifthly, other professional courses refer to the courses offered in addition to the core theoretical courses and corresponding professional skills of administrative management specialty, but they are different from the core position of basic professional theories. There are leadership science, administrative supervision, non-governmental organization management, public utilities management, community development and community management. Sixth, the course of professional development and quality cultivation aims to broaden the field of knowledge and enhance professional quality. It mainly includes economic law, public relations, business management foundation, introduction to informatics, practical eloquence, other courses of literature, history and philosophy.

### B. Specific composition scheme

According to the above key indicators, the first level indicators, namely six major curriculum modules, are determined, and then the second level indicators under each level indicators, i.e. specific courses under each curriculum module, are determined.

A total of 45 secondary indicators constitute the evaluation index system (as shown in Table 1). The evaluation index system consists of three layers: the first layer, the target layer, namely the second layer, the criterion layer, namely the curriculum module, the third layer and the index layer, namely each specific course.

TABLE I. ESTABLISHMENT OF EVALUATION INDEX SYSTEM FOR THE Course System of Administration Major in Colleges and Universities

| Target layer   | Level I Indicators (Criteria Level)              | Secondary Indicators (Index Layer)        |
|--|--|---|
| The Course System of Administration in Colleges and Universities | Public Basic Course and General Course Module    | Basic Principles of Marxism               |
|  |  | Ideological and Moral Cultivation and Law |
|  |  | Ideological and Moral Cultivation and Law |
|  |  | Situation and Policy                      |
|  |  | University Sports                         |
|  |  | College English                           |
|  |  | Computer                                  |
|  |  | College Chinese                           |
|  |  | Advanced mathematics                      |
| The Course System of Administration in Colleges and Universities | Course Module<br>Professional Core Course Module | Administration Science                    |
|  |  | Principles of Management                  |
|  |  | Introduction to law                       |
|  |  | Administrative jurisprudence              |
|  |  | Sociology                                 |
|  |  | Economics                                 |
|  |  | Management psychology                     |
|  |  | Contemporary Chinese Political System     |

### III. APPLYING APH TO DETERMINE THE WEIGHT OF EVALUATION INDICATORS

The expert investigation method can be used to construct the judgment matrix. Through two comparisons, the importance of the relative upper level indicators between the same level indicators is evaluated, and then the 1-9 scale method (see Table 2) is used to assign the value to form the following judgment matrix. For example, when constructing the two-to-two comparison judgment matrix of six first-level indicators, we first analyze the data collected by experts to evaluate the importance of the six major curriculum modules by Delphi method, and then assign the two first-level indicators respectively by 1-9 scaling method, such as the importance between the public basic curriculum representing the first-level indicators and the general curriculum module and the core curriculum module of the first-level indicators specialty. Through the analysis of the expert opinions collected, it is found that the ratio of importance to sum is that the two types of curriculum modules are equally important to the curriculum system. The numerical meanings of comparisons between other indicators are the same.

TABLE II. 1-9 SCALING METHOD

| Scale                              | Comparisons between index I and index J  | Explain  |
|------------------------------------|--|--|
| 1                                  | $B_i$ and $B_j$ are equally important  | Both are equally important to goals                      |
| 2                                  | $B_i$ is slightly more important than $B_j$  | The difference in judgment between the two is slight     |
| 5                                  | $B_i$ takes precedence over $B_j$  | There are obvious differences in judgment between them   |
| 7                                  | $B_i$ takes precedence over $B_j$  | There is a strong difference in judgment between the two |
| 9                                  | $B_i$ Extreme Priority (Importance) over $B_j$   | Extreme differences in judgment between the two          |
| 2,4,6,8                            | Importance between the above statements  | When a compromise is needed                              |
| The reciprocal of the above values | If $B_i$ and $B_j$ are judged by comparison, then $B_j$ and $B_i$ are judged by comparison $b_{ji}=1/b_{ij}$ |  |

U2-Uij Judgment Matrix, (i, j-1, 2, 3, 4, 5, 6, 7, 8)。

| $U_2$    | $u_{21}$ | $u_{22}$ | $u_{23}$ | $U_{24}$ | $U_{25}$ | $U_{26}$ | $U_{27}$ | $U_{28}$ |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| $U_{21}$ | 1        | 1        | 1/2      | 1        | 2        | 1        | 1        | 1        |
| $U_{22}$ | 1        | 1        | 1        | 1/2      | 2        | 1        | 1        | 2        |
| $U_{23}$ | 2        | 1        | 1        | 1/2      | 2        | 1        | 1/2      | 2        |
| $U_{24}$ | 1        | 2        | 2        | 1        | 2        | 1        | 1        | 2        |
| $U_{25}$ | 1/2      | 1/2      | 1/2      | 1/2      | 1        | 1/2      | 1/2      | 1        |
| $U_{26}$ | 1        | 1        | 1        | 1        | 2        | 1        | 2        | 2        |
| $U_{27}$ | 1        | 1        | 2        | 1        | 2        | 1/2      | 1        | 2        |
| $U_{28}$ | 1        | 1/2      | 1/2      | 1/2      | 1/2      | 1/2      | 1/2      | 1        |

(1)

#### IV. CONSTRUCTING A FUZZY COMPREHENSIVE EVALUATION MODEL FOR SETTING UP COURSE SYSTEM

From the above evaluation (1) index system, we can see that the administrative management curriculum system consists of six different curriculum modules, so the evaluation of the administrative management curriculum system in Colleges and universities involves six aspects. Both primary and secondary indicators are qualitative indicators. Although the weight of the importance of each course is the quantitative value established through the established evaluation index system, when evaluating the course system, especially the secondary indicators, the hours, semesters and weeks of each course, and the credits occupied by each course are quantitative factors, but they involve the nature of the course. When considering all aspects to determine whether a course is reasonable or not, it is usually difficult to score directly with precise numerical value. Usually, when evaluating master's degree thesis, people can only give "good", "good" and "general" conclusions, which are ambiguous. By using the method of fuzzy mathematics, these fuzzy concepts can be appropriately described, and comprehensive analysis of the evaluation objects can be made by synthesizing various factors. Finally, quantitative evaluation results can be obtained, which is the method of fuzzy comprehensive evaluation. When using the method of fuzzy comprehensive evaluation to evaluate the curriculum system, a fuzzy comprehensive evaluation model should be established. The specific process is as follows:

##### A. Establishment of Assessment Factor Set

In order to make a fuzzy comprehensive evaluation of the curriculum system of administrative management specialty in Colleges and universities, it is necessary to establish a set of evaluation factors, that is, the set of evaluation indicators. There are six evaluation indicators set here, namely the six major curriculum modules that constitute the curriculum system. According to Table 2, the evaluation factor set  $U=\{u_1, U_2\ldots$  Is set up for the curriculum system of administrative management specialty in Colleges and universities.  $U_6\}$ .

##### B. Establishing a Collection of Comments

According to the requirements of the evaluation of the curriculum system of administrative management specialty in Colleges and universities, the evaluation value of each evaluation index is divided into several grades, such as excellent, good, general, poor, very poor, etc., forming a commentary set  $V=\{v_1, V_2\ldots V_m\}$ . Number of comments. The setting of rating should neither be too much nor too little.

##### C. Determine the Evaluation Membership Matrix

The evaluation membership matrix can be obtained by statistical analysis of the evaluation data of the judges. In the evaluation process, the judges must conform to the criteria of the above-mentioned comment concentration.

#### V. SUMMARY

The evaluation of the curriculum system of administrative management specialty is actually the application of enterprise performance evaluation method in teaching evaluation. It is to improve the teaching level of administrative management specialty and promote the development of discipline in Colleges and universities. According to the evaluation principle, the evaluation model is constructed, and the evaluation scheme is designed to evaluate a series of processes of curriculum system setting. Among them, the construction of evaluation model is the key link in the evaluation of curriculum system setting of administrative management specialty. Whether the evaluation model is reasonable or not is related to the accuracy of evaluation results, curriculum system setting and the formulation of reform measures and strategies. It will ultimately affect the teaching effect of this specialty. In view of these reasons, this paper breaks through the simple qualitative method of traditional evaluation curriculum system, and adopts the method of fuzzy comprehensive evaluation based on it to construct the fuzzy comprehensive evaluation model of curriculum system setting evaluation index system.

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