

# Objective, way and method of faculty management based on ergonomics

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**Abstract:** The core problem that influences educational quality of talents in colleges and universities is the faculty management. Without advanced faculty, it is difficult to cultivate excellent talents. With regard to some problems in present faculty construction of colleges and universities, this paper puts forward the new objectives, ways and methods of faculty construction based on ergonomics.

**Key words:** faculty management; ergonomics; objective; way; method

The key factor and core problem that influence the construction and development of colleges and universities is faculty construction under the condition of higher education popularization. Without advanced faculty, it is impossible to have advanced higher education. Under the condition of higher education popularization, what countermeasures should be adopted to build the faculty? We think that each college or university must pay more attention to faculty construction, establish the objective tree of faculty construction, establish and optimize some new objectives, ways and methods of faculty construction, meanwhile, each college or university must make the input and output of faculty construction generally equivalent, make the teachers can work effectively, healthily and comfortably.

## 1. The application of ergonomic theory to faculty construction

Ergonomics that can also be called human ergonomics, human factors engineering, man-machine engineering etc is a rising comprehensive marginal subject and formed in early 20<sup>th</sup> century, with the precursors of Taylor and Gilbreth. During the World War II, ergonomics made break-through progresses due to researches by Britain, United State of American and Soviet Union etc. on high-efficient new style weapons with super power. In the 1960s, with the extensive application of electronic computer, the relationship between human and machine become more and more complicated and people began to pay more attention to ergonomics. Since the early 1980s, the researches on ergonomics began to rise in our country and academic monographs related to ergonomic researches were published successively.

“Human ergonomics is a science researches on how to make the design of human-machine-environment system confirm to the characteristics of physical structure and physiological psychology of human beings so as to realize the optimal matching among human, machine and environment, making people under different conditions work and live with high efficiency.” Since 2000, two great development trends appeared in ergonomics: one is in longitudinal direction, developed into high-tech field with extensive applications to aviation, aerospace,

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navigation and other high-tech fields. The other is in horizontal direction, expanded to different aspects of management science, and education ergonomics, personnel ergonomics and environment ergonomics etc. emerged as the times require.

The essence of faculty construction of colleges and universities is a high-grade integrated management work, which needs to be combined with ergonomics. The combination between faculty construction of colleges and universities and ergonomics is not only the demand of scientific development, but also the direction of building economy colleges and universities and accelerating colleges and universities to develop in harmonious way.

## **2. The faculty construction of colleges and universities must optimize the core objective**

Some people put forward that colleges and universities must take building first class faculty, shaping first class academic echelon and concentrating scientific research force as the core objective. For common colleges and universities, it is unrealistic to realize such objective and from the angle of ergonomics which is unnecessary. Colleges and universities should fix on different objectives of faculty construction according to their different positionings. The objectives of faculty construction of different subjects and majors in the same college or university should not be the same. Therefore, colleges and universities with foresights must be cultivating and bringing up advanced faculty who can meet the development demands as the core of school construction, and form an objective tree of advanced faculty construction. Under the direction of the objective tree, actively adopting practical planning and measures, colleges and universities can build a faculty with their own characteristics and leading level in some aspects in not very long time.

According to the principles of ergonomics, only the reasonable one is the effective one. The faculty construction of colleges and universities should have a reasonable structural objective. At present, the unreasonable faculty structure is the common fault of colleges and universities, which seriously influences and restricts the development of colleges and universities. Therefore, colleges and universities must establish strictly and earnestly a reasonable faculty structural objective according to their actual situations, including educational background structure, education-related structure, professional title structure, age structure, knowledge structure etc. The number of teachers with high title, middle title and primary title in key colleges and universities should assume the shape of a reverse pyramid. The number of professional teachers with middle and associate high titles in common colleges and universities should account for 1/2 above of the total number. The age structure of teachers of each subject should keep certain distance in avoid of the occurrence of new fault.

The faculty construction of colleges and universities needs a good mechanism in favor of the growth and development of talents. Therefore, colleges and universities must establish a mechanism in favor of excellent talents showing themselves as the key objective and establish a good mechanism in favor of faculty construction, selecting the superior and eliminating the inferior, up and down, in and out, making the faculty construction step into virtuous cycle of self renewal and development.

## **3. The faculty construction of colleges and universities must optimize the construction way**

Cultivating, discovering and selecting excellent teachers can not only depend on “Bo-le”(A name of a legendary person who excelled in evaluating horses in the state of Qin Dynasty during the Spring and Autumn Period, which means a good judge of talents), but also depend on system and mechanism. Racing horses in

grassland would be better than Bo-le judging horses. Therefore, it should have a talent system of collective cultivation, competence and elimination, optimization. In the faculty management, encourage and support to be conspicuous; encourage and support to be the leading wild goose; encourage and support to take the lead, which is not to advocate individualism and heroism, but the inevitable requirements suitable to the rules of talent growth. Colleges and universities should overcome the abuses of close-relative propagation and try their best to select excellent master and doctor postgraduate from other colleges and universities especially from other scientific research institutions to strengthen the faculty construction, but not to recruit and introduce graduates from their own colleges and universities. Before on-job, the young teachers should have strict pre-job training in the real sense; after on-job, they should have post exercises, on-job professional improvement, study out of regular work etc. Moreover, colleges and universities should also discover and bring up excellent teachers by strict examination and selection, meanwhile, prescribe post-service life for teachers, and the teachers who exceed the post-service life are either promoted or asked to leave, by which to avoid mediocrity.

The development of colleges and universities shall not only depend on the faculty. The colleges and universities must make some policies to attract the talents, and build the green channel to employ the domestic and foreign outstanding teachers, masters and doctors at any moment without limitation. The attraction and engagement of domestic and foreign senior scholars (including the academicians of the Chinese Academy of Sciences, Chinese Academy of Engineering and the Cheung Kong Scholars) with high salary and superior working conditions, which plays an invaluable role on the improvement of academic level, education quality, school operating benefits and social influence. Nowadays, many schools has established the posts of specially engaged professor, chair professor and responsible professor etc. and specially engaged the influential experts as the course leaders. Surely, the introduction of talents in the colleges and universities must be based upon the evaluation and combine with the situations of course construction, avoiding the introduction of inapplicable talents and talent waste.

In addition to the stable measures on the backbone teachers, the colleges and universities must establish one or more means that suit for the reasonable personnel flow to facilitate the reasonable flow of teachers of colleges and universities. The personnel flow of the colleges and universities includes the flow between different posts in the school and the flow between the school and the society. As the running water is never stale, the faculty of colleges and universities can keep stable, be optimized and improved only during the flow.

#### **4. The faculty construction of colleges and universities must optimize the construction method**

The improvement of level of the faculty is an overall problem, not only involving the young teachers but the old experts and professors, not only covering the teaching but the research, not only the knowledge upgrading speed but the innovative capacity and level. In the past, some schools only emphasize the teachers' cultivation and use but neglect the quality improvement. At present, the improvement of faculty quality and level is a very important and urgent problem. According to the investigation concerned, 75% of the teachers encountered with the problems of knowledge upgrading and integrated level improvement. The main methods for faculty's level improvement include the on-the-job self further study method, study abroad and visit home and abroad method, social practice method, laboratory work method, research work method, and academic seminar and exchange method etc.

Strictly speaking, ergonomics is the theoretical foundation of the HR (Human Resource) management. The faculty management of colleges and universities must refer to the theory and method of ergonomics, realizing the

modern scientific and humanistic faculty management. In the meantime, establishing and completing the management systems, reducing the randomness of faculty management and strengthening the systems approach, and upgrading the conception, changing the management to service, changing faculty management to knowledge management, changing personnel management to post management, changing file management to information management, and promoting the improvement of faculty quality and level of colleges and universities should be through the scientific management and humanistic service.

Incentive is an important approach for the improvement of HR management efficiency. As the high intellectual groups, the teachers of colleges and universities surely will produce the overall demand of incentive method. They not only demand the material incentive but also the social respect and spiritual incentive. The incentive methods applicable to the faculty management mainly include the top incentive method, contrast incentive method, awarding the inferior incentive method and eliminating the inferior incentive method, and so on. The so-called top incentive method is to allow a few to stand out; the contrast incentive method is to compare the teachers teaching the same courses in the same major at the same conditions, so as to show their respective abilities and levels, such as the post competition and listing etc. The so-called awarding the inferior and eliminating the inferior incentive methods are to have the evaluation and eliminate the one listed behind.

At the new historical conditions, in order to improve the faculty construction, the colleges and universities, we must constantly research and create the new methods for the faculty construction to cultivate and build a faculty conforming to the new trend. The main methods include the integrated quality optimization method, course leaders' organization method, method of substitution of engagement for evaluation and the method of faculty level quantities evaluation etc. The so-called integrated quality optimization method is to have the training and take the improvement measures in each course according to the index system of quality and ability of teachers, such as the collective model lesson, demonstration lesson and scientific research training etc., so as to ensure the high overall level of the teachers. The so-called course leaders' organization method is that the course leaders and the faculty management department sign the contract to undertake that they will make the faculty construction reach a high level in the specified period.

Based upon the faculty management of colleges and universities in the ergonomics, the following two false tendencies must be changed:

- (1) Only make the horse run but neglect its feeding. Only emphasize the work but neglect the care, cultivation and improvement;
- (2) Only emphasize the input but neglect the output. Only emphasize the people but neglect the people's working ability, level and effect.

The faculty construction of colleges and universities shall not only for the construction, but for accompanying by the scientific and harmonious management, so as to enable each teacher to work in a good mood. In the meantime, it shall be combined with the ergonomics. The performance management will fully stimulate the positivity and creativity of each teacher, and make contributions to the cultivation of excellent talents.

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