The Evaluation and Optimization to the Higher Educational Resource Allocation

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ABSTRACT

The paper regards the 42 undergraduate colleges (the independent colleges are not included) of Henan province by the end of 2013 as the object of research, builds the composite indicator rank model of undergraduate colleges’ educational resource allocation. On this basis, the authors use the score of integrated factor as the rank of composite indicator. In addition, they cluster to the educational resource allocation of 42 undergraduate colleges by use of cluster analysis under the new factors, and the 42 undergraduate colleges are divided into 4 classes. Finally, according to result of cluster analysis and factor scores, the authors put forward the related suggestion of optimizing educational resource allocation for each cluster colleges.

Keywords: Cluster Analysis, Factor Analysis, Higher Education, Optimization, Resource Allocation

1. INTRODUCTION

Higher education is the professional education after one finished secondary education; it is the social activity of training advanced professional personnel. While undergraduate education is the cornerstone of the whole higher education, the education resource of undergraduate colleges are the material basis of keeping the undergraduate education’s survival and development [Yan, 2012], their allocation and utilization level has the significant influence on the quality of undergraduate education, so it is of great importance in evaluating the higher education’s allocation situation.

Nowadays, the computer is a significant part of the learner’s daily life. It is, by now, inevitable that methods of teaching and learning should include E- learning components that are based on the computer environment. This new pedagogy, in the case of science teaching and learning,
employs: High-order thinking and learning skills, a constructivist approach to science teaching and learning, and information, communication, and scientific literacy skills using digital means and advanced technologies. Teaching in an E-learning environment can contribute to the ability to teach, the ability to learn and most important to bridge between two main components in the classroom, the teacher and the learner. E-learning provides different environments for learners with dynamic, interactive, nonlinear access to a wide range of information (text, graphics, and animation) as well as to self-directed learning in online communication e-mail and forums.

With the help of cloud computing [Xu, 2015(a); Luo, 2011; Hu, 2014], internet of things [Wei, 2015; Xu, 2015(b)], and big data [Xu, 2014; L. Wang, 2013], Informal learning is a long-standing mode of developing personal efficacy, because individuals – as social animals – learn in different contexts, including their interactions with other people, their experiences, and so forth. Informal learning is far from being a new concept. During the first half of the twentieth century, several definitions emerge, with yet more appearing at the turn of the century. Today, informal learning is again becoming the center of discussion for several reasons. First, the Bologna process recognizes informal learning as a basic element in lifelong learning. Second, a necessity to apply learning from observation and experience exists. Third, the emergence of the Internet, mobile devices, and Web 2.0 tools facilitates informal learning. The recognition of informal learning in the workplace is especially relevant, on account of a number of factors. For example, informal learning enhances employability and produces positive benefits for managers and companies. Furthermore, informal learning may help to develop task-oriented skills and knowledge, and to communicate social norms and favorable patterns of behavior. Informal learning also gives employees the opportunity to learn and keep their skills up to date as part of the overall workplace culture rather than just a training regime. These issues lead to an interest in informal learning in the corporate world, emanating from the desire to capitalize on the intellectual assets of the workforce, to manage organizational knowledge, and to recognize that informal learning may prove to be a cost-effective way to develop competencies.

There have been abundant research results on the allocation of higher education resource. Recently, on the basis of relevant data in 2006~2010, Mao Jianjun, Peng Manru analyzed the higher education resource’s allocation balance of subordinate Universities of Ministry of Education (SUME) [Mao, 2012]; Chen Hanbing indicated that the total higher education resource allocation quantity of China is insufficient and severe waste, and provided the corresponding countermeasure of optimizing higher education resource allocation [H. Chen, 2012]; Chen Yan studied the evaluation index system of higher education resource allocation by the evaluation methodology of improved information entropy cluster and combined with the relevant data of Henan Province’s higher education resource allocation [Y. Chen, 2013]; Wang Chengrui, Xiehua et al analyzed the status quo and existing problems of higher education resource allocation in Sichuan and Chongqing area, and put forward the sharing mechanism of improving higher education resource use efficiency [C. Wang, 2012]; Dong Xiangping, Xie Xuelian studied the higher education resource allocation efficiency of Jiangxi province by use of DEA method, on this basis, they raised the suggestion of improving higher education resource allocation efficiency [Dong, 2012]. What makes the above researches different is that the paper evaluates the higher education resource allocation efficiency of the 42 undergraduate colleges (the independent colleges are not included) in Henan Province by the end of 2013, and put forward the related suggestion of optimizing higher educational resource allocation in Henan province, it provides a theoretical basis of improving undergraduate teaching quality in Henan province.
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