Evaluation of Teaching Reform Quality of Animal Medicine Course Based on AHP

Lihua Yang[✉]

College of Life Science, Changchun Sci-Tech University, Changchun 130600, China
jlylh123@163.com

Abstract. In order to know whether the evaluation method of teaching reform quality of animal medicine course is effective, a research method of teaching reform quality evaluation of animal medicine course based on AHP is put forward. Firstly, this paper takes the examination papers of animal parasitology course in recent years as samples, and on the basis of a comprehensive analysis of the problems existing in the examination papers, combined with the characteristics of the course and the analysis results of the examination papers, constructs an evaluation system of the examination quality of animal parasitology course based on AHP and fuzzy comprehensive evaluation (AHP-FCE) model. Make full use of the advantages of AHP, determine the weight of each index in each layer and target layer of the evaluation system, and make effective evaluation results for the quality of course examination through AHP-FCE model. The evaluation system can also be applied to the evaluation of examination quality of other courses of animal medicine specialty. The application results show that it can improve the efficiency and objectivity of examination quality evaluation of animal medicine specialty courses.

Keywords: Animal medicine · AHP-FCE model · Quality assessment

1 Introduction

With the continuous promotion of the reform of higher education in China, the theory of practical teaching has gradually shifted from the discussion of "concept definition, structure composition and reform approach" to the comprehensive study of "practical teaching function, model and system". When discussing the connotation of practical teaching, China Agricultural University and others have used the method of system theory to divide the practical teaching system into four levels and five systems, namely, the power level, the power level, the control level There are four levels of guarantee and five systems of teaching objective system, teaching motivation system, teaching content system, teaching management system and teaching conditions system. The research on the function of practical teaching not only focuses on the organic relationship between practical teaching and theoretical teaching, but also on the important role of practical teaching in cultivating students' comprehensive quality, innovative spirit and practical ability. The quality view of teaching reform in animal medicine specialty has the characteristics of development, diversification, adaptability and characteristics. Specifically,

people-oriented and advancing with the times, we should establish a correct view on the quality of animal medicine education from the perspective of sustainable development. With the acceleration of the popularization of elite education in colleges and universities, a series of problems have inevitably appeared, such as the quality of students, the teaching staff, the funding for running schools, the teaching conditions, the teaching management, and the logistics guarantee. However, the key depends on whether the professional education of animal medicine can promote the economic, political and cultural development of society, meet the educational needs of the broad masses of the people, and whether it is conducive to the development of the professional education of animal medicine itself. Personnel training in colleges and universities should focus on meeting the changing needs of economic construction and social development, and correctly treat and understand the relationship between quantity and quality brought about by enrollment expansion. According to the characteristics of the educated, combined with the development of animal medicine education and the requirements of social employment, this paper comprehensively, carefully and deeply analyzes the quality of animal medicine education, establishes the guarantee system of animal medicine education, and ensures the quality of animal medicine education [1, 2].

2   Thoughts on the Reform and Innovation of the Teaching Reform Mode of Animal Medicine Curriculum Practice

2.1   Strengthen Practical Teaching

Practice teaching is an indispensable link in animal medicine specialty. In order to ensure that students can apply what they have learned, schools need to attach importance to practical teaching, invest more time and energy to enrich the content and form of practical teaching, understand students' participation initiative in the process of independent practice, enhance the attraction of practical teaching to students, truly realize the organic integration of theory and practice, and let students actively test their theoretical knowledge in the process of independent practice. At the same time, because the traditional theoretical knowledge teaching can only help students to establish a certain theoretical foundation, it is not helpful to improve their practical ability and practical ability. Teachers should make appropriate adjustments to teaching, increase the proportion of practical teaching, and ensure that practical teaching and theoretical teaching go hand in hand.

2.2   Improve the Practice Teaching System

The reform and innovation of practical teaching mode of animal medicine specialty is a long-term work, which can not achieve obvious results in a short time. Therefore, schools need to pay attention to the effective distribution of time and energy. There are many educational and teaching links and details in practical teaching. In order to avoid the omission of details and the deviation in teaching direction as far as possible, the school should build a scientific and perfect practical teaching system, pay attention to the effective contact and interaction between different experimental teaching sections,

understand students' interests and hobbies, analyze students' learning experience and learning foundation, and ensure that students can lay a solid theoretical foundation. Give students more opportunities and guidance for social practice, encourage students to participate in different experiments independently, stimulate students' learning initiative from the inside out, and gradually improve students' practical ability. This is the key to the reform and innovation of practical teaching of animal medicine specialty, which can make many students have high initiative and arrange their own study and life, fully embody the comprehensiveness, systematicness and completeness of professional course teaching, and ensure the practical teaching system to play its due guiding role and value [3–5].

3   AHP-FCE Model Construction

After establishing the evaluation index system of the examination quality of animal parasitology course, it is necessary to choose an appropriate system evaluation method in order to finally evaluate the examination quality of this course scientifically and objectively. Therefore, the fuzzy comprehensive evaluation method is introduced to construct AHP-FCE model, and the characteristics and advantages of AHP and fuzzy comprehensive evaluation method in course examination quality evaluation are fully exerted. Based on the analytic hierarchy process, the model initially determines the weight of the criterion layer and each index layer in the course examination quality evaluation system, quantitatively solves the qualitative indicators, and then uses the fuzzy comprehensive evaluation method to make fuzzy evaluation. The evaluation model is shown in Fig. 1.
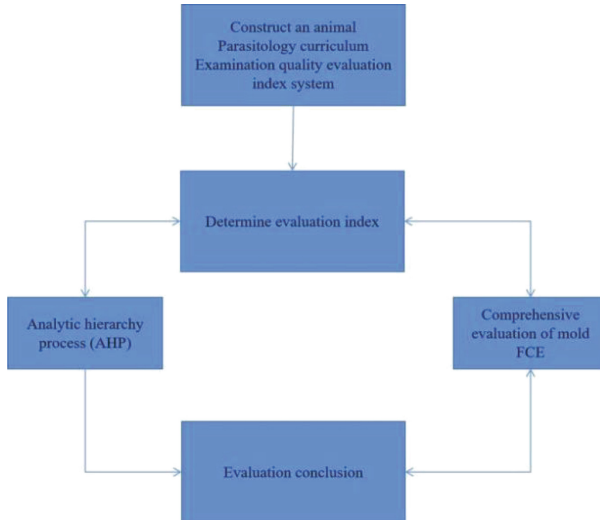

Fig. 1. AHP-FCE model

3.1   Construction of Index System

Animal parasitology course examination quality grading. In order to evaluate the examination quality of animal parasitology intuitively and understand the measurement results easily, after the establishment of the evaluation index system of the course examination quality, the specific index values are converted into evaluation values, and finally the quality of the course examination is determined through the evaluation values. According to the evaluation standards of some universities in China and the experience of previous scholars, this study divides the evaluation standards of course examination quality into four grades, namely, excellent, good, average and poor [6–8].

Determination of index system According to the analysis of the examination papers of animal parasitology course and the examination characteristics of the course, the index system of examination quality evaluation of the course is divided into target layer, criterion layer and index layer. The target layer is the completion of the course examination quality, which is highly summarized and evaluated; The criterion layer is mainly used to reflect the specific situation of the target layer, and describes the course examination quality from four aspects: examination results, examination quality, examination paper quality and examination paper structure. The index layer is used to combine quantitative analysis with qualitative analysis, and the index is divided into excellent rate, unqualified rate and standard deviation according to the test results of the criterion layer. Corresponding to the test quality, the indicators are divided into test skewness, test kurtosis and test difficulty; Corresponding to the quality of test paper, the index layer is divided into test reliability, test validity and test discrimination; Corresponding to the test paper structure, the indicators are divided into content coverage, test paper structure and test quantity, totaling 9 quantitative indicators and 2 qualitative indicators.

3.2   Application Case

3.2.1   AHP Method to Determine the Weight Coefficient.

(1) Examination data: The examination data of animal parasitology course from 2020 to 2022 were tested respectively, and the data in 2022 was selected as an example.
(2) Determination of quantitative index evaluation grade standard and weight coefficient. On the basis of consulting experts, the evaluation grade standard of quantitative indicators consists of curriculum indicators. Then, through the comparison results of evaluation factors by the research group and industry experts, the matrices are judged, and the maximum eigenvalue and maximum eigenvalue of each matrix are normalized and tested for consistency.

3.3   Fuzzy Comprehensive Evaluation

1 Qualitative index comment set Qualitative index comment set adopts expert scoring method, and selects 5 professors of animal medicine who are engaged in front-line teaching in the school and 5 professionals with senior titles who are engaged in scientific research and teaching of animal medicine outside the school to form an expert group. Score the test paper according to the qualitative index evaluation standard, and get a C

Table 1. First-level evaluation results

Fuzzy comprehensive evaluation matrix				
Quasi-lateral layer	excellent	good	medium	discrepancy
Examination results	0.801	0.201	0	0
Quality of examination questions	2	1	0	0
Test paper quality	2	0	0	1
Test paper structure	0.244	0.534	0.132	1

Table 2. Second-level evaluation results

Fuzzy comprehensive evaluation matrix				
project	excellent	good	medium	discrepancy
Specific evaluation situation	84.6	14.2	1.3	0

in the same way. Parameters, the results are 2 excellent, 7 good, 1 average, and poor. The fuzzy evaluation matrices are [0.2 0.7 0.1 0] and [0.3 0.5 0.2 0] respectively.

2 The first-level evaluation results and second-level evaluation results of quantitative index comment set calculated by membership function are shown in Table 1 and Table 2.

4   Results and Conclusions

As can be seen from Fig. 2, the probability that the quality of the course examination quality evaluation index system is excellent, good, average and poor is 84.6%, 14.2%, 1.3% and 0 respectively. According to the principle of maximum membership degree, the membership degree of "excellent" is 84. 6%, so the quality grade of the quality evaluation index system of animal parasitology course examination in 2020 is finally
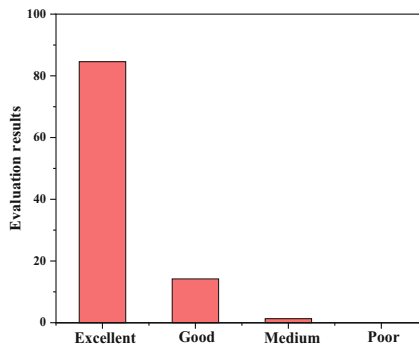

Fig. 2. Specific evaluation of the second level

judged as "excellent". The evaluation results are consistent with the scoring evaluation results of the expert group, but the evaluation results of AHP-FCE model method show the distribution of membership functions for "excellent, good, average and poor", which is more clear and objective than the expert evaluation method. On this basis, the course evaluation system based on AHP-FCE model is applied to the evaluation of the examination quality of the main courses of animal medicine, such as animal pharmacology, animal pathology, animal anatomy and histology and embryology, animal physiology, animal biochemistry, animal infectious diseases, veterinary internal medicine, veterinary surgery, etc., and good results are achieved, which verifies the objectivity and effectiveness of the evaluation system and improves the evaluation efficiency[9, 10].

5   Conclusion

Animal parasitology is an important major course of animal medicine, which is closely related to other courses of animal medicine and has strong practicality. This paper analyzes the examination papers of animal parasites and students' final scores in recent years, and summarizes the related factors affecting the final examination quality. Firstly, using the hierarchical structure model, the factors affecting the examination quality of animal parasitology course are divided into target layer, criterion layer and index layer. Secondly, according to the comparison of the importance of each factor at the same level to the previous level. As a result, the judgment matrix is constructed and tested for consistency. If the conditions are not satisfied, further correction is needed. Finally, the hierarchical general sorting is carried out. Giving full play to the hierarchical structure model can fully reflect the factors affecting the evaluation of examination quality and their importance. At the same time, using the advantages of fuzzy comprehensive evaluation in the evaluation of results, an AHP-FCE model is established. The model and evaluation system are applied to the evaluation of the examination quality of animal parasites course to verify its effectiveness.

References

1. Huanying PANGMiao XIEShuanghu CAIZiling WANGShiping YANGYucong HUANGJichang JIAN. (2022). Construction of case database for postgraduate course aquatic animal pathogen biology. Asian Agricultural Research, 14(2), 66-68.
2. Wertz, J. , Israel, S. , Arseneault, L. , Belsky, D. W. , Bourassa, K. J. , & Harrington, H. L. , et al. (2021). Vital personality scores and healthy aging: life-course associations and familial transmission. Social Science & Medicine, 285, 1(1)4283-.

3. Liao, Q. , Pang, L. , Li, J. J. , Zhang, C. , & Zhang, J. M. . (2021). Characterization and diabetic wound healing benefits of protein-polysaccharide complexes isolated from an animal ethno-medicine periplaneta americana l. International Journal of Biological Macromolecules, 195(7)42.
4. Finnegan, A. C. , Voller, V. K. , Owilli, A. O. , Yang, A. X. , & Westerhaus, M. . (2022). Evaluating the impact of a social medicine course delivered in a local-global context: a 10-year multi-site analysis. World Medical And Health Policy, 14(1), 54-73.
5. Aubcherye, P. , Aubcherye, N. , Noysang, B. , Woratanarat, P. , & Laohajaroensombat, S. . (2021). Optimizing orthopaedics and rehabilitation medicine course grading system by spreadsheet software. Ramathibodi Medical Journal, 44(2), 28-38.
6. Soliman, M. , Aljarallah, S. , Bedaiwi, M. , Alrashed, R. , Omair, M. , & Alfadda, A. . (2021). Pregraduation online curriculum delivery of internal medicine course during the covid-19 pandemic: experience of a medical college in saudi arabia. Journal of Nature and Science of Medicine, 4(4), 337-.
7. Schramm, J. , Uranga, T. , Birkle, A. , Thorp, R. , & Taylor, L. . (2021). Improving holistic care skills for advanced practice registered nurses: integration of a complementary and alternative medicine course into a doctor of nursing practice curriculum. Journal of Doctoral Nursing Practice, 14(2), JDNP-D-20–00077.
8. Keating, J. J. , Ricaurte, D. , Desrochers, R. , Jacobs, L. M. , Croteau, A. , & Dieffenbach, B. , et al. (2021). Surgical advanced vascular exposure and repair: a large animal course for vascular trauma. Journal of the American College of Surgeons, 233(5), e167-.
9. France, K. , Hangorsky, U. , Wu, C. W. , Sollecito, T. P. , & Stoosler, E. T. . (2021). Analysis of learner demographics from a massive open online course in oral medicine. Oral Surgery, Oral Medicine, Oral Pathology and Oral Radiology, 131(4)35.
10. Su, J. , & Wang, D. . (2022). An intelligent clinical psychological assessment method based on ahp-lssvr model. Computational Intelligence and Neuroscience, 2022(6), 1-11.