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Discussion on the Reform of Comprehensive Practice Evaluation Model for Physical Geography Courses in Chinese Universities

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Abstract:In this paper, the comprehensive practice evaluation system for physical geography courses is reformed for its shortage as the goal of teacher certification and course target evaluation. We puts forward a set of evaluation model of process performance evaluation including 11 participating indicators from usual grades, practice reports and teaching skills,which comprehensively considers students' multifaceted literacy and ability. This model not only evaluates the practice content, results and knowledge mastery, but also evaluates the practice process, ability training and knowledge application transfer and transformation. It strengthens the subjectivity and participation of students and can better support the course goals and graduation requirements.

Keywords:physical geography; evaluation model; process assessment

1. Introduction

The comprehensive internship of physical geography is an important core course of geography. It is an opportunity for students to understand and explore the natural geography landscape and apply theory to practice. During the practice, students can reveal the causes of natural phenomena through geographic observation, instrumental observation and problem exploration, which is conducive to the cultivation and improvement of students' geographic thinking, knowledge application transfer, analysis and problem solving, and innovation ability. In recent years, higher normal colleges have greatly increased the proportion of physical geography practical courses, strengthened the implementation process and achieved some good results. However, there is still a big gap between the curriculum goals and graduation requirements for cultivating students' comprehensive abilities. Therefore, it is necessary to use the reformed evaluation system of process and ability assessment to assess and supervise the practice process of instrument operation, communication and cooperation, organization and implementation, and problem phenomenon exploration, so as to change passive learning into active learning for students.

2.Insufficiency of the evaluation system for the comprehensive practice of physical geography

In the past, the evaluation of the practice performance of physical geography courses was mainly based on the practice report, which limited inspection of the ability of students, and

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the evaluation of teachers was relatively subjective. Physical geography teachers began to reform this single evaluation. The evaluation of practice performance was divided into evaluation of practice process and evaluation of practice results in both Qufu Normal University(Lv et al.,2006) and Hengshui College(Wei et al.,2008).The process was evaluated from the aspects of attitude, cooperation, information processing, problems analysis or ideological style, and professional quality, accounting for 50% or 70%. The results were evaluated from the aspects of the practice summary report, practice professional report and practice defense, accounting for 50% or 30%. However, process evaluation required on-site observation by the teacher and still existed high subjectivity and a large proportion of process, which may lead to the imbalance of performance. The evaluation system of physical geography comprehensive practice with 17 secondary indicators had constructed from four aspects: 20% of ideological style, 35% of professional quality, 15% of practice discussion and 30% of practice effect in Anhui Normal University(Cheng et al.,2009) and Nanjing Xiaozhuang College(Wang et al.,2013). Ajoint evaluation method of 30% individuals, 30% groups and 40% teachers was adopted to carry out multi-process assessment and evaluation from ideology, profession, effect, and communication, which reflected the participation of students. But the implementation of secondary index process evaluation was more complicated and the calculation of achievement verification is more. Zhao Huaiqiong(Zhao et al.,2001) and Yu Fazhan(Yu et al.,2007) had established a evaluation system of physical geography field comprehensive practice with eight secondary indicators from four participating factors of "morality, ability, diligence and performance". Morality and ability accounted for 40%, diligence and performance accounted for 60%.Teacher and students evaluations accounted for 60% and 40% respectively. In summary, the evaluation of comprehensive practice in physical geography gradually pays attention to process and multiple evaluations, but there are still problems such as a large proportion of processes, strong subjectivity, multiple indicators, complex operations, and mismatching between score registration and the educational administration system, which can not meet needs of the times of university teacher certification standards and graduation requirements

3. Reform of the evaluation system for the comprehensive practice of physical geography

(1) Basis for reform

Based on "the certification standard of middle school education" and "the comprehensive practice standard of physical geography in Lushan mountain", the requirements for practice inspections are clarified. The first is to require students to have basic teacher professionalism and academic ethics, the second is to master the steps and methods of field investigations, the third is to cultivate students' practical ability in instrumental observation, drawing and organizing activities, and the fourth is to master the basic knowledge, skills and methods of geography. The fifth is to learn to integrate and apply knowledge and carry out analysis and transfer, and the sixth is to have a good organization and coordination ability and team spirit.

(2) Construction of reform evaluation index system

1 Evaluation index system

In the past, the practice scores were calculated by multiplying the scores of the practice reports of each course (percentage system) by the weight of each course. However, the scoring standards of the practice reports were relatively rough, the teacher reviews were highly subjective and there was a lack of process assessment of practical operation, communication organization, and knowledge application and comprehensive analysis. This paper adopts the principles of combining quantitative and qualitative, teacher and student, result and process, group and individual evaluation principles and indicators, simple and easy-to-operate evaluation principles. Based on years of geography field practice experience and suggestions from teachers and students, the overall goal of comprehensive practice performance evaluation of physical geography is divided into three first-level participation indicators of usual performance, practice report and teaching skills as well

as 11 second-level indicators. A set of process evaluation index system model is constructed to comprehensively examine students' various qualities and abilities (See Table 1).

Table1 Evaluation Index System of Physical Geography Comprehensive Practice

	First level indicator	Weights	Secondary indicators
Physical Geography Comprehensive Practice Results(Z)	Practice report(S)	60%	Content completeness and analysis
			Data integrity and analysis
			Format specification
	Usual performance (P)	25%	Knowledge ability
			Creativity
			Quality requirements
			Teamwork
			Practice
			Problem task list completion
	Teaching skills(J)	15%	Practice defense
			Design of study trip plan

Z=S×60%+P×25%+J×15%

2 Determination method of evaluation index and weight

The full score of the practice report is 100 points. The normal certification standard clearly states that the proportion of academic credits is not less than 50%. Therefore, the evaluation weight of the practice report is determined to be 60%. According to the difference in the practice content of different courses, the course score weights of geology and geomorphology SD, plant geography SZ, hydrology SS course, meteorology and climatology SQ and soil geography ST of the practice report are 30%, 20%, 20%, and 15 % and 15% respectively. The five secondary index participating factors are: ① Content integrity and analysis degree S1, score 30 points. ② Data integrity and analysis degree S2, score 20 points. ③ Format specification S3: including background knowledge, pictures and texts, three kinds of writing and Standard Mandarin, logical sequence and references, score 15 points. ④ Knowledge ability S4: including knowledge synthesis and application ability, score 20 points. ⑤ Innovative ability S5: personal new opinions, worth 15 points. The practice report is evaluated by teacher, and the score of the practice report for each course is (S1+S2+S3+S4+S5). The total score of the practice report is calculatedly obtained by S=SD×30%+SZ×20%+SS×20%+SQ×15%+ST×15%. The five participating factors evaluate students' abilities from multiple aspects, break the shortcomings of previous teacher subjective evaluations, and make the evaluation results more scientific and standardized.

Usual performance is 100 points, accounting for 25% of the evaluation system. The 4 secondary index participating factors are: ① Quality requirements: including ideological character, organizational discipline and attendance rate, with a score of 20 points. ② Teamwork: including communication and cooperation and organization and coordination ability, worth 20 points. ③ Practical operation: independent and correct instrument operation, score 20 points. ④ Completion degree of problem task list: Problem task list refers to the daily practice content and requirements of five courses of geology and geomorphology, hydrology, phytogeography, meteorology and climatology, and soil geography in the form of problem exploration tasks, which are distributed to students in advance for preview. During the practice, students are divided into groups to explain notes, instrument operations, and data recording, and finally complete the problem task list requirements through observation, listening, analysis and synthesis to discuss and explore the problems of the problem task list. It can not only examine students' knowledge integration and application ability, but also examine students' practice attitude, organization and communication ability, and can be used as a basis for process quantitative evaluation, with a score of 40 points. Participating factors of usual grades qualitatively and quantitatively evaluate students' abilities in morality, attendance, communication and cooperation, organization and coordination, instrument operation, task division, discussion and inquiry. At the same time, the combined method of 40% personal evaluation (Pgr) and 60% group evaluation (Pxz) avoids the disadvantages of the singleness of the evaluation subject, reflects the evaluation of multiple subjects, and makes the evaluation more scientific,

reasonable, standardized and accurate. The usual results can be calculated by P=Pgr×40%+Pxz×60%.

The full score of teaching skills is 100 points, accounting for 15% of the evaluation system. The evaluation method of 50% of teachers and 50% of groups is adopted, including 2 participating factors: ① Practice defense (Jdb): the students' abilities such as three kinds of writing and Standard Mandarin,technical integration ability, logical thinking, teaching ability, humanities and social and scientific literacy are examined through students' self-designed practice demonstrations, the practice knowledge and the process. The score is 50 points. ② Design a research trip plan (Jyx): Students use the practice process as a reference to design a research trip plan, which can examine the students' knowledge application ability and innovation ability, with a score of 50 points. The first-level index teaching ability score can be obtained through J=Jdb×50%+Jyx×50%. The teaching skills participation factors meet the professional certification requirements of normal students, and lay the foundation for the students' future career development.

4 Summary

Compared with the previous evaluation system, the reform evaluation system established in this paper strictly follows the field practice curriculum standards and teacher professional certification requirements. The indexes are simple and clear, easy to operate, match the academic performance registration system. The reform evaluation system which combines process evaluation with result evaluation and combines personal self-evaluation, group evaluation and teacher evaluation effectively overcomes the shortcomings of the previous practice evaluation subject of single subject, highly subjective evaluation methods and lack of scientificity, making the evaluation results objective and fair. This diversified procedural reform evaluation model not only focuses on the results, completion of practice and the mastery of knowledge, bult also pays more attention to the process of practice, the cultivation of abilities, the transfer and transformation of knowledge application. It can strengthen subjectivity and participation of students and can better support course goals and graduation requirements.

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Conflicts of Interest

The authors declare that they have no conflicts of interest to this work.

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