

Evaluation Method of Ideological and Political Curriculum Reform Effect in Colleges and Universities Based on Fine-grained Learning

Tianyi Sun^{1,*} Xia Zhao²

¹ Youth League Committee, The First Affiliated Hospital of China Medical University

² Youth League Committee, The First Affiliated Hospital of China Medical University

*Corresponding author. Email: 20142051@cmu.edu.cn

ABSTRACT

In order to effectively meet the needs of teaching effect evaluation, reduce the error of effect evaluation results and improve the accuracy of evaluation results, an effect evaluation method of Ideological and Political Curriculum Reform in Colleges and Universities based on fine-grained learning is proposed. By defining the emotional ontology of fine-grained learning and classifying the emotional set of knowledge point learning, the emotional feedback of students to knowledge and teachers is constructed. According to the defined fine-grained learning emotional ontology, the emotional degree of learning effect is measured, the learning efficiency of Ideological and political curriculum is evaluated, and the effect of Ideological and Political Curriculum Reform of fine-grained learning is evaluated. The experimental results show that. The error of the evaluation results of the proposed method is small, which can effectively improve the accuracy of the evaluation results and meet the needs of teaching effect evaluation.

Keywords: *Fine grained learning, Ideological and political courses in Colleges and universities, Curriculum reform, Effect evaluation, Emotional value, Knowledge point path*

1. INTRODUCTION

In the process of Ideological and Political Curriculum Reform in recent years, we pay more attention to the reform of curriculum teaching methods. Modern curriculum teaching pays more attention to students' subject status and emphasizes students' learning initiative. Students' subject status gradually rises with the continuous research on curriculum education. Whether it is the traditional face-to-face classroom or the online classroom in the Internet era, curriculum reform is very important [1]. However, evaluating the effect of curriculum reform can improve students' learning enthusiasm and meet the needs of modern education.

In view of the current evaluation methods, artificial intelligence algorithm and support vector machine are mainly used to establish teaching effect evaluation model and realize teaching effect evaluation. This method has certain effectiveness, but the accuracy of evaluation results is low [2]. Therefore, this paper proposes an evaluation method of the effect of Ideological and Political Curriculum Reform in

Colleges and Universities based on fine-grained learning. Taking fine granularity as the evaluation factor, through fine granularity learning emotional ontology, the logical relationship in Ideological and political curriculum is established, and then the knowledge is divided according to the degree of difficulty. Finally, according to the classification, teachers are given the meaning of emotional expression in teaching methods. Based on the concept of fine-grained learning [3], this concept enables the establishment of relationships for the assessment of pedagogical change. In the emotional education model, contact the individual changes of knowledge points and learning emotion, and use the model to evaluate the effect of students' Ideological and political curriculum reform.

2. DEFINE THE EMOTIONAL ONTOLOGY OF FINE-GRAINED LEARNING

There are nine elements in the collection of fine-grained learning ontology, which are divided into

students, teachers, courses, knowledge points, difficulty, knowledge point relationship collection, students' cognition, the classification of emotional feedback of learning subjects and the classification of emotional feedback by teachers. Each set in the fine-grained learning ontology has its own definition: the set of knowledge points includes conceptual knowledge, factual knowledge, metacognitive knowledge and procedural knowledge. The relationship set of knowledge points includes the relationship between the whole and part, causality, superior and subordinate relationship and sequential relationship. The learning stage of students' knowledge points is divided into three stages: memory understanding, analysis and application and creation [4]. Based on the above set relationship,

students' emotions for knowledge point learning are classified, which is based on effective learning. Negative emotions include disgust, fear and anger. Negative emotions are based on learning problems. When students first face new knowledge, they are calm. If the absorption effect of knowledge is ideal, students' emotions will develop to positive emotions, and if the effect is not ideal, they will develop to negative emotions.

From the perspective of curriculum analysis, explain the curriculum ontology meaning of the emotion of granular learning, and the corresponding relationship between relevant knowledge points, knowledge types and difficulty is shown in Table 1.

Table 1. Knowledge point correspondence

Number	Knowledge point	Knowledge point type	Degree of difficulty	Cognitive goals
1	The essence of money	Metacognitive knowledge	More difficult	Understanding memory
2	Credit instruments	Metacognitive knowledge	More difficult	Understanding memory
3	Spiritual civilization construction	Conceptual knowledge	General difficulty	Evaluate
4	Government responsibilities	Conceptual knowledge	General difficulty	Understanding memory
5	People's democratic dictatorship	Metacognitive knowledge	More difficult	Evaluate
6	Foreign exchange	Procedural knowledge	General difficulty	Understanding memory
7	Government prestige	Practical knowledge	General difficulty	Evaluate
8	Responsibility	Procedural knowledge	General difficulty	Analysis and Application
9	obligation	Metacognitive knowledge	General difficulty	Evaluate
10	Law and morality	Procedural knowledge	More difficult	Analysis and Application
11	A moderately prosperous society	Conceptual knowledge	General difficulty	Analysis and Application
12	Socialist construction	Practical knowledge	General difficulty	Analysis and Application

The relationship between the knowledge points in Table 1 and the collection of others constructs the emotional feedback of students on knowledge and teachers on learning emotion.

3. AFFECTIVE DEGREE OF LEARNING EFFECT BASED ON ONTOLOGY

According to the analysis of the definition of learning emotion, students' learning emotion for

knowledge points is mastered. Quantify the students' learning emotion, and use the letter X to represent the quantified emotion value. Calculate the average value and range of different learning emotions, and compare the impact of emotional values on learning effect [5-6]. Calculate the absolute value of learning emotion value and the coefficient of absolute value. The association path between two interrelated knowledge points determines the type of relationship between knowledge points. For example, if knowledge point a is the cause of

knowledge point B, the relationship between knowledge points a and B is causal.

Each student has different understanding of knowledge points. The emotional value of knowledge points in the grouping of individual knowledge points is defined as x1, which is calculated and measured by the above calculation method. The emotional value of knowledge on different connection paths of students is defined as X2, and the average emotional value of relationship path of student knowledge points is X3, which is measured by the index of relationship path. The statistical metrics of the path are shown in Table 2.

Table 2. Path measurement index of learning emotions

Number	Statistical metrics	Statistical measurement method
1	Proportional relative index	Proportion of learning emotion polarity changing from positive to negative
2	Proportional relative index	Proportion of learning emotion polarity changing from negative to positive
3	Average index	Average value of affective learning
4	Mean difference of variation index	Average difference in change value of learning emotion value
5	Mean difference coefficient of variation index	Average difference coefficient of change value of learning emotion value

Calculate the indexes in Table 2 of x1, X2 and X3. After calculating the emotional value indicators of each student, add them together to obtain the total number, and divide them by the total number of students to obtain the average value of students' emotional indicators.

4. EVALUATE THE LEARNING EFFICIENCY OF FINE-GRAINED LEARNING

Using the fine-grained learning classification model to evaluate the learning efficiency of students, to evaluate a single student, we should first compare the proportion of positive emotion value in learning emotion. The greater the proportion, the greater the emotional evaluation value. The smaller the range of emotion value, the higher the accuracy of emotion evaluation results.

The evaluation of learning effect of knowledge points is that when learning, the proportion of students' negative emotions to positive emotions is large, the proportion of students' positive emotions to negative

emotions is small, and the overall learning effect of students is good. When a single student studies, he studies with positive and neutral emotions for a long time, accounting for a high proportion of the total learning time, indicating that the single learning effect is good [7]. The proportion of good single learning effect accounts for more than 4 / 5 of the learning times, indicating that the student's overall learning effect is good.

The average value and range of students' learning emotions are as small as possible, which proves that the learning effect is stable. The large values of average value and range indicate that the learning effect is unstable. Students' emotions change greatly in fine-grained learning, so they need to adjust their mentality in time.

Before evaluating the learning effect of knowledge point relationship path, set the average value calculation formula of relationship path as:

$$Y = \left\{ \frac{\sum_{k=1}^m AveEmoDif(s_k, p_1)}{n}, \dots, \frac{\sum_{k=1}^m AveEmoDif(s_k, p_n)}{n} \right\} \quad (1)$$

In the formula, y is the average value of the relationship path, the value range of emotional value is 1 ~ n, and the value k is selected between 1 ~ n to meet $n \geq K \geq 1$. *AveEmoDif* represents the emotional change of a student learning knowledge points in the relationship path of knowledge points, s_k is the informed value of student s learning K knowledge, and p_n is the path. Finally, the above formula is used to evaluate the effect of Ideological and Political Curriculum Reform in Colleges and universities.

5. EXPERIMENTAL ANALYSIS

In order to verify the effectiveness of the evaluation method of the effect of Ideological and Political Curriculum Reform in Colleges and Universities Based on fine-grained learning, the proposed method is compared with the current method, and the evaluation effects of the two evaluation methods are compared.

5.1. Experimental preparation

250 students majoring in Ideological and Political Science in a university are selected and divided into two classes. There are 125 students in class A and class B, with a reasonable proportion of men and women. The two-stage learning effect evaluation is carried out from the aspects of autonomous learning ability, teacher-student interaction and achievement feedback.

5.2. Experimental results and analysis

Using the proposed method and the current method, the learning effect evaluation error results of the two learning stages are compared, and the evaluation error results of different methods are obtained, as shown in Figure 1.

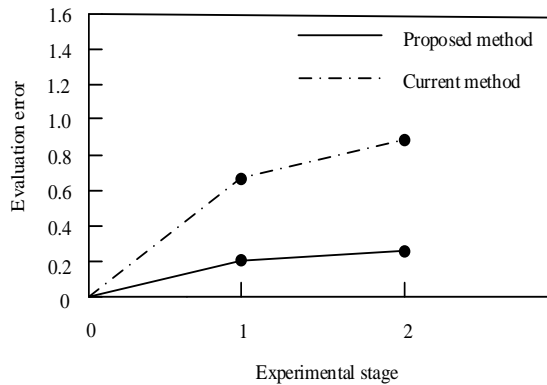


Figure 1 Comparison of evaluation results and errors of different methods

According to figure 1, in the evaluation of the effect of curriculum reform in the two learning stages, the evaluation error in the first learning stage of the current method is 0.67 and the evaluation error in the second learning stage is 0.88, while the evaluation error in the first learning stage of the proposed method is 0.2 and the evaluation error in the second learning stage is 0.26. Therefore, compared with the current method, the evaluation result error of the proposed method is small, the evaluation result error changes stably, and can effectively improve the accuracy of the evaluation result.

6. CONCLUSION

In order to effectively reduce the error of evaluation results of Ideological and Political Curriculum Reform in Colleges and universities and improve the accuracy of evaluation results, an evaluation method of Ideological and Political Curriculum Reform in Colleges and Universities Based on fine-grained learning is proposed. Taking the change of students' emotional value of knowledge point learning and the path relationship between knowledge points as evaluation factors, the evaluation effect of this evaluation method is closer to reality, and the evaluation results can be directly used as a reference to improve students' learning effect.

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