

## Exploration of Ophthalmology Teaching Based on Integrated Chinese and Western Medicine Based on Formative Evaluation Method

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**Keywords:** Formative Evaluation Method; Integrated Chinese and Western Medicine Ophthalmology Teaching; Evaluation of Teaching Effect;

**Abstract:** At present, the teaching of ophthalmology combined with Chinese and Western medicine has its own characteristics. It not only has the teaching characteristics of ophthalmology, but also has the teaching characteristics of the combination of Chinese and Western medicine. This feature is how the “fine, god, and mystery” of TCM ophthalmology is combined with the modern ophthalmology technology. Under the background of such an international teaching reform, the reform of professional setting, curriculum system, teaching content and teaching methods has already begun to bear fruit. However, the evaluation of the teaching of ophthalmology education and the effect of students' learning in integrated Chinese and Western medicine has not yet formed an authoritative comprehensive evaluation system at home and abroad. Therefore, in order to explore the influence of formative evaluation on the learning effect of integrated Chinese and Western medicine ophthalmology teaching, this study established the formative evaluation of ophthalmology teaching with integrated Chinese and Western medicine through expert interview, literature, questionnaire, experimental and mathematical statistics. Evaluation criteria and experiments. The experimental results show that the experimental group and the control group have significant differences in the theory, technology and comprehensive ability of the combination of Chinese and Western medicine in ophthalmology. The experimental group was superior to the control group.

### 1. Introduction

With the needs of society, the number of medical students with integrated Chinese and Western medicine has gradually increased. How to better teach students and achieve teaching goals in clinical teaching is a challenge faced by many young clinical teaching teachers. As a more compact and Abstract subject, how to achieve better teaching results in the integration of Chinese and Western medicine is also an exploration of our ophthalmology clinical teachers. TCM ophthalmology is an important part of the clinical discipline of TCM. The fundamental method of understanding disease is based on the simple materialist epistemology of TCM [1]. From the yin and yang theory, the form is yin and the function is yang. Certain functions must be attached to a certain material form to function.

The combination of traditional Chinese and Western medicine in ophthalmology teaching is increasingly important in today's medical teaching. The limitations of a single form of evaluation are gradually magnified, so consider the feasibility of actively seeking formative evaluations at the moment. However, the evaluation of the teaching of ophthalmology education and the effect of students' learning in integrated Chinese and Western medicine has not yet formed an authoritative comprehensive evaluation system at home and abroad. Therefore, it is of great value to study the construction of the formative evaluation index system of the core curriculum of integrated Chinese and Western medicine teaching.

Therefore, in order to explore the influence of formative evaluation on the learning effect of integrated Chinese and Western medicine ophthalmology teaching, through the expert interview method, literature data, questionnaire survey method, experimental method and mathematical statistics method, this study established the evaluation criteria for the formation evaluation of

ophthalmology teaching in integrated Chinese and Western medicine and conducted experiments. The experimental results showed that the experimental group and the control group had significant differences in the theory, technique and comprehensive ability of the integrated Chinese and Western medicine ophthalmology, and the experimental group was superior to the control group. This study attempts to combine the specific national conditions and empirical findings of China with the existing research at home and abroad. Analyze the effect of the formative evaluation system on the application of Chinese and Western combined ophthalmology teaching and training. It is intended to give evidence of feasibility and reference to the theory of perfecting the formative evaluation system.

## **2. Related Research Summary**

### **2.1 Analysis of the Focus in the Teaching of Ophthalmology Combined with Traditional Chinese Medicine and Western Medicine**

Traditional Chinese medicine ophthalmology is an important part of the clinical discipline of Chinese medicine. The fundamental way to understand disease is based on the simple materialist epistemology of Chinese medicine. From the yin and yang theory, the form is yin and the function is yang. Certain functions must be attached to a certain material form to function. That is to say, TCM ophthalmology is a science based on the mutual cooperation of the five internal organs, with the normal operation of eye gas, blood, Tianjin, liquid and fine as the physiological characteristics, and the five-wheeled external manifestation as the basis of syndrome differentiation. It is also the basis for the diagnosis and treatment of ophthalmic diseases, and is a special component of Chinese medicine ophthalmology [2]. This process of understanding the disease from the whole to the local is called TCM syndrome differentiation.

In the process of treating eye diseases, Western Medicine adopts how to repair deformed tissues of tissues and organs and how to restore abnormal functions of tissues and organs. This kind of diagnosis and treatment method for the purpose of repairing the abnormality of tissues and organs to restore the function of tissues and organs is the characteristic component of western medicine ophthalmology. The main method of understanding this disease from the disease is called Western medicine. Therefore, from the epistemological point of view, this holistic view of Chinese medicine is combined with the partial view of Western medicine [3]. From the whole to the local, from the static anatomy to the dynamic viscera function, it should be a combination of Chinese and Western medicine. This combination not only contributes to the development of TCM syndrome differentiation, but also contributes to the further improvement of Western medicine treatment. When teaching Chinese and Western medicine combined with ophthalmology, it is necessary to emphasize this epistemological combination of Chinese and Western medicine, rather than merely emphasizing the combination of Chinese and Western medicine in treatment.

### **2.2 Application research of formative evaluation methods in teaching**

Formative evaluation refers to a dynamic whole process evaluation. It is first used in teaching. The evaluator conducts multiple, dynamic and timely evaluations for students according to the established teaching plan, and uses its feedback link to guide the students so that the students can obtain the best learning results. According to the feedback and evaluation results, we can adjust the teaching plan for the students and improve the teaching quality. Formative evaluation through a number of evaluation results, you can learn about the various aspects of the students. In the interactive evaluation between teachers and students, there are three aspects that can be summarized as: FED, F is feedback, E is Encouragement, and D is Direction. Through these three aspects, students can guide their self-learning enthusiasm, promote good communication between students and teachers, make formative evaluations better, and ultimately make teaching and learning progress together [4]. Formative Evaluation is distinguished from previous summative evaluations. It refers to the evaluation of the student's learning effect in the process of teaching, in order to understand the student's learning situation in real time and ensure the realization of the teaching

goal. Its main purpose is to improve and perfect the teaching process, and feedback is an important part of formative evaluation. The evaluation steps are shown in Figure 1.

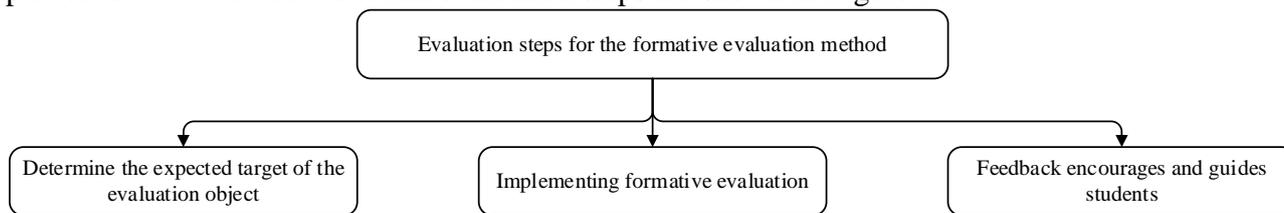


Fig. 1. Evaluation steps for the formative evaluation method

In the teaching of ophthalmology, the evaluation system not only includes the evaluation of the basic knowledge and ability of the evaluator's ophthalmology, but also the evaluation of the comprehensive quality.

### 3. Research on Ophthalmology Teaching of Integrated Traditional Chinese and Western Medicine under the Method of Formative Evaluation

#### 3.1 Research objects, research hypotheses

In this study, a student of the Department of ophthalmology of a Chinese-Western Medicine Hospital was selected as the research object. The hospital's formative evaluation system is divided into five parts as shown in Figure 2.

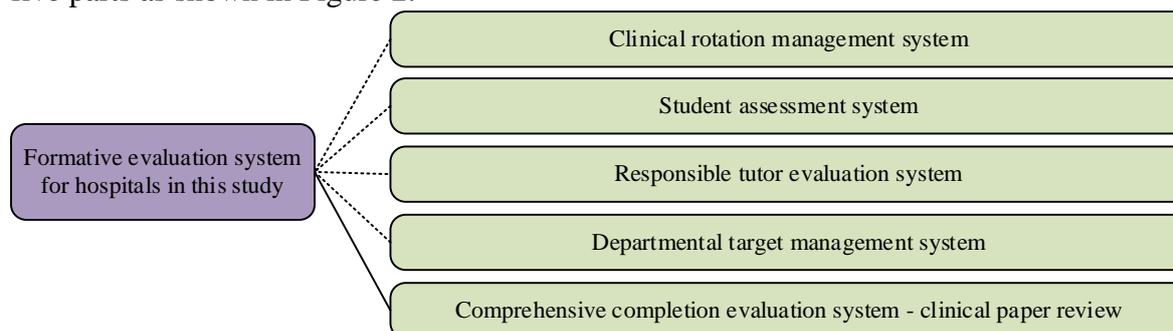


Fig. 2. Formative evaluation system for hospitals in this study

Based on the formative evaluation theory, the evaluation section of the clinical rotation training department for resident standardization training was constructed. That is, the evaluation and cultivation of the history collection ability, clinical ability, and humanistic literacy ability. For example, mini-CEX based on clinical operation ability, clinical skill direct observation method, clinical thinking ability-based SOAP (Subjective-Objective Assessment-Plan) case assessment and 360-degree evaluation of comprehensive quality. Using the 9-point scale, 1 to 3 points did not meet the requirements and did not meet the expected standards, 4 to 6 points met the requirements to meet the expected standards, and 7 to 9 points performed well and exceeded the expected standards [5].

This study relies on literature analysis methods, comparative research methods, and questionnaire survey methods, assuming that the formative evaluation system can enhance the ability of ophthalmologists in all aspects. In clinical ability and non-clinical ability, students with different academic qualifications can be accurately evaluated, and the evaluation and training of students with different academic qualifications tend to be homogenized. Participants and teachers are more satisfied with the formative evaluation system.

#### 3.2 Teaching experiment method

In this study, a direct evaluation of the DOPS clinical skills for clinical skills in the formative evaluation system was compared with the traditional scoring method. There are two types of scoring methods for this assessment. The evaluator of the experimental group used the direct observation method of DOPS clinical skills based on formative evaluation, and the control group

used the traditional scoring method. Before the experiment, it is necessary to ensure that the level of the two groups of students is at the same starting line [6]. The test was conducted to test that there was no significant difference in the level of professional knowledge between the two groups before the experiment was started.

In this study, the diagnosis and medication indications of “acute bacterial conjunctivitis” were used as teaching content for teaching. “Acute bacterial conjunctivitis” belongs to the category of “storm wind heat” in Chinese medicine. The main symptoms are “white-red red and red, thick and sticky.” However, the student replied that “the gas wheel in the five rounds of the white eye should be in the lungs. The red genus heat is a syndrome that belongs to the “wind and heat lungs”. When answering “spring and summer”, it leads to the epidemic characteristics of “multiple spring and summer outbreaks”. When teaching the course, arrange the anatomical knowledge in the previous lecture [7]. Students first understand and then explain the theory of Chinese medicine, so that Chinese and Western medicine can be rationally combined, and the concept of syndrome differentiation can be accurately carried out without confusing the concept.

### 3.3 Evaluation process

There are two examiners and one student at the scene of each exam. The examiner's criteria for selection by the experimental group are: a senior doctor with a professional title above the associate professor/deputy chief physician adopts the DOPS score sheet; In the control group, a doctor with a job title above the competent physician was selected to use the traditional scoring method. The score sheet covers the assessment indicators for each ophthalmic clinical skill.

## 4. Research Results

### 4.1 Formative evaluation the overall situation of the professional skills of students after the integration of traditional Chinese and Western medicine in ophthalmology teaching

The results of the evaluation of the professional skills of the students after the combination of Chinese and Western medicine ophthalmology teaching are shown in Table 1.

Table 1. Formative assessment of the professional skills of students after the combination of traditional Chinese and Western medicine in ophthalmology

Items	Scores	Scores level	≤ 4 score numbers (%)	4-6 score numbers (%)	7-9 score numbers (%)
The accuracy of the diagnosis process of Western medicine and Chinese medicine	7.11±0.14	Meet expected standards	0	79(75.2%)	26(24.8%)
Selection of treatment methods for integrated Chinese and Western medicine and control of treatment	6.32±0.94	Meet expected standards	0	63(60.0%)	42(40%)
Evaluation standard of therapeutic effect of integrated traditional Chinese and Western medicine	6.89±0.68	Meet expected standards	1(0.9%)	81(77.1%)	23(22.0%)
Communication skills, professionalism, etc.	0	Not applicable	0	90(85.7%)	15(14.3%)

The satisfaction rate of students in this formative evaluation method is 6.34±0.95, and the teacher is 7.15±0.66.

## 4.2 Formative evaluation management survey

Survey of formative evaluation management: The average score of satisfaction scores of Chinese and Western medicine combined ophthalmology students who completed the course in one year was  $4.86\pm 0.79$ , and there were no items below 3 points. Among them, the average score of the students with different job ratings is  $4.89\pm 0.85$ , which is the highest. The evaluation of training programs and teaching quality is generally “excellent”. The scores of the students were all above 4 points, and the professional knowledge ability of the experimental group in all aspects was higher than that of the control group (Table 2).

Table 2. Situation of formative evaluation management

Groups	N	Observation skills	Analyze skills	Problem solving skills
Test group	35	$26.11\pm 0.95$	$29.14\pm 2.18$	$28.79\pm 0.74$
Control group	35	$20.61\pm 0.61$	$21.49\pm 0.67$	$23.49\pm 1.49$
T	/	2.164	3.267	2.491
P	/	<0.05	<0.05	<0.01

From the analysis in Table 2, it can be seen that the P values are all less than 0.1, indicating that there are significant differences. The students in the experimental class were significantly better than the control class in their ability to observe, analyze and solve problems.

## 5. Analysis of Results

### 5.1 Necessity analysis of Chinese medicine and ophthalmology teaching must take the road of integrating Chinese and Western medicine

Both Chinese and Western medicine have their own strengths, and each has its own shortcomings. It can learn from each other's strengths, avoid weaknesses, and integrate Chinese and Western medicine. Chinese medicine ophthalmology can develop faster. The development of modern Chinese medicine ophthalmology is to some extent the result of the integration of Chinese and Western medicine. Science and technology are the leading factors in promoting the development of contemporary society. In any field, in order to achieve faster development, we must pay attention to this field and related science and technology, and Chinese medicine ophthalmology is no exception. Traditional Chinese medicine ophthalmology teaching materials should fully reflect the strengths and characteristics of Chinese and Western medicine ophthalmology. The strengths and characteristics of TCM ophthalmology are the overall concept and syndrome differentiation. Through the teaching of the “General” part of TCM ophthalmology, students are made aware that the eye and the five internal organs are physiologically related to each other and pathologically affect each other. TCM ophthalmology sums up this relationship into five rounds of theory. Five rounds of syndrome differentiation is a method of localized visceral syndrome differentiation. Since ancient times, many ophthalmologists have guided this clinical practice. The strengths of Western medicine are detailed examinations and deep understanding of the disease [8]. Traditional Chinese medicine recognizes the cause of the disease and pays attention to the whole. It pays attention to both evil and righteousness. Western medicine focuses on the local and microscopically. “Clinical manifestations” can be changed to “discrimination” or “diagnostic points”, and the content is mainly Western medicine. Because the diagnosis of the disease in the clinic is not divided into Chinese and Western medicine, there are unified standards, even domestic and foreign, and there are international diagnostic standards.

### 5.2 Advantages of formative evaluation methods in the teaching of ophthalmology combined with traditional Chinese medicine and western medicine

Formative evaluation includes authenticity evaluation, liquidity evaluation, and development evaluation. It was a challenge to achieve the homogenization of evaluations for the evaluation of individual differences, evaluation of authenticity, and evaluation of dynamics. Through the analysis

of the results of the self-assessment questionnaires of the graduates, there was no statistical difference in the improvement of each category after training ( $P>0.05$ ). This showed that the application of the formative evaluation system to the teaching of ophthalmology in integrated Chinese and Western medicine is reproducible, and the evaluation of the students' ability tends to be homogenized. Through the formative evaluation system, the students with different academic qualifications had greatly improved their clinical ability. This was in line with the current medical education with the “clinical position competency as the training goal” teaching mode. In the formative evaluation system of this study, each evaluation will allow students to communicate with teachers. The teacher will point out the strengths and weaknesses of the students in this operation, and give guidance to the students to improve their enthusiasm for learning. Therefore, the formative evaluation system had been fully affirmed and positively evaluated by the participants, in line with the assessment methods and feedback linked that the British scholars had pointed out that the participants highly recognized the formative evaluation [9]. It could be explained that the score sheet of the formative evaluation method could more effectively and accurately evaluate the professional knowledge and skills of the students, and made up for the neglect of the traditional evaluation methods for non-clinical items and feedback links.

## 6. Conclusion

The clinical teaching of integrated Chinese and Western medicine in ophthalmology itself is a long teaching process. Therefore, in the process of learning, students' ability to observe and analyze problems and solve problems has been forward-looking, enabling students to develop assistive thinking, proactively observe and analyze problems and solve problems. This kind of evaluation can also promote a better learning atmosphere, and students can have more interaction in the classroom and improve together in an atmosphere of harmony, unity and mutual encouragement. The research results of this study help to promote the application of formative evaluation in the teaching of ophthalmology teaching in integrated Chinese and Western medicine, to promote the practical significance of its construction, and to help students and teachers improve the theoretical knowledge and practical skills in the training process. This will help to improve the overall quality of ophthalmic residents and better understand the formative evaluation system, found the shortcomings, and put forward constructive opinions for improving the evaluation system.

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