

# Analysis of Evaluation Model of Multimedia Teaching Course Reform Model Based on Structural Recursive Algorithms

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**Keywords:** Recursive algorithms, Multimedia teaching, Curriculum reform, Model Evaluation.

**Abstract:** With the development of network technology, the reform of multimedia network teaching curriculum is accelerating, which promotes the reform of college teaching mode. At the same time, the existing multimedia teaching methods still have some problems, leading to the teaching effect can not be effectively improved. Therefore, on the basis of exploring the problems faced by multimedia teaching curriculum reform, this paper evaluates the new model based on structural recursive algorithm. The evaluation results show that this algorithm can effectively promote the reform process of multimedia teaching curriculum and help to improve the teaching effect.

## 1. Research background

### 1.1 Literature review

With the gradual expansion of the application scope of Internet courses, multimedia technology has become an important means of major professional learning in Colleges and universities. However, the traditional teaching methods have some drawbacks, which seriously restrict the teaching effect of multimedia technology courses. For this reason, many scholars have discussed it in detail. Some scholars have found that the new teaching concept based on engineering education model can optimize the current teaching methods of multimedia courses, help to combine theory with practice, and create comprehensive experimental projects and specific process evaluation reform. Some scholars point out that as a special course for students, multimedia technology course is the key content from the perspective of teaching methods and teaching activities. However, under the conventional teaching mode, many college students are still unable to meet the teaching requirements. Therefore, it is necessary to optimize the existing teaching methods by means of multimedia network technology. In this case, colleges and universities need to introduce case teaching methods, so as to improve the learning and practical ability of College students. Some scholars have found that the use of multimedia teaching can stimulate students 'enthusiasm and initiative in learning and help to improve their academic performance by studying the teaching practice of multimedia technology. Further analysis shows that multimedia teaching is closely related to teaching reform and innovation. Due to the advanced nature of multimedia technology, it is mainly embodied in the real-time nature of modern educational thought and theory, which can give full play to its advantages and cultivate teachers 'new teaching methods and thinking. In this case, it is of practical significance for colleges and universities to find innovative points in teaching reform and optimize them with the help of multimedia technology. In addition, the combination of multimedia teaching and innovation is a kind of advanced consciousness and a new way of thinking, which can make multimedia teaching more creative and practical. In the specific teaching process of colleges and universities, there are also some voices of opposition. Some scholars believe that the reform of multimedia teaching curriculum needs to improve the quality of teachers, not only rely on advanced multimedia technology. Some Abstract theories can not be taught by slides, resulting in poor teaching effect, teaching effect needs to be improved, and the evaluation scheme needs to be refined. At present, there are multiple algorithms for evaluating the reform mode of multimedia teaching curriculum. Among them, structural recursive algorithm has the advantages of authenticity and small error, which is mostly used in the evaluation of curriculum reform. Therefore, this paper will evaluate the reform mode of multimedia teaching curriculum based on structural recursive

algorithm, in order to get the most authentic data.

## **1.2 Purposes of research**

In recent years, multimedia teaching curriculum reform has been carried out, and achieved good teaching results. However, there are still some problems in some multimedia teaching, which causes people's attention. How to evaluate the reform mode of multimedia teaching curriculum in Colleges and universities, so as to play its real value, has a positive role. Among all the evaluation methods and algorithms, the structural recursive algorithm has authenticity and reliability for pattern evaluation. Therefore, in this case, the use of this algorithm to evaluate the current part of multimedia teaching curriculum reform mode has a positive and important role. Based on the existing situation, the structural recursion algorithm needs to be carried out from multiple perspectives. Therefore, it is necessary to optimize specific schemes when evaluating with this algorithm.

## **2. Relevant theory analysis of recursive algorithms**

In computer science, the core idea of recursion is to divide the problem into sub-problems repeatedly, so as to get the final solution. From the point of view of use, recursive algorithm can effectively solve many computer science problems, it is an important concept in computer science. At present, many programming languages support function self-calling, so these functions can be recursive. In the existing life research, the frequency of using circular sentences is higher than that of recursion, but it can not be said that the frequency of recursion is lower. In fact, the idea of recursive algorithm to solve the problem is in line with the human thinking to solve the problem. For example, this paper illustrates the fast ranking and merge ranking in sorting algorithm. In practical sense, both algorithms adopt divide-and-conquer strategy to sort problems, so they are suitable for the core idea of recursion. Therefore, in the actual use process, the use of scenarios is not only limited to sorting algorithm, but also more suitable for divide-and-conquer problems, which can be dealt with by recursive schemes.

As mentioned above, recursive algorithm from another point of view, is to go back. "Yes go" means that several problems can be decomposed into small-scale branches, and then expressed in the same form of sub-problems, so they can be solved by the same way of thinking. "You Hui" refers to the evolutionary process of these problems, which can be expressed as from big to small, from far to near, and form a clear end point. When the boundary reaches the critical point, it can be recycled again. The basic idea of recursion can solve many similar sub-problems, especially in the implementation of functions, which will result in the automatic call of functions. Especially important, the function of solving the problem should have a clear termination condition, otherwise it can not solve the actual problem.

## **3. The dilemma faced by the reform model of multimedia teaching course**

### **3.1 Multimedia courseware production technology needs to be improved**

Under the background of the reform of multimedia teaching curriculum, the technology level of multimedia courseware production in many schools is uneven, and some teachers' courseware content is relatively old. For non-professional teachers engaged in multimedia courseware development, in addition to daily lesson preparation, they also need to learn multimedia development tools. There are indeed many difficulties. At the same time, with the rapid development of information technology, teachers need to contact more resources, so as to provide diversified materials for the production of multimedia courseware. In addition, colleges and universities have not invested enough in teaching hardware facilities and introduced abundant resources, resulting in many difficulties for teachers in making multimedia courseware.

### **3.2 The interactive function advantage of media courseware can't be reflected**

In the current multimedia teaching curriculum, interaction is an important behavior of learning.

However, in the process of multimedia education, the emotional communication between teachers and students can not be fully carried out, which is also ignored by many schools. As a result, teachers simply read computer video files, while students only focus on the screen, the two sides can not interact. In this case, students can not understand a lot of content, and will not be raised at that time. At the same time, in order to complete the teaching task, teachers also omit many teaching contents and give the most direct answers. Therefore, the interaction between teachers and students is poor, resulting in the ultimate teaching effect is not very good.

### **3.3 The teaching speed of multimedia teaching is slow**

When teachers use multimedia teaching, there will be some phenomena such as faster playing of courseware, which lead to students 'incomplete notes and make them less impressed with the knowledge they have learned. In the teaching course, teachers can play video tutorials or PPT courseware by clicking on the mouse, which can achieve the effect of blackboard writing. Some teachers simply adopt the teaching method of "PPT + dubbing". In this way, the speed of lecturing is obviously faster than that of writing blackboard. In this case, students can not fully think about what they are talking about, nor can they put forward their doubts in time. Therefore, the moderate speed of multimedia teaching should be considered by teachers. Only in this way can we effectively play the role of multimedia, and then improve the teaching level.

## **4. Construction and evaluation of multimedia teaching curriculum reform model based on recursive algorithms**

### **4.1 Reconstructing the reform model of multimedia teaching course**

In the Internet era, to achieve the reform of teaching curriculum with the help of multimedia tools, it is necessary to establish the characteristics that match students'curiosity and creativity. In the case of curriculum as the carrier, the knowledge of science, mathematics, art and other disciplines will be integrated into the multimedia space to cultivate students'ability to solve problems, creativity and so on. At present, MOOC platform can create "wonderful course content + application experience" effect. Students can break through the time and space limitations and complete the tasks assigned by teachers or video teaching on time. In this case, the following reform model is designed.

Firstly, the construction of mixed teaching mode. In the process of multimedia teaching, the introduction of MOOC platform technology, combined with the learning characteristics of this professional course. In addition, the theoretical knowledge of the flip classroom is added to create a mixed teaching mode which is suitable for teaching. The teaching of the course is divided into pre-class preparation, in-class teaching and after-class feedback. Secondly, the implementation process. If we want to develop this new model, we need to improve it through the following process. First, create courses, then introduce teaching and student resources. Secondly, we should guide students to develop self-regulated online learning. Thirdly, we should adopt abundant forms of classroom teaching to arouse the enthusiasm of teachers and students in teaching and learning. Finally, through the assignment of tasks, complete the final teaching link. Fifth, the teacher guides the students to evaluate and feedback the teaching methods, so as to make timely adjustments. At last, the effect of implementation. The key to the reform of multimedia teaching curriculum is to reflect the "teaching according to aptitude" of teaching, which can not only reflect the dominant position of teachers, but also constantly guide the enthusiasm of students to learn, so as to give full play to their initiative and enthusiasm. In addition, students participate in the multimedia curriculum reform, and can interact with teachers, answer questions and discuss. Therefore, this way embodies the essence of flipping classroom.

### **4.2 Evaluation of multimedia teaching curriculum reform model based on recursive algorithms**

The first step is to confirm the application scenario of recursive algorithm in multimedia

teaching curriculum reform mode. This algorithm defines problems to determine the effectiveness of curriculum reform model. It includes Fibonacci function, factorial and so on. Secondly, in the reform mode of multimedia teaching curriculum, some problems are in a recursive state, such as “Hannot Tower Problem” and so on, so as to determine the specific operation methods. The third step is to create specific operations such as linked list and tree, so as to realize the data structure of multimedia teaching curriculum reform model is recursive.

Under the above process, further testing is needed. First, the recursive termination condition is defined. Once the program reaches a critical point, it does not need to continue. Therefore, when the effect of multimedia course teaching reform mode has reached a certain threshold, it can be terminated to prevent infinite recursion. Secondly, the recursive termination is handled in time. There will be a situation at the critical point of recursion in multimedia teaching reform mode, in which specific solutions need to be given. Moreover, the scheme is clear and clear. Third, reduce the scale of the problem and extract repetitive logical problems. When explaining the reform mode of multimedia courseware, we can summarize several small-scale sub-problems. For example, the specific forms of teaching videos and audio are solved with the same solution ideas so as to make accurate evaluation.

### **4.3 Result analysis**

By evaluating the new model of multimedia teaching curriculum reform through structural recursive algorithm, it is found that this algorithm is conducive to promoting the improvement of the new model, and can also be applied to more models. Therefore, with the continuous optimization of the current multimedia teaching curriculum reform mode, this algorithm can be used to promote the process of teaching reform.

## **5. Conclusion**

From the above research results, this evaluation of multimedia teaching curriculum reform model based on recursive algorithm has a positive effect. Traditional multimedia teaching curriculum model only uses simple tools to teach, although the introduction of Internet resources, but the use effect, resource integration role are relatively weak. If reconstructing the teaching curriculum reform model can effectively promote the teaching reform, then this model is advanced and plays an important role in the overall teaching. Therefore, this paper re-optimizes the current multimedia teaching curriculum reform mode, and uses structural recursive algorithm to evaluate, the results are consistent with expectations.

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