

Research on Flipped Teaching in English Literature

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Abstract: In the research on the flipped teaching of English literature, the traditional literature teaching research method has the deficiency of poor research representativeness and low research reliability. Therefore, this paper proposes the research on flipped teaching in English literature. Based on the logic design of the flipped teaching of English literature, the flipped teaching mechanism of English literature was introduced, and the research model of the flipped teaching of English literature was constructed. Based on the decoding of teaching model parameters and the analysis of the flipped teaching perspective of English literature, the flipped teaching research of English literature can be realized. Experimental data show that the research method of flipped teaching in English literature is more conventional. The research representativeness increased by 42.8%, the research reliability increased by 43.32%. It is suitable for the flipped teaching research of English literature.

Keywords: English literature; Flipped teaching; Teaching research; Literature teaching; Teaching mechanism; Visual Angle analysis

1. Introduction

The conventional literature teaching research method analyzes the indicator status, realizes the teaching research. When it comes to the flipped teaching research of English literature, due to the limitations of research methods, there is a shortage of poor research representativeness and low research reliability, which is not suitable for the flipped teaching research of English literature^[1]. Therefore, this paper proposes the flipped teaching research of English literature. It establishes a discrete memoryless channel, carries out logical design for the flipped teaching of English literature, introduces the flipped teaching mechanism of English literature, and realizes the construction of the flipped teaching research model of English literature. Based on the decoding of teaching model parameters and the analysis of the perspective of flipped teaching in English literature, the research on flipped teaching in English literature is completed. In order to ensure the effectiveness of the research method of the flipped teaching of English literature, the experiment environment of the flipped teaching of English literature was simulated. Two different teaching and research methods are used to carry out the representative and reliability simulation test of the flipped teaching of English literature. The experimental results show that the research method of the flipped teaching of English literature is highly effective.

2. Constructing the Flipped Teaching Research Model of English Literature

2.1. The logic design of English literature flipped teaching

In 2000, in the paper "Inverting the Classroom: A Gateway to Create an Inclusive Learning Environment", MaureenLage, Glenn Platt and Michael Treglia of the United States introduced the model of "flipped teaching" and their achievements when teaching "introduction to economics" at the university of Miami^[2]. In 2000, j. w. esley Baker published a paper "The classroom flip: using web course management tools to become The guide by metaphor "at The 11th international conference on university teaching. In 2007, Jonathan Bergmann and Aaron Sams, chemistry teachers at WoodlandPark High School in Colorado, USA, began to use video software to record PPT and explain sound^[3]. Their recorded video was uploaded to the Internet to make up for missing students. And then they did something even more groundbreaking -- starting with students watching video at home and listening to the lecture. In the classroom, teachers mainly provide problem guidance or help students who have difficulty in doing experiments, and promote the use of this model in education of American primary and secondary schools. At the same time, English scholars taught English literature through flipped teaching. In order to study the flipped teaching of English literature, the model of the flipped teaching of English literature was first constructed.

In order to build the research model of the flipped teaching of English literature accurately, the relationship logic of the flipped teaching of English literature should be analyzed first to determine the flipped teaching logic of

English literature. In order to analyze the logic of education, a discrete memoryless channel is first constructed, which is intended to be the initial state of teaching. According to the proofs of Gel'fand and Pinsker, and El Gamal and Heegard, the capacity of the channel can be expressed as^[4]:

$$C = \max_{p(u,x|s)} \{I(U;Y) - I(U;S)\} \quad (1)$$

Where, U represents a finite set of auxiliary random variables, Y represents discrete finite code table of teaching methods, and S represents teacher/professor tools. In the analysis of Gel'fand and Pinsker, for discrete finite code tables and unrestricted input, the instructional logic coding method can be expressed as follows. First, an independent, homologous sequence group U of size $\exp\{n(I(U;Y) - \varepsilon)\}$ is generated. Then, the sequence group U is randomly distributed in BIN with the number of e^{nR} . For any sequence $u \in U$, $i(u)$ represents the number of BIN where u is. At the coding end, through the known channel interference S and the sending sequence W , a sequence U is selected in BIN numbered W to make the combination of (U, S) significant^[5]. Then, select a sent logical signal X to make (X, U, S) joint significant and send X to the channel.

The receiving end estimates \hat{U} through the received logical signal, and the number \hat{W} of BIN is the sending information obtained by decoding of the receiving end.

Therefore, it can be seen that when the recognition adopts flipped teaching, set segmentation will be conducted according to mathematical logic. The so-called set segmentation is that a set of spatial logical signal points is continuously divided into smaller subsets and the minimum spatial distance in the subsets is maximized. Each segmentation is to divide a large logical signal set into two or more subsets. Each level of segmentation increases the number of subsets and the minimum distance in the subsets increases. The collection is divided as follows^[6]:

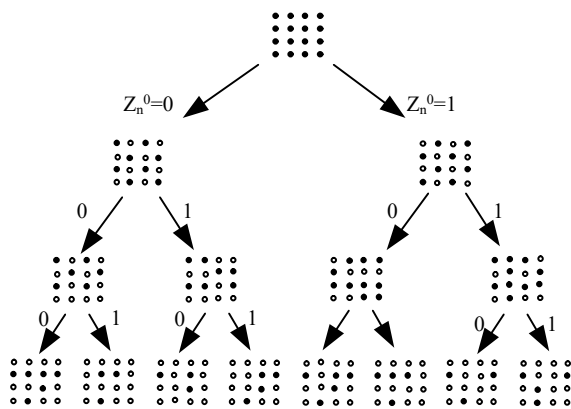


Figure 1. Collections division

Through the determination of teaching logic coding mode and the division of sets, it realizes the logic design of English literature flipped teaching.

2.2. Introduce the flipped teaching mechanism of English literature

Introduce the flipped teaching mechanism of English literature into the TCM encoder. Through the TCM encoder, the flipped teaching model of English literature is used to realize the analysis of the flipped teaching of English literature. The flipped teaching mechanism of English literature mainly includes:

First, teaching video is short and concise^[7]. Each video is targeted at a specific problem, which is highly targeted and easy to find. The length of video is controlled within the time range when students can concentrate their attention, which is in line with students' physical and mental development characteristics. Video published on the Internet has many functions such as suspension and playback, which can be self-controlled and conducive to students' independent learning.

Second, the teaching information is clear. The only thing you can see in video is the teacher's hand, constantly writing some mathematical symbols and slowly filling the entire screen. In addition, it is a voiceover that explains with writing. The teachers' avatars that do not appear in video, as well as various objects in the classroom, will distract students, especially in the case of autonomous learning.

Third, rebuild the learning process. Usually, the learning process of students is composed of two stages: the first stage is "information transmission", which is realized through the interaction between teachers and students, students and students. The second stage is "internalization and absorption", which is completed by students themselves after class. Flipped classroom reconstructs the learning process of students. "Information transfer" is carried out before class. Teachers not only provide video, but also provide online tutoring. "Internalization and absorption" is achieved through interaction in class. Teachers can understand students' learning difficulties in advance and give effective guidance in class. Mutual communication between students is more conducive to promoting the internalization of students' knowledge^[8].

Fourthly, review testing is convenient and fast. The four or five questions followed by video can help students to timely check and make a judgment on their learning. If a few questions are not answered well, the student can go back and look again and think carefully about what went wrong. Students' answers to questions can be timely collected and processed through the cloud platform to help teachers understand students' learning status. Another advantage of teaching video is that it is convenient for students to review and consolidate after a period of study. The follow-up of evaluation technology

enables students to obtain the empirical data in the relevant links of learning, which is conducive for teachers to truly understand students^[9].

The above flipped teaching mechanism of English literature was introduced into TCM encoder. Its TCM encoder is designed according to flipped instruction logic, and the increase of symbol set does not result in the increase of bandwidth used^[10]. The non-orthogonal logical signal depends only on the signal rate.

According to the number of points of subset segmentation, we can design the structure of two-dimensional grid encoder. It consists of a binary convolution encoder and a mapper. The role of the binary convolution encoder is to generate $k+1$ bit (one redundant bit) for selecting a subset, and the rest of the data bits not involved in the convolution encoding are used for selecting points in the subset. The mapper completes these selections, then outputs a symbol (that is, the coordinates of the points on the graph). Since the logical signal diagram contains redundant points, there is a problem of channel symbol assignment on the diagram. The structure of flipped teaching TCM encoder designed in this paper is shown in figure 2.

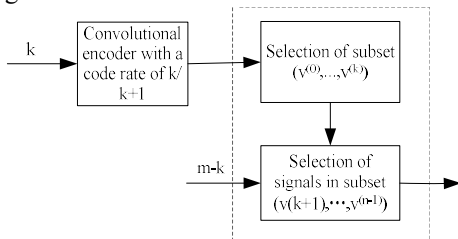


Figure 2. The encoder structure of TCM scheme

3. Realize the Flipped Teaching Research of English Literature

3.1. Decoding of teaching model parameters

The decoding of teaching model parameters is the running process of the flipped teaching model of English literature. Through the operation of teaching model, this paper analyzes the flipped teaching of English literature. The decoding process first assumes that the encoder generates the sequence $s(m,v)$ (code vector sequence) that is related to m and closest to v under the known information sequence m and interference sequence v . With TCM, the generation of code vectors can be done by viterbi decoder. Specifically, the input of the viterbi decoder is the interference sequence v . Its function is to find the optimal value of auxiliary bits, so that the corresponding code vector $s(m,v)$ is the closest to interference v . Therefore, the coding part of TCM-DPC generates the required code vector to fulfill the role of the encoder.

The structure diagram of the TCM-DPC encoder for the flipped teaching model of English literature is as follows:

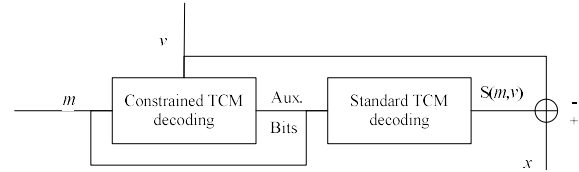


Figure 3. Structure diagram of TCM-DPC encoder

As can be seen from the above figure, the TCM-DPC encoder is divided into two modules: the restricted TCM decoding module and the standard TCM coding module. Restricted TCM decoding module in the flipped teaching model of English literature uses a viterbi decoder, which is basically the same as the standard TCM decoding operation. There is only one caveat: since the bit of information is a deterministic value, we only consider the part that corresponds to the true value when the state transitions.

For example, suppose $b_k = 1$, then the process of calculating branch measurements will be affected by $b_k = 1$. Specifically, at time $(k-1)$, the first auxiliary bit a_{k1} and the state S_{k-1} at that time determine the subset of the logical signal graph, where a_{k1} serves as the input of the code rate $1/2$ convolution encoder, S_{k-1} as the register state of the convolution encoder. The 2 bit output of the convolution encoder can be selected from 4 subsets. After the information sequence m and interference sequence v pass through the restricted TCM coding module, $2L$ auxiliary bits are output. Subsequently, the auxiliary bits, together with L information bits, constitute L code words as input of the standard TCM coding module. Through TCM coding technology, L code words are mapped to 16PAM map in order to generate code vector sequences of length L , which are output of standard TCM coding module. Finally, the difference between the code vector $s(m,v)$ and the interference signal v is taken as the sending symbol x . At this point, the cm-dpc encoder has completed the coding task.

3.2. Analysis from the perspective of flipped teaching of English literature

Through the operation of the flipped teaching model of English literature and the decoding of the parameters of the teaching model, it is concluded that the flipped teaching of English literature advocates independent, cooperative and exploratory learning methods, enabling students to learn independently and efficiently in a lively and lively state. From the perspective of teaching, the following conclusions are drawn:

First, the flipped teaching model of English literature stimulates students' interest in learning

Interest is the best teacher, interest is not burden. When you have a strong interest in knowledge, you will keep

moving forward, and a strong desire for new knowledge and understanding will be fully devoted to the study you are interested in. Second, encourage students to take the initiative to participate in active exchanges. In order to make classroom teaching become the main channel of university classroom, we must arouse students' consciousness of subject and let students take the initiative to participate in teaching activities. In classroom teaching, we should insist on the autonomy of student activities, make students active and excited, make learning become students' own activities, and let students learn to choose and participate in the process of teaching practice. Thirdly, improve students' absorption rate of knowledge. Teaching method is a means by which teachers guide students to master knowledge and form skills. In order to improve the classroom teaching effect, a good teaching method must be provided to make students easy to absorb. Finally, students are asked to check and measure each other around the learning content. Test students' achievement rate of teaching objectives after learning the new course, test students' ability to apply knowledge and solve problems. Reflect the practical and interesting scientific knowledge.

There are also some deficiencies in the flipped teaching of English literature: first of all, it is relatively simple in the form of class, with not much interaction. The teacher answers more for the students, and the problems in class are not flexibly handled. Secondly, there are some problems in the explanation of knowledge, for example, the connection between old and new knowledge is not flexible enough. Thirdly, the group study time is too little, and the teacher's guidance is not enough. As a result, individual groups are less active when it comes to communication.

In a word, classroom teaching is a bilateral activity between teachers and students. In order to improve the teaching quality of middle school mathematics, we must design carefully with students as the foundation, and with the characteristics of strong thinking, flexibility and application of mathematics. Pay attention to the cultivation of students' excellent thinking quality, change passivity into initiative, so as to achieve the purpose of imparting knowledge and cultivating ability.

4. Experimental Results and Analysis

In order to guarantee the effectiveness of the research on the flipped teaching of English literature proposed in this paper, a simulation experiment was conducted. In the course of the experiment, different flipped teaching of English literature was used as the experimental object to carry out the research representativeness and reliability simulation experiment. The classroom model, teaching environment and student status of the flipped teaching of English literature are simulated. In order to ensure the validity of the experiment, conventional literature teach-

ing research method is used as the object of comparison. Compare the results of two simulation tests and present the test data in the same data chart.

4.1. Research representativeness contrast

During the experiment, two different literature teaching research methods were used to carry out work in the simulation environment, and ten groups of data were analyzed to analyze the changes in the representativeness of the flipped teaching research of English literature. The comparison results are shown in table 1.

Table 1. Study representative comparison table

Case type number	Research methods of conventional literature teaching/%	The research method of English literature inversion teaching proposed/%
1#	45.6%	86.1%
2#	42.6%	89.8%
3#	42.6%	87.5%
4#	52.4%	91.7%
5#	41.3%	92.7%
6#	53.2%	86.7%

This paper deals with the arithmetic mean value of the research methods of the flipped teaching of English literature and the traditional research methods of the literature teaching. It is concluded that the research on the flipped teaching of English literature in the conventional literature teaching research method is 46.28%. The representativeness of the research on flipped teaching in English literature is 89.08%. It is proposed that the research method of flipped teaching in English literature is 42.8% more representative than that of conventional literature teaching research method.

4.2. Research reliability contrast

During the experiment, two different flipped teaching research methods of English literature were also used to carry out the work in the simulated environment. Ten sets of data were analyzed to research the changes in the reliability of the flipped teaching research in English literature. Figure 4 shows the comparison curve of the test.

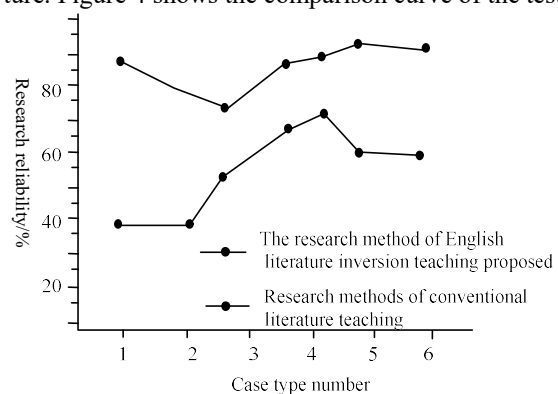


Figure 4. Study reliability comparisons

This paper deals with the arithmetic mean value of the reliability of the flipped teaching research method of English literature and the conventional literature teaching research method. It is concluded that the reliability of the average research on the classification of flipped teaching in English literature is 97.53%, and the reliability of the proposed classification of flipped teaching in English literature is 54.21%. It is concluded that the research method of the flipped teaching of English literature is 43.32% higher than that of the conventional literature teaching research method, which is suitable for the flipped teaching research of English literature.

5. Conclusions

This paper proposes the flipped teaching research of English literature. Based on the flipped teaching research model of English literature, and the decoding and analysis of the teaching model parameters, this paper realizes the research. Experimental data show that the method designed in this paper is highly effective. It is hoped that this study can provide a theoretical basis for the flipped teaching of English literature.

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