Exploration of Multimodal English and American Literature Teaching Based on Computer Network

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Abstract. Guided by the theory of multi-modal teaching, this article focuses on exploring the practice of multi-modal teaching of English and American literature based on computer networks. It emphasizes mobilizing students coordinating operation of 'hearing, vision and other sensory operations work together by means of the use of pictures, network screenshots, movies, videos, sounds and other resources in classroom teaching to deepen students' impressions of writers and their works, strengthen the meaning of original works, and dispel the boredom and obsession in understanding of literary works brought by a single text mode, thereby improving the classroom Teaching effect.

Keywords: Computer network, English and American literature teaching, Multi-modality, Image mode, Sound mode

1. Introduction
In the information age, computer networks provide people with all kinds of information, including pictures and text, audio and video, relying on their speed and convenience. People no longer rely on a single text form (book, newspaper, etc.) to obtain information. Students no longer acquire knowledge solely through books and lectures. Instead, they can acquire knowledge, update knowledge, and accumulate knowledge through computer networks [1-2]. The "interactive learning environment with friendly interface and intuitive image" and rich information sources provided by the computer network are conducive for students to acquire a large amount of knowledge, and are conducive to stimulating students' interest in learning and collaborative learning. Use a variety of audiovisual resources and network resources to enrich teaching content and forms to improve classroom teaching results [3]. At the same time "use computers and multimedia teaching software to explore new teaching models and promote individual learning." Computer network technology has changed the original monotonous and monotonous book teaching, making multi-modal teaching methods possible [4].

Multi-modality refers to a mixture of different symbol modalities in a communication finished
product or communication event. It can also mean various modes by which some symbol resources are mobilized to construct meanings in a specific text together [5]. Multi-modal teaching advocates using the Internet, pictures, role-playing and other multi-channel, multi-teaching methods to mobilize students' multiple senses to collaborate and participate in language learning. In teaching, mobilize as many senses as possible for students to experience teaching activities and participate in the interaction between teaching and learning [6]. When the teaching conditions allow, make full use of multiple resources such as the Internet, multimedia, and various means such as vision, hearing, and touch to motivate all students and stimulate student interest. Multi-modal teaching combines the multi-modal features of textbooks, literary works, the Internet, film and television, music, etc., and involves multiple modalities or combinations of modalities such as images, colors, sounds, and text. In the multi-modal teaching framework, the important reference for modal selection is whether it can improve teaching efficiency. Therefore, any mode that can "provide teaching situations and facilities for teaching" and "provide auxiliary conditions for teaching" can be used as the teaching modality. The development of network technology has provided appropriate scenarios and convenient conditions for teaching. The joint participation of multiple media is a good way for students to absorb course information and strengthen learning effects. This article focuses on the computer network-based multimodal teaching practice of English and American literature, and emphasizes that in the classroom teaching, it is supplemented with pictures, network screenshots, movies, videos, sounds and other resources in order to mobilize students' hearing, vision and other sensory collaborative operations.

2. Multimodal teaching construction and practice of British and American literature curriculum

The teaching of English and American literature based on network technology is based on the characteristics of the curriculum itself, based on the theory of multi-modal teaching, and a multi-modal auxiliary teaching mode based on a computer network platform (see Figure 1).
Figure 1. Schematic diagram of multi-modal auxiliary teaching of English and American literature courses based on computer networks

In today's popular network culture, the teachers need to provide students who are keen on network culture with websites and websites related to English and American literature, guide students to browse and study, and complete a certain amount of homework. Therefore, the British and American literature curriculum has been transformed from a single classroom lecture to a "classroom lecture prevails supplemented with students' online learning" model. The teaching presents three main modalities, in order of their position in the teaching process: Text mode, image mode and sound mode.

On the premise of multi-modal teaching, although the text modal is always in a dominant position, the three models infiltrate and complement each other, and build the same meaning in English and American literature. In one case, the image mode and sound mode can make the features of the text mode stand out, while in another case, the text mode can also make the features of the image mode and sound mode stand out.

Below we’ll take the teaching of Shakespeare and his masterpiece "Romeo and Juliet" as a practical example to show the entire process of three modal teaching.

2.1. Text mode
In teaching the four stages of Shakespeare's life and his works, the text mode of the textbook is the main part, supplemented by the presentation of the PPT courseware. The text modal in the courseware
always plays the role of explanation and guidance. At the same time as text, supplemented by pictures, screenshots, videos, etc. The background image modality emphasizes the meaning of the text due to its strong visual impact, thus highlighting the text modality. At the same time, in the same PPT, the sound is added through the "custom animation" function in the courseware, so that each item of text or image is in a form of impact sound. For example, "wind chimes" and "typing sounds" entered the PPT page, together with the dubbing in the video screenshot, mobilized the students' auditory senses to participate in the recognition of the text modal. At this time, the auxiliary role of the image mode and sound mode deepens the students' impression of the text mode.

Literary reading as an extension of the classroom is also dominated by text modalities. Through the teacher's guidance in the classroom, students can expand their literacy by reading the original book or downloading and reading on the designated campus network platform. On this basis, students should download and adapt a script based on the original novels in the "TV script" in the course network platform.

2.2. Image mode
The image mode is an auxiliary mode when teaching in the classroom or displaying images of the text mode. However, in some pages of the courseware that are mainly based on images, or in course videos, web videos, and screenshots, the images are in the main mode, and the text mode and sound mode become auxiliary modes accordingly. For example, in the PPT about "Romeo and Juliet", Figure 2 occupies the entire PPT page, and the text is below the picture, only for the purpose of illustration.

![Figure 2. Romeo and Juliet](image)

Similarly, the images also dominated the used as the main mode in the movie videos or screenshots, text modes serve only as auxiliary modes that appear below the screen as subtitles, and sound modes are auxiliary modes that are synchronized with the characters of the screen. At this time, the text modal highlights the image modal because of its interpretation, and the sound modal makes the image modal vivid because of its synchronicity, which also plays a strengthening role.

The role of the main mode of the image is also reflected in the students' online learning. Through the course network platform, students can watch course videos and browse online courseware to consolidate the content of the teaching materials. You can also watch a movie adapted from a work on the website suggested by the teacher on the basis of studying a work based on the questions set by the
teacher. The image mode of a movie is an interpretation of the text mode of a work, and the sound mode synchronized with it is an enhancement of the image mode.

Another form of image modality is that students adapt drama performances based on literary works. During the performance, the students set up the classroom or small stage according to the description of the text, and then performed based on the pre-recorded lines. Although the performance is based on the text mode, and occasional scene switching also needs a reminder board to complete, the image mode (live image) is displayed in front of the audience (students). The text mode provides the performance situation for the image mode, and the sound mode, the prior recording, provides the clue for the performance.

2.3 Sound mode

The sound modality is always responsible for providing background information. In the PPT courseware, every entry or exit of a text or picture requires a sound background prompt to emphasize the entry of each new piece of information. In the course videos and movie videos, sound is the guarantee to make the characters in the picture "live".

However, when students need to record the movie script in advance according to the scene, characters, background, etc. and then perform the play, the recording of the play performance, that is, the sound mode, cooperates with the student's limb performance and becomes the main mode. Taking "Romeo and Juliet" as an example, students download relevant scripts on the teaching platform, adapt them according to their own understanding, and then record the early dialogue (line) according to the role assignment, and make music according to the plot to make a tape that can be played live Or MP3 format. When performing, students only need to perform and talk according to the music scene in the recording. At this time, the sound played dominated every performer present, and also led to the development of the entire story, thus becoming the main modality. On the contrary, the sub-scene reminder board (text mode) and the entire scene (image mode) used in the live performance play a supporting role.

The following comments are made on the teaching of multimodal English and American literature:

A multi-index evaluation system consisting of \( n \) evaluated objects \( u_1, u_2, \ldots, u_n \). \( m \) indicators \( x_{ij}, i = 1, 2, \ldots, n; j = 1, 2, \ldots, m \) is the observation data evaluation data matrix (decision matrix) of the evaluated object \( u_i \) and the index \( x_j \) can be expressed as shown in formula (1):

\[
A = \begin{bmatrix}
    x_{11} & x_{12} & \cdots & x_{1n} \\
    x_{21} & x_{22} & \cdots & x_{2n} \\
    \vdots & \vdots & \ddots & \vdots \\
    x_{n1} & x_{n2} & \cdots & x_{nn}
\end{bmatrix}
\] (1)

The data in \( m, n \geq 3 \) and \( A \) are normalized data after preprocessing. Can be transformed into equation (2):

\[
y_i = f(x_{i1}, x_{i2}, \cdots, x_{in}), i \in N
\] (2)
Among them, $f$ is a positive transformation function; $y_i$ is the comprehensive evaluation value of the evaluated object $u_i$. Sort $u_1, u_2, \ldots, u_n$ according to the value of $y_1, y_2, \ldots, y_n$ from large to small, and you can complete the comparison of the advantages and disadvantages of $u_1, u_2, \ldots, u_n$.

If there are two evaluation objects $u'_i, u''_i$, let $u'_i, u''_i \in N, i' \neq i''$, be a random variable that obeys a distribution on the interval $\left[ \min\left( w_{ij}, w_{ij'} \right), \max\left( w_{ij}, w_{ij'} \right) \right]$, and call $s(u'_i > u''_i)$ the superiority of $u'_i$ to $u''_i$, as shown in formula (3):

$$s(u'_i > u''_i) = p\left( f(u'_i) > f(u''_i) \right) + 0.5 p\left( f(u'_i) = f(u''_i) \right)$$

In the formula, the aggregate function indicates the event probability as shown in formulas (4) and (5):

$$f(u'_i) = \sum_{j=1}^{n} \lambda_{ij}' w_{ij}' (i', i'')$$

$$f(u''_i) = \sum_{j=1}^{n} \lambda_{ij}'' w_{ij}'' (i', i'')$$

3. Conclusion

Compared with the single textbook modalities in the past, the computer network-based multi-modal auxiliary teaching mode makes use of computer network resources while making each modal interdependent and mutually reinforcing. The multi-modal resources such as text, pictures, and videos provided by computer network technology help to mobilize the students' hearing, vision, and tactile senses to work together, which makes the English and American literature classroom vivid, lively and effective.

In the multi-modal teaching mode, the text mode runs through all links in the teaching, and always bears the irreplaceable explanatory function of other modes. At the same time, it interpenetrates with the sound mode and the image mode to complement each other, making the text vital and vivid. The visual and auditory impact formed by the interdependence of these three modalities can supplement the lack of the sense of picture in the original work, fill the gaps in the sense organs of the students, fully mobilize the senses of hearing, vision and other students, and strengthen the significance of the original works. To a certain extent, it eliminates students' difficulties in understanding plain text.

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