Multimedia based Teaching Platform for English Listening in Universities

Xin Zhao, Yan Wang, Yanli Liu, Yunan Xu, Yuanning Meng, Lan Guo(✉)
North China University of Science and Technology, Tangshan, China
guolanuser@163.com

Abstract—This paper aims to optimize the application of multimedia technologies in the teaching of English listening. For this purpose, the author carried out a comprehensive analysis on the theoretical bases, principles and design of multimedia-based English teaching, and designed a multimedia-based teaching platform for English listening in universities. Specifically, a questionnaire survey was conducted to qualitatively measure the demand of listening teaching, clarify the current situation of the teaching of English listening, and improve the acceptance of multimedia-based technology. Moreover, the effect of the proposed platform was verified through a teaching experiment. The research findings shed new light on the understanding and application of multimedia-based teaching of English listening.

Keywords—Multimedia technology, English listening, Questionnaire survey, parallel classes

1 Introduction

To enhance the overall English proficiency, English learners must improve their linguistic abilities in listening, speaking, reading, writing and translation. The existing studies have shown that the five abilities are ranked as listening (45%), speaking (30%), reading (16%), writing (9%) and translation (9%) in terms of importance [1]. It is clear that listening is the most important aspect of English learning. As a result, the English teaching effect in universities depends directly on the listening ability of the students.

The rapid development of the Internet and computer software has initiated a new trend in English education: the integration of information technology. With the aid of multimedia and software, university English teachers are competing to reform their ideas, methods and contents of listening teaching.

In 2000, foreign scholars investigated the acquisition of English listening ability in a computer-based multimedia environment (CBME), revealing that the learners can make a rapid progress because the multimedia supports the fast and effective information dissemination and input, scientific guidance and timely monitoring and feedback [2].

Recent years has seen Chinese scholars making in-depth explorations into multimedia-aided teaching of English listening [3]. Some pointed out the poor effect of the traditional three-step teaching method, which involves: playing an audio clip, checking the answers and replaying the clip; some combined audio and video resources into an easy-to-recall teaching method; some also advocated the integrated audiovisual approach based on the psychological finding that students obtain 15% of knowledge from hearing and 25% from vision [4].

Overall, fruitful results have been achieved in multimedia-based technology and listening teaching in China. However, there are few reports on the application of multimedia technologies in the teaching of English listening [5].

To make up for the gap, this paper carries out a comprehensive analysis on the theoretical bases, principles and design of multimedia-based English teaching, and designs a multimedia-based teaching platform for English listening in universities. Specifically, a questionnaire survey was conducted to qualitatively measure the demand of listening teaching, clarify the current situation of the teaching of English listening, and improve the acceptance of multimedia-based technology. Moreover, the effect of the proposed platform was verified through a teaching experiment. The research findings shed new light on the understanding and application of multimedia-based teaching of English listening (MBTEL).

2 Theoretical Bases of MBTEL

2.1 Theoretical bases of MBTEL

Constructivism: The MBTEL reflects the constructivist understanding of learning environment. In constructivism, the learning process is viewed as the construction of knowledge. The new knowledge is not transferred directly from teachers to students, but acquired by the students under the assistance of teachers or computer technologies.

Constructivism puts students at the center of learning, treating them as the subject of cognition and constructor of meaning, and attributes learning to the psychological interaction between the cognitive subject and the external environment. The new knowledge is assimilated to the subject of cognition in three steps: balance, imbalance and new balance. The role of the learning environment in knowledge construction is also highlighted in constructivism [6].

Krashen's theory of second language acquisition: On second language learning, Krashen put forward the "input hypothesis", calling teachers to provide students with enough inputs and a relaxed learning environment. Besides, Krashen regarded proper linguistic input and moderate emotional filtering as the keys to language learning.

Based on the input hypothesis, the MBTEL offers students a multimedia platform of images, audios, animations and texts, which arouses students' interest in learning and enhances the efficiency of listening teaching [7].

2.2 Principles and design of MBTEL

Principles: The application of multimedia technology in English teaching should abide by the learner-centered principle, the optimality principle, and the interactive principle.

Learner-centered principle: The students should be placed at the center of the learning process through autonomous planning, organization and evaluation, while teachers and teaching-assisting tools should play instructive and assistive roles only [8].

Optimality principle: Multimedia-based teaching involves a wide range of teaching styles. To optimize the teaching effect, the specific means of presentation, structural arrangement, role collocation and teaching method should be selected in light of the demand of the materials.

Interactive principle: In multimedia-based teaching, teachers and students are treated as equal beings. The traditional teacher-centered mode should be replaced with the student-oriented mode, allowing students to interact with each other freely and communicate with teachers about the common problems [9].

Design: In spite of their popularity in university, most of the existing MBTEL platforms are simply a group of slides or webpages on the contents of textbooks. The teaching effect is undoubtedly poor [10]. This calls for a systematic, scientific method to analyze, organize and coordinate the various elements of the teaching system, before integrating them into an optimal teaching plan. Below are two multimedia-based teaching cases designed by the authors.

Fig. 1. Introduction to world famous universities

Figure 1 shows the design of a slide show about world famous universities. The slide show presents a number of videos made from various images and audios. The information on top universities is only a click away. The students can watch, listen and read the introduction to these universities along with the videos.
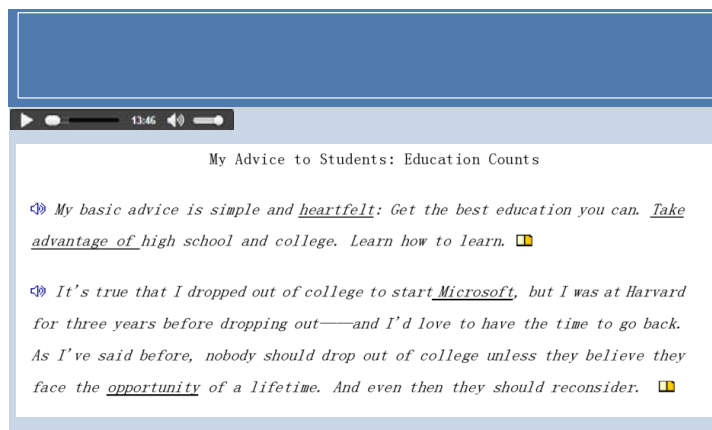
Fig. 2. Listening to Bill Gates' speech excerpt

Figure 2 presents the excerpt of a speech by Bill Gate used in listening class. Once the teacher clicks the play button, the audio of the speech excerpt will be played, while the script will be displayed with notes on the key words. In this way, the students can grasp the meaning of the speech accurately through listening practice.

The design of the MBTEL must also cater to the teaching demand and the students' individual needs.

3 Demand Analysis of MBTEL

In this information era, the MBTEL is critical to the style, quality and environment of English teaching [11].

3.1 Questionnaire design

Our questionnaire survey aims to identify the university students' attitude towards the MBTEL, the effect of multimedia application on classroom teaching, and the disadvantages of the existing MBTEL platforms [12].

A total of 320 questionnaires were issued to Grade 1 to Grade 4 students with varied English proficiency in a Chinese university and 318 valid copies were returned.

3.2 Statistics and analysis

Table 1. Students' awareness of multimedia-based teaching

Degree of awareness	Strongly agree	Agree	Not sure	Disagree	Strongly disagree
Number of answers	0	18	94	179	27
Percentage	0%	5.7%	29.5%	56.2%	8.5%

Table 1 shows that the students had a poor awareness of multimedia-based teaching, with only 5.7% of them had heard about this teaching mode. This reflects the relatively low cognition and limited application of multimedia in university teaching across China.

Table 2. Students' recognition of multimedia-based teaching

Degree of recognition	Totally agree	Agree	Not sure	Disagree	Strongly disagree
Number of answers	79	198	32	4	5
Percentage	24.8%	62.3%	10.1%	1.3%	1.6%

As shown in Table 2, the students held different opinions on multimedia-based teaching. Of course, most of students (87.1%) agreed that this teaching mode is conducive to English listening.

Table 3. Students' attitude towards traditional listening teaching methods

Degree of dissatisfaction	Totally agree	Agree	Not sure	Disagree	strongly disagree
Number of answers	32	27	35	123	98
Percentage	10.1%	8.5%	11.0%	39.6%	30.8%

It can be seen from Table 3 that most students wanted to preserve the traditional teaching mode for English listening, for fear of reduced student-teacher communication (e.g. teachers' evaluation and students' feedbacks) in multimedia-based teaching [13].

Hence, university teachers must realize scientific design of the contents and make rational time allocation between human-computer interaction and teacher-student communication. In addition, images, videos and other multimedia resources should be utilized fully to increase the interest of students and boost teachers' participation [14].

Table 4 lists the reasons of the students said about their poor listening ability.

Table 4. Reasons for poor listening ability

	Totally agree	Agree	Not sure	Disagree	strongly disagree
Lack of training	31	85	56	79	67
Percentage	9.8%	26.7%	17.6%	24.8%	21.1%
Improper teaching methods	56	85	79	67	31
Percentage	17.6%	26.7%	24.8%	21.1%	9.8%
Backward materials	79	85	61	57	36
Percentage	24.8%	26.7%	19.2%	17.9%	11.3%
Poor linguistic environment	79	85	69	54	31
Percentage	24.8%	26.7%	21.7%	17%	9.8%

It is learned from Table 4 that most students attributed their poor listening ability to the out-of-date listening materials and the poor linguistic environment. Therefore, the teachers should, on the one hand, update and diversify the listening materials timely to arouse the students' interest, and, on the other hand, create more opportunities for the students to practice oral English in class, thus indirectly improve their listening ability.

4   Experimental Verification of the MBTEL

4.1   Experimental design

Two parallel classes in the English department of a Chinese university were selected for a semester-long teaching experiment to verify the effect of the proposed MBTEL. The two classes sit a test before the experiment and another at the end of the experiment. One class was treated as the test class and the other as the control class.

Goals: The experiment aims to quantitatively evaluate the impact of the MBTEL on English listening and determine the optimal teaching style through the analysis of the test results.

Test materials:

- **Test material 1:** Fifty English listening questions were selected randomly from the latest CET-4 test, covering such parts as statement dictation, statement comprehension, conversation comprehension, passage comprehension and spot dictation. Each part contains 10 questions. Every question is an objective multiple-choice question with 2 points, putting the full mark at 100 points. The test lasted for 30min.
- **Test material 2:** Several questions were designed by the teachers according to a video clip from Family Album, U.S.A. The full mark is 100 points.

Experimental process: The experiment lasted 16 weeks. In each week, the two classes attended listening class separately for 1h. The 35 students of the test class received multimedia-based listening practice every two weeks, while the 33 students of the control class received 2h-long listening teaching in traditional mode every two weeks.

4.2   Result analysis

Results analysis of test material 1. As shown in Tables 5 and 6, the test group and the control group had almost equal   mean score before the experiment. After the experiment, the test group achieved a 6.9% increase in the mean score, greater than the 3.5% than the control group. This means the multimedia-based technology has a greater positive impact on listening ability than the traditional teaching mode.

Table 5. Test results on test material 1

Class	Pre-experiment	Post-experiment	Improvement (%)
	Mean score	*Mean score*	
Test class	62.5	66.8	6.9
Control class	62.4	64.6	3.5

Table 6. Test results on test material 1 (by part)

Class	Part	Points	Pre-experiment score	Post-experiment score
Test class	Statement dictation	20	11.4	12.0
	Statement comprehension	20	13.8	14.9
	Conversation comprehension	20	12.3	13.3
	Passage comprehension	20	11.1	12.3
	Spot dictation	20	11.1	12.3
	Total score	100	62.5	66.8
Control class	Statement dictation	20	11.5	11.7
	Statement comprehension	20	13.6	14.4
	Conversation comprehension	20	12.2	12.5
	Passage comprehension	20	11.1	11.6
	Spot dictation	20	14	14.3
	Total score	100	62.4	64.6

Results analysis of test material 2. As shown in Table 7, the two classes had only a slight difference in mean score before the experiment. The difference was amplified through the experiment. In the post-experiment test, the mean score of the test class increased by 9.2%, compared with the 5.8% of the control class. Thus, multimedia-based teaching is more beneficial to listening learning than the traditional mode.

In addition, there was no significant difference between the two classes in the score of each part in Table 6, but a major gap between them in video listening score in Table 7. These phenomena could be explained by the lack of content diversity in test material 1, which limited the effect of the multimedia teaching environment. In other words, the choice of listening material is the key to the success of the MBTEL.

Table 7. Test results on test material 2

	Number	Pre-experiment	Post-experiment	Percentage increase
Test group	35	68.8	72.8	5.8
Control group	33	70.5	77.1	9.2

5   Conclusion

The MBTEL is neither widely applied in Chinese universities nor extensively applied by education scholars. To solve the problems, this paper carries out a comprehensive analysis on the theoretical bases, principles and design of multimedia-based English teaching, and designs an MBTEL for English listening in universities. Moreover, the effect of the proposed platform was verified through a teaching experiment. The following conclusions were derived from the research:

- The pre- and post-experiment test results indicate that the proposed MBTEL outshines the traditional teaching mode of English listening.
- The choice of listening material is the key to the success of the MBTEL.

6   Acknowledgement

7   References

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8   Authors

Xin Zhao, lecturer in Jitang College, North China University of Science and Technology, received master's degree in foreign language and applied linguistics in 2011 from Yanshan University. Zhao is now engaged in intercultural communication and college English teaching. (Email: dongdonglove526@163.com)

Yanli Liu, lecturer in North China University of Science and Technology, received master's degree in English language and literature in 2007 from Hebei University. Liu is now engaged in English teaching methodology. (E-mail: liuyanli0315@126.com)

Yunan Xu, teacher in College of Foreign Languages, North China University of Science and Technology, is now engaged in translation, English language and literature. (xuyunan37@163.com)

Yuanning Meng, teaching assistance in North China University of Science and Technology, received the master's degree in English Translation in 2013 from Sichuan International Studies University. Meng is now engaged in translation and college English teaching. (Email: 1196472751@qq.com)

Yan Wang, teaching assistant in Jitang College, North China University of Science and Technology, is now engaged in computer technology. (Email: 719958468@qq.com)

Lan Guo, associate professor in North China University of Science and Technology, received the master's degree in 2004 from North China Coal Medical University. Guo is now engaged in teaching management and operation. (Email: guolanuser@163.com)