

## Innovative Mode of English Education Based on Internet

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### Abstract

**INTRODUCTION:** With the deepening application of cloud computing, mobile Internet, and big data technology in education, China's education informatization presents a new trend of integration and innovation, especially in the areas of resource sharing and interconnection, online and offline integration of teaching and learning, and good management and education governance based on big data, "Internet+Education" will have a systematic change impact on education. It will systematically impact education and open new paths for developing and utilizing English curriculum resources in colleges and universities in the Internet era.

**OBJECTIVES:** To enhance the development level of online education in China and promote the sustainable development of online English education in China; to solve the problems of rigidity and unremarkable innovation in English education mode in colleges and universities and to promote the development of the integration of Internet technology and English teaching, and to improve the level of combining the theory and practice of English online education in China.

**METHODS:** Firstly on the use of literature theoretical research to find the necessity of the Internet's English education innovation model research and adapt to the theoretical model; secondly, through the method of questionnaires and interviews from the teachers and students of two perspectives to study the effect of the Internet-based English education innovation model; finally, the use of empirical methods to validate the level of efficiency of the Internet's English education innovation model.

**RESULTS:** The research on the innovative model of English education based on the Internet is necessary; the result that "Internet+" education can improve the teaching effect can be obtained from both the teachers' and students' perspectives; the empirical method verifies that the efficiency of the innovative model of English education based on the Internet is higher than that of the traditional one.

**CONCLUSION:** Most teachers and students know or have come into contact with online college English course resources, but their understanding could be better. Moreover, they have used them but have yet to have the opportunity to participate in their development, which is related to the level of teachers' and students' professional knowledge and ability and also predicts the growth and utilization of course resources by college English teachers. The comparison of teachers' and students' expectations leads to the conclusion that teachers and students in the studied universities have positive attitudes and high expectations and expect to develop and use more systematic and scientific online English course resources.

**Keywords:** internet, English education, innovation, educational mode,

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### 1. Introduction

With the deepening application of cloud computing, mobile Internet, and big data technology in education, China's education informatization presents a new trend of integration and innovation, especially in the areas of

resource sharing and interconnection, online and offline integration of teaching and learning, and good management and education governance based on big data, etc. "Internet+Education" will have a systematic change impact on education. In particular, "Internet+Education" will systematically impact education regarding resource

sharing and interconnection, teaching online and offline integration, good management based on big data and educational governance, etc. It will open up new paths for developing and utilizing English curriculum resources in colleges and universities in the Internet era.

Under the background of "Internet Plus," all kinds of resources have become extremely abundant. There are online classes, various microclasses, flipped classrooms, catechism classes, and diverse learning applications on the mobile terminal, which are convenient for students to improve their learning efficiency(Zhang et al., 2021). The network is full of learning resources, and how to utilize these resources positively impacts the development of online course resources. While constructing online university English, universities also recognize the importance of online university English course resources and have mastered the development and utilization of online university English resources.(Development and use of online College English current resources, abbreviated as "DUOCCR")(Ding & Huang, 2021). However, most colleges and universities fail to understand the close connection between the ideas, technologies, and characteristics of "Internet+Education" and online university English course resources. They need to combine them in depth. As an applied higher education school, the university under study is no exception(Zhou et al., 2021). In the new era, the online college English course resources developed traditionally have gradually exposed some drawbacks, such as the development of online course resources by various schools and teachers at the same time, resulting in the accumulation of online course resources, blind duplication of construction, and the problem of uneven quality. Teachers, as the key subjects of online English course resource development, need help developing and building high-quality online English courses due to their limited time and energy, weak awareness, and lack of ability.

Moreover, under "Internet Plus," English teaching is based on information and Internet technology. Access to digital information has become very convenient, and its teaching concept and method have also undergone a great transformation(Athias & Schneider, 2021). With the advantages of rich Internet resources, efficient information transmission, and good interactive effect, a more scientific and accessible modern teaching mode has been formed, breaking through the many limitations of the traditional teaching mode and realizing the development of innovative practices in the Internet era.

Based on this, based on researching the development and utilization of online course resources at home and abroad, and based on the theory of input assumptions and constructivist learning theory, this study takes online university English course resources of a university as an example. Through the results of the surveys of 30 valid teacher questionnaires and 210 valid student questionnaires, as well as the comparison of the contents of the interviews with six teachers and six students, it explores the following two questions:(1) the overall situation of the development and utilization of online

university English course resources in a university under the background of "Internet+Education"; (2) the problems and reasons of DUOCCR in a university under the background of "Internet+Education."

Finally, this study combines the thinking, technology, and characteristics of the era of "Internet+Education" with the construction of university English online course resources to provide effective strategies and practical paths for the construction of university English online resources under the background of "Internet+Teaching" and to make up for the shortcomings of the development and construction of traditional online university English course resources and to better serve university English education. It provides an effective strategy and practical path for constructing university English online resources under the background of "Internet + Teaching," which makes up for the shortcomings of traditional online university English course resource development and construction and better serves the university English education.

## 2. Background of the study

Regarding the development and utilization of university English curriculum resources, there are sufficient surveys and case studies on the action and utilization of university English resources in China. There are also more theoretical studies on developing and utilizing university English curriculum resources(Worthy et al., 2021). However, there is a lack of research on developing university English course resources in the current context of "Internet + Education," so this study broadens the scope of research on DUOCCR in the context of "Internet + Education." "The Internet " is a future trend full of uncertainties and possibilities. In the context of "Internet + Education," a theoretical judgment is no longer the most important, but the expansion of human cognitive boundaries is the rigid demand of human beings to continuously know the world and understand themselves(Tomczyk & Potyraa, 2021). Therefore, this paper theoretically constructs the development of college English online course resources under the background of "Internet + Education," expands the cognitive boundaries of teachers and students on college English, and provides another perspective and idea for DUOCCR.

University English online course resources, can be shared in the context of "Internet + Education." on the one hand, due to the convenience of the Internet, online English course resources can be shared among universities. They can fully explore and utilize other schools' high-quality online English course resources and radiate their online English resources to other schools. On the other hand, it is possible to realize the sharing of online college English course resources between universities with conditions. With the technology of "The Internet+Education," written college English textbooks, quality courses, and other conditional course resources can be virtualized and online. Teachers and students from different schools can download them according to their needs, which allows

teachers and students from different schools to download as needed, thus realizing the sharing of conditional online university English course resources across time and space(Guzmán et al., 2021). Therefore, DUOCCR, in the context of "Internet+Education," helps to solve the problems of insufficient, unbalanced, and duplicated curriculum resources in schools.

The development of curriculum resources cannot guarantee teachers' professional development ability. For university English teachers, having an excellent ability to develop and use online university English course resources is of great help to professional development. Teachers' professional development is a continuous process, from the beginning of a new teacher to the promotion of an old teacher, which requires teachers to synchronize their development in many aspects, such as teaching, research, and practice(Chen et al., 2021). In such a professional development process, teachers have the opportunity to improve their academic theoretical knowledge and teaching practice skills continuously. Teachers' professional development is significant to their growth(Helm, 2021). Their professional development ability includes their own English proficiency and the ability to use various university English education and teaching methods and develop and utilize university English curriculum resources. In addition, the background of "Internet+Education" requires university English teachers to keep abreast of the times and have the knowledge and ability to develop and utilize online university English course resources(Lee, 2022). Therefore, the former's capacity for professional development is unlimited between a university English teacher who can set and use online university English course resources and an ordinary university English teacher. The online education process is shown in Figure 1.

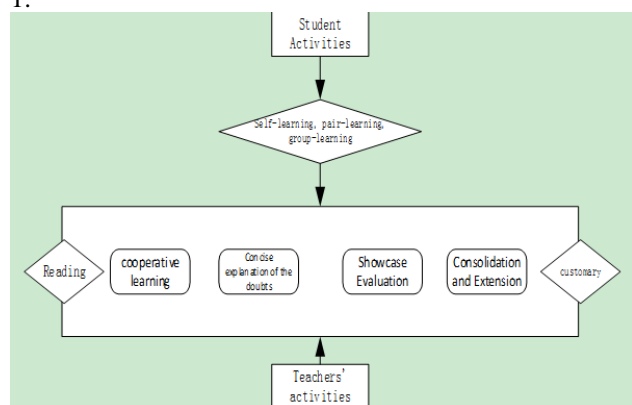


Figure 1 Online education process

### 3. Research methodology

#### 3.1 Theory of Internet English Teaching Resources

Human resources include teachers, students, parents, foreign teachers, etc. Materials include school broadcasts, TV programs, audio, video, visual AIDS, multimedia CD-

ROMs, and other network resources provided by the society(Gemma, 2023). Therefore, according to the definition of curriculum resources, English curriculum resources can be defined as the sum of human resources, material resources, and natural resources used in the whole process of English curriculum development, such as English curriculum design and implementation, English curriculum evaluation and so on(Lim & Yunus, 2021). It refers to materials that can provide resources for English curriculum activities and meet all the needs of English teaching activities, including learning materials and teaching aids such as textbooks that are conducive to developing students' comprehensive language skills(Gogilashvili, 2021). Teachers can introduce helpful English curriculum resources into university English to meet the students' different learning needs and realize the objectives of university English.

Therefore, online university English course resources based on "Internet+Education" refer to those course resources from the Internet, which, after screening and processing, can serve independent university English. According to the definition of English course resources, online course resources can include all kinds of English teaching materials, all kinds of learning materials, as well as auxiliary tools that can help to improve the independent teaching of college English and students' comprehensive language ability(Q. et al., 2021). In other words, online English course resources can include more than just English teaching materials. It should also include English newspapers, magazines, TV programs, radio, audio, video, and Internet resources, as well as all materials and sources of English at the university. Since these resources contain specific English knowledge, they have essential educational value in helping students understand and master digital course resources and improving the quality of English teaching in schools.

#### 3.2 Traditional English Online Education Resources

Due to the complexity and richness of curriculum resources, the outreach of curriculum resources is extensive. According to curriculum resources' functional and spatial characteristics, combined with the source, nature, and expression, English curriculum resources are categorized into four forms(Slaughter et al., 2021). The first is campus-based curriculum resources, which mainly refer to English teaching facilities and places (including English teachers, students, school ethos, classrooms, libraries, study rooms, reading rooms, and other hardware resources) and activities closely related to English teaching (such as English corners, English courses, English debates, English dramas and so on), which are the most natural and essential resources to promote the development of teaching and learning, and to improve students' English proficiency(Arslan & Curle, 2021). The second is text-based curriculum resources, best known as ELT textbooks, English reading materials, magazines,

journals, and other learning tools. These printed materials record human understanding of the English language and culture. Third, online course resources, or information technology resources, include ELT software, multimedia, and CD-ROMs. Online course resources provide various types of information, such as text, sound, video, and images, and simulate a variety of contexts that match the teaching content. Therefore, developing university English online course resources is a critical way to change teaching methods and improve the quality of English teaching. The fourth category is social and natural resources, including museums, daily life and natural beauty, customs and habits, and other English teaching information(Rau, 2021). This study focuses on the third category of course resources - online college English course resources. The Internet combines text, audio, video, and other forms of animation to provide the most convenient and high-quality online course resources for college English teaching, which not only makes up for the lack of a natural English language environment in college English classes but also makes up for the problem of students' low interest in and low demand for college English, and based on the "Internet + Education" Based on "Internet+Education," the online English course resources developed and used provide English teachers with vivid and engaging teaching materials and enrich the growth of teaching.

On the other hand, these resources also enhance students' learning autonomy and interest. The immersive multi-sensory English classroom learning experience can better attract students' attention. The market share of online education platforms in China is shown in Figure 2.

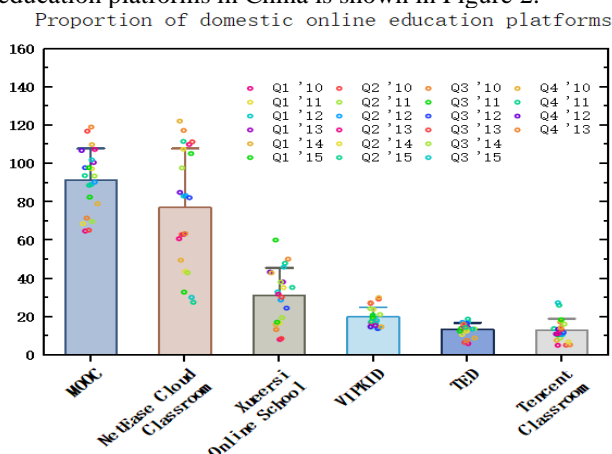


Figure 2 Domestic Online Education Platform Market Share

### 3.3 Knowledge Input Hypothesis Theory

According to the Input Hypothesis: Issues and Implications, published in 1985, as one of the five significant hypotheses of language acquisition, language acquisition occurs when the learner can concentrate on understanding the meaning or information rather than the structure. Comprehensible language input is represented by the equation "i+1". In this theory, the learner's current

level is defined as "i," and "i+1" is the level of input that the learner can quickly receive and access. Comprehension will be easier and more effective with the help of contextual and extra-linguistic information, which is a problematic or unhelpful way to improve language skills.

The Input Assumption Theory points out some principles of language input, and as online university English resources are the primary basis of language input for university students, what resources are developed and to what extent they are used should be based on the needs of students' language input. Therefore, the theory is essential for DUOCCR and guides DUOCER in quality and quantity(H. et al., 2021). First, attention should be paid to the quality of the online university English course resources developed and used. In the face of various online university English resources, the course resources should meet the comprehensibility and interestingness of the input assumption theory, and these online university English course resources developed and used in the context of "Internet + Education" should be slightly higher than the current language level of students. They should be at a certain level of difficulty and slope so that students can feel that the learning process can expand their language skills, stimulate new contextual clues to help them understand the language, and thus achieve specific objectives of university English teaching(Jiang et al., 2021). At the same time, these online English resources should be exciting and come to life, knowing what kind of English course resources students like and need, rather than unquestioningly developing and using online English resources. In addition, the online English course resources developed and used by teachers should be connected with the teaching objectives of college English and the students' learning content at the present stage, which is one of the guiding significance of the related principle input hypothesis theory for DUOCCR.

### 3.4 Constructing Learning Theories

The constructivist learning theory attracted much attention worldwide in 1990. According to the constructivist learning theory, the learning process is based on the scaffolding built by the teacher and the use of necessary learning materials to construct knowledge and its existing cognitive structure in a meaningful way rather than a passive stimulus-response model. The online university English course resources in the context of "Internet+Education" are the materials that can be used as scaffolding by university English teachers and the learning materials that university students can use for independent learning(Qasim et al., 2021). Meaning construction is the ultimate goal to be achieved in the learning process, collaboration and dialogue are the essential means of the learning process, and context is the critical condition to realize the goal, which is an issue that schools should pay special attention to when constructing online college English course resources under the

background of "Internet + Education," i.e., DUOCCR under the set of "Internet +" should satisfy the contextual experience of students and promote the establishment of learning community and the construction of meaning. The effect of applying the constructivist model is shown in Figure 3.

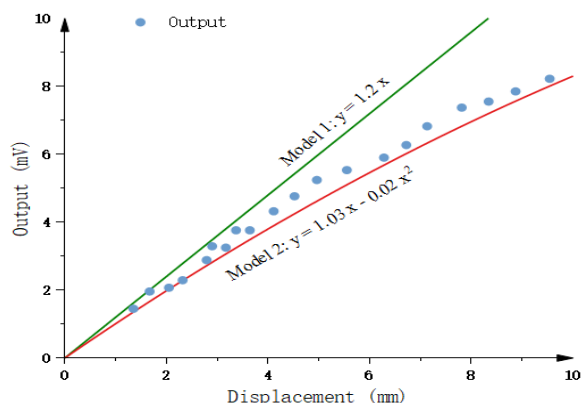


Figure 3 Effectiveness of constructivist model application Specifically, the core points of constructivist learning theory guided this study in the following areas: contextual experiences. Constructivist learning theory advocates contextual learning and emphasizes the interaction between students and the learning environment. Under the background of "Internet+Education," online university English course resources should fully apply the technology of the "Internet+" era, integrate text, graphics, sound, animation, video, and other media elements, and turn static and boring traditional online university English course resources into vivid, dynamic, and interactive ones (Parra & Proctor, 2021). The static and boring traditional online university English course resources should be changed into explicit, emotional, and real online university English course resources so that students can see its shape, hear its voice, and be in it. Create a learning community. Constructivism believes that cooperative interaction is the power source for realizing individual meaning construction, and joint construction can promote unique meaning construction. With the help of network communication technology, "Internet+Education" should recognize the sharing and interaction of college English course resources between schools and the communication and collaboration between students in different regions, which means construction. According to constructivism, learning is a learner-centered "knowledge construction." Mastery is the active construction of knowledge and its existing cognitive structure in a meaningful way, which requires that the development and construction of online college English course resources under the background of "Internet + Education" can rely on the support of big data and use cloud computing technology to intelligently analyze the learning style and existing cognitive structure of college students, to meet the actual needs of students and promote the successful realization of meaningful cognitive structure construction.

Constructivism is modeled and still follows the SBM model:

$$T(x) = \left\{ (x, x^g, x^b) : x \text{ Produce}(x^g, x^b) \right\} \quad (1)$$

In Equation (1), Produce is multiplied by one more  $x$  to represent a quadratic power, where the Pro function can also be defined in the following way:

$$P(x) = \left\{ (x, x^g, x^b) \mid x \geq X \lambda \right\} \quad (2)$$

The  $\lambda$  in Equation (2) represents the value of the random error;

Further specific modeling is shown in Equation (3):

$$\rho = \min \frac{1 + \left(\frac{1}{m}\right) \sum_{k=1}^m \frac{S_k}{x_{kt}}}{1 - \frac{q_2}{q_1} \left(\sum_{i=1}^{q_1} \frac{S_i^g}{x_{it}}\right)} \quad (2)$$

The  $m$  in Equation. (3) denotes the number of elements, and the Equation applies the theory of least squares for entropy calculation.

### 3.5 Research design

Thirty-two formal college English teachers and 225 undergraduate students from the colleges and universities under study were selected as the subjects of this study, and 30 valid teacher questionnaires and 210 valid student questionnaires were finally obtained. The non-English majors in the studied universities are mainly divided into general classes and art and sports classes, and the corresponding textbooks are selected according to the student's English proficiency (Lim & Yunus, 2021). In addition, the study of college English is mainly concentrated in the first and second years. In the junior and senior years, English learning was self-taught for all majors, except for a few education-related majors who took significant English-related courses. The 32 formal university English teachers surveyed in this study ranged from young teachers with less than five years of teaching experience to experienced teachers with more than 15 years of teaching experience. The 225 undergraduate students surveyed were from grades and majors such as primary education, preschool education, environmental design, and musicology.

To better understand the general situation, problems, and causes of DUOCCR in the context of "Internet+Education," this study aims to answer the following questions:

- (1) What is the overall situation of DUOCCR in the studied universities in the context of "Internet + Education"?
- (2) What are the problems and causes of DUOCCR in the studied universities in the context of "Internet + Education"?

In this study, two questionnaires for teachers and students were prepared in light of the actual situation of university English teaching in the universities under investigation,

and both were divided into three dimensions: conceptual, practical, and expectations. The study used the questionnaire to explore DUOCCR in the studied universities in the context of "Internet+Education."

The teacher questionnaire included basic information and survey items. The gender and years of teaching experience of the university English teachers in the studied universities were included in the basic information. The 25 items were categorized into three dimensions: items 1 to 7 belonged to the first dimension-teacher perception; items 8 to 20 concerned the second dimension-teacher practice; items 21 to 25 belonged to the third dimension-teacher expectation; and also included the impact of school, teacher and student factors on DUO in the context of "Internet + Education." Items 21 to 25 belong to the third dimension - teachers' expectations and also include the influence of school, teacher, and student factors on DUOCCR in the context of "Internet + Education" in the studied universities.

The student questionnaire also included two parts: essential information and survey items. The primary data consists of the gender, grade level, and professional category of the students interviewed, and the survey contains 25 items that can be categorized into three dimensions: items 1 through 10 are the first dimension - students' perceptions; items 11 through 18 are the second dimension - students' practices; Items 11 through 25 are the third dimension - student expectations.

The 25 items in the teacher and student questionnaires were measured on a five-point Likert scale ranging from 1 to 5 (1=completely disagree, 2=disagree, 3=neutral, 4=agree, 5=completely agree). Students were then asked to select an answer for each question as appropriate.

In this study, after distributing the questionnaires to the corresponding teachers and students through Questionnaire Star and obtaining the data, the data from the two questionnaires were analyzed for reliability and validity using SPSS 23.0 software.

The Cronbach's alpha coefficient for the teachers was 0.975, and the students' questionnaire was 0.95, which is higher than 0.90, indicating that the reliability of the test is excellent. Therefore, the two modified questionnaires still meet the requirements and can be used in this study.

After the reliability analysis of the questionnaires, the validity analysis was conducted using exploratory factor analysis. The 25 items of the teacher's and student's questionnaires were categorized into three dimensions, and the correspondence between these 25 items and sizes was reasonable and in line with the career expectations. The KMO value of the teachers' questionnaire was 0.92, and the KMO value of the students' questionnaire was 0.927, both above 0.6.

### 3.6 Research process

First, the DUOCCR teacher-student questionnaire in the context of "Internet+Education" was designed and adapted to the actual situation of university English

teaching in the universities under study. Both questionnaires were divided into perception, practice, and expectation.

Then, with the help of some teachers, friends, and classmates, the two questionnaires were made into electronic questionnaires through the Questionnaire Star website in early November 2022 and distributed to 32 university English teachers and 225 undergraduate students in the universities studied. Among them, the questionnaires were filled out by first-year students to senior students, and both science and art majors participated in filling them out. By the end of November 2022, the questionnaires were stopped: 210 valid student questionnaires and 30 valid teacher questionnaires were collected, and then the data were analyzed using SPSS 23.0.

In early December 2022, six faculty members and six students who completed the questionnaire were successively interviewed online, with consent, and representative statements were excerpted to provide a more complete and valid addition to this study.

Two questionnaires on DUOCCR were designed and organized by the studied universities in the context of "Internet + Education." Teachers and students chose the appropriate number for each question according to their situation to obtain the raw data. If a teacher or a student selects 5 (totally agree), they will be awarded 5 points. On the contrary, if the student chooses 1 (completely disagree), a score of 1 will be awarded. Then, according to the Likert five-point scale, a mean below 2.5 indicates a low level, a compromise between 2.5 and 3.5 points a medium level, and a mean above 3.5 indicates a high level. In addition, a standard deviation between 0 and 1.5 indicates low bias and good data reliability and validity; between 1.5 and 2.5 indicates moderate; and between 3.5 and 5.0 shows excessive bias and polarization of the data, which is unsuitable for analytical studies. Therefore, in the context of "Internet + Education," the higher the scores of teachers and students, the better the overall situation of DUOCCR in the studied universities.

In addition, the data from the questionnaires and interviews were categorized into three dimensions: perceptions, practices, and expectations, and will be analyzed in the following three steps:

First, the mean and standard deviation of each dimension of the teachers' questionnaire were calculated and analyzed using SPSS 23.0 software to explore the overall situation of DUOCCR of the studied university teachers in the context of "Internet+Education."

Secondly, through the analysis of the questionnaire survey and interview results of the students of the studied colleges and universities, the overall situation of DUOCCR among the students of the studied colleges and universities in the context of "Internet + Education" was explored.

Finally, the three dimensions of the teacher questionnaire and the student questionnaire were compared, as well as the content of the interviews for the exact dimensions for

both teachers and students, to obtain critical information to answer the questions of this study.

## 4. Results and discussion

### 4.1 Questionnaire of the studied universities in the context of "Internet + education."

To answer the first research question, the DUOCCR results of teachers and students in the studied universities will be described and discussed based on the data from the questionnaires and interviews. Then, the DUOCCR results of teachers and students will be compared in terms of three dimensions (Alvarez, 2021). The teachers' questionnaire was designed to understand the overall situation of the 30 university English teachers in the studied universities on the development and use of online course resources in the context of "Internet+Education" through the three dimensions of teachers' perceptions, teachers' practices, and teachers' expectations. The following table provides descriptive statistics on the overall situation of the teachers' questionnaire and then lists the details of each dimension in turn.

The mean and standard deviation of the whole questionnaire on the dimensions of teachers' perception, teachers' practice, and teachers' expectation were 3.52 and 1.11, respectively, with a mean of 3.61, 3.39 and 3.55 and a standard deviation of 0.96, 1.13 and 2.24. The mean of all dimensions was more significant than 3.5. The standard deviation of the items ranged from 0 to 1.5, which signified that the teachers of the studied universities had an overall positive attitude. Secondly, the lowest mean was for teacher practice, which indicates some difficulties and challenges in the development and use of teacher practice, and the constraints behind them deserve further research. Finally, teachers' expectations are slightly lower than teachers' perceptions but higher than teachers' practices, which suggests that teachers have a positive attitude towards DUOCCR and agree with the development trend of DUOCCR in the context of "Internet+Education." In the next section, people will analyze the data collected from each dimension of the teacher questionnaire and explore the reasons behind it. The market share of VIPKID and Mucous Class is shown in Figure 4.

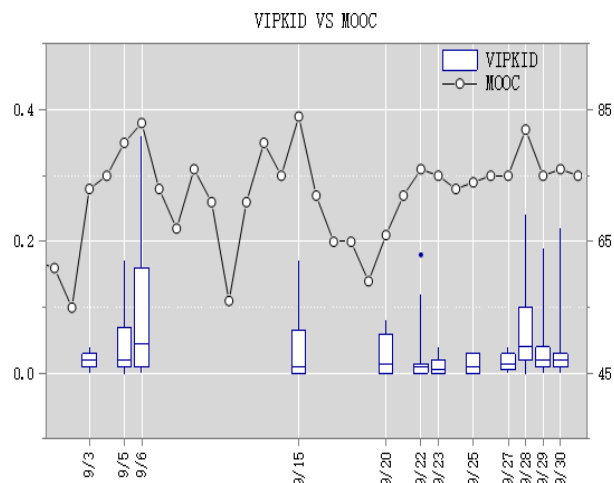


Figure 4 Market share of VIPKID and Mukden

The first dimension is the perceptions of teachers in the studied universities about the development and use of online university English course resources, including seven aspects related to English language teaching and learning, improving learning interest and enhancing independent learning ability, and the difficulty of accessing them.

The results show data on the perception of DUOCCR by university English teachers in the studied universities, including percentages, means, and standard deviations. There were five items with means equal to or higher than 3.5, the highest being item 1 (mean = 3.83), which indicates that students recognize the role of online university English course resources in optimizing English teaching and learning. The lowest item was item 3 (mean = 3.16), which indicates that university English teachers in the universities studied generally recognize the critical role of Internet-based online university English course resources in optimizing English education and teaching, thus suggesting that the teachers hold some supportive attitudes.

Secondly, Item 2 (m=3.77) and Item 3 (m=3.75) have the same mean and the second highest score, indicating that teachers recognize that Internet-based online college English course resources can help college students to improve their English knowledge and ability, which not only helps college students to construct their English knowledge better but also improves students' interest in learning and their ability to learn independently. In addition, the popularization of Internet technology has made establishing online English learning resource libraries easier. They are also easier and more efficient to access and use. However, item 4 (M=3.33) had the lowest mean. However, it also exceeded 3.0, which indicates that there is still a considerable portion of teachers who believe that the existing Internet-based online college English course resources in the universities under study do not meet the needs of college English teaching and that school-level factors may become one of the critical factors affecting their development and use. VIPKID Online English Teaching Efficiency, as shown in Figure 5.

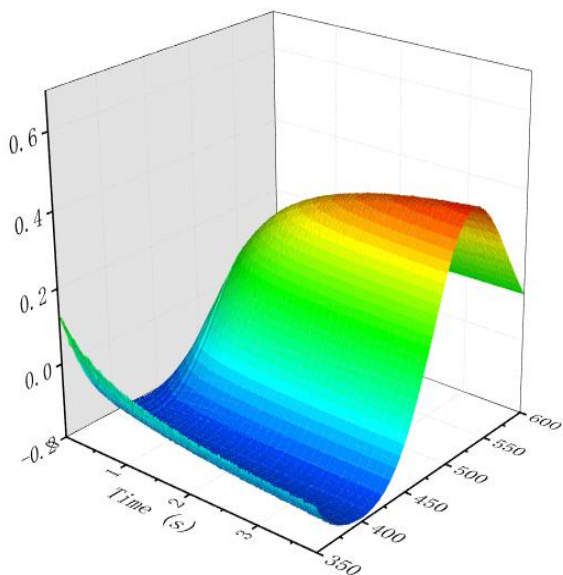


Figure 5 Efficiency of VIPKID Online English Teaching Then, item 5 ( $M=3.5$ ), item 6 ( $M=3.47$ ), and item 7 ( $M=3.6$ ) have closer mean values. In item 5, 53.33% of the teachers preferred to collect materials such as courseware, audio, video, and pictures through the Internet to better present classroom teaching according to the needs of teaching English at university. However, 16.67% were neutral and did not entirely agree, and 3.33% did not agree at all. In item 6, 56.67% of the teachers agreed more with their competence in classroom materials production, curriculum resource development, and instruction of teaching activities. In item 7, 60% of the teachers were more confident using course resources to select appropriate online university English course resources to improve the effectiveness of university English classroom teaching, and another 10% were very secure.

Overall, it is a good sign that university English teachers in the universities studied have relatively high perceptions of developing and using online university English course resources and are more confident in their ability to create and use online university English courses, but not all of them have a positive attitude towards this, which is worth reflecting on.

It is clear from the results that item 8 has the highest mean ( $M=3.07$ ), and only one-third of the teachers each chose neutral and relatively agree, which signifies that the universities studied are less likely to organize university English to participate in relevant Internet skills training. However, learning and using Internet skills should be a pre-service preparation for young teachers, and many teacher training colleges should also engage in more educational practices while learning professional skills in schools to learn multimedia classroom teaching supported by Internet technology to create a more efficient and exciting English classroom. The mean value of item 9 ( $M=3.33$ ) shows that the studied universities have organized workshops on the participation of university English teachers in online university English course resources, but only sometimes. According to the mean of

item 10 ( $M=3.53$ ) and the standard of item 11 ( $M=3.17$ ), students who wanted to learn more English had to visit some off-campus platforms such as Mucheng of Chinese Universities and BBC; therefore, combining the data, 13.33% of teachers chose to disagree entirely and disagree less in item 11, as well as 23.33% of teachers stayed neutral. More Teachers believe that the online course resource base established by students was not rich enough and needs to be further improved—the efficiency of MOOC online English teaching, as shown in Figure 6.

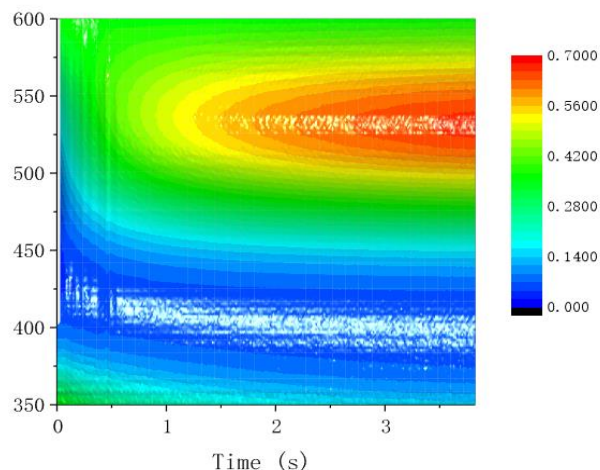


Figure 6 Efficiency of teaching English on MOOC network

Starting from item 12 are teachers' practices, including teachers' learning practices, application practices, and development practices of Internet technologies. Based on the mean of item 12 ( $M=3.27$ ), most university English teachers have learned certain Internet technologies, including creating and using teaching courseware, downloading and sharing learning materials, and sharing teaching resources. Their current skill level is sufficient to meet their daily teaching needs. 43.33% of the teachers agreed they proficiently use multimedia devices to teach English in the university. 16.67% of the teachers fully agreed. However, due to fewer opportunities for training and development of curriculum resources in schools, it is difficult for university English teachers to learn from the experiences of other excellent teachers' classrooms, and their skill levels still need to be improved. From item 14 to item 17, the mean values of university English teachers' attention to online course resources and their experience using them were 3.50, 3.47, 3.47, and 3.77, respectively, in the middle to upper range. In addition, item 20 ( $M=3.23$ ) and item 21 ( $M=3.53$ ) were also related to teachers' personal experiences using them. Based on these data, most of the teachers in the studied universities are proficient in using online college English course resources on the Internet and integrating them into English classroom teaching to improve their teaching and learning effectiveness when teaching college English. Finally, item 18 ( $M=3.32$ ) and item 19 ( $M=3.32$ ) focused on teachers' practice of developing online university English course resources. However, both means were more significant than 3.5, but they were still lower than the other items; the



development requires a higher level of teachers' knowledge and competence than the level of use, and not all teachers are qualified to participate in the development of online university English course resources. The developed online course resources have to be reviewed and used before they are put into use must be reviewed and piloted before they are put into use.

In conclusion, at the practical level, most the university English teachers have experience developing and using online university English course resources. However, due to the limitations of their schools or their knowledge and skills, they have more experience in using them and less experience in developing them, so how to create conditions for university English teachers to enhance their educational research capacity and increase their opportunities for academic research and innovation becomes a worthy issue.

In addition, as educators, college English teachers use prescriptive college English curriculum resources, which means following instructions for initial lesson planning but using their sense of subjectivity and expertise to judge, familiarize themselves with, and analyze the effectiveness of the curriculum resources and modify them within the constraints of policy and the diversity of classroom environments. Therefore, DUOCCR based on "Internet + Education" also requires teachers to be creative, innovative, and strategic, as the curriculum and instruction can be better linked by solving complex curricular and pedagogical problems posed by school resources. The effectiveness of English language teaching and learning on the TED network is illustrated in Figure 7.

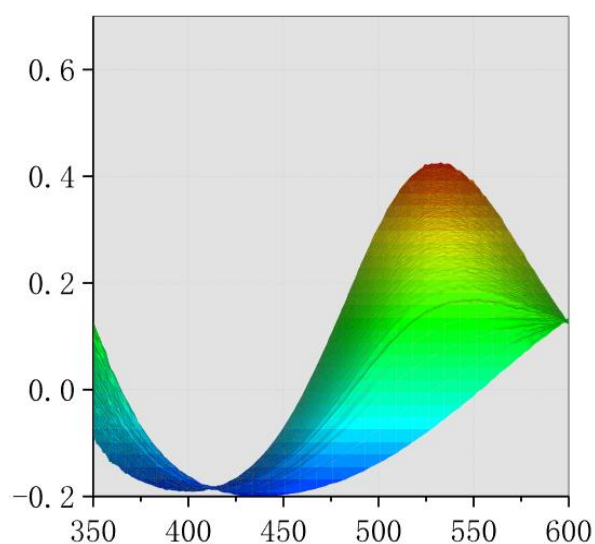


Figure 7 Efficiency of TED Network English Teaching

#### 4.2 Innovations in English language education in the universities studied in the context of "Internet + education."

The results describe the teachers' expectations of university English courses in the studied universities about DUOCCR in the context of "Internet+Education." The mean values of the four items (Item 22, Item 23, Item 24, and Item 25) were all greater than 3.0, with Item 24 ( $M=3.67$ ) and Item 25 ( $M=3.70$ ) having higher and closer values, and the frequency of agreeing more on the two items was 40%, with a combined frequency of deciding of 26.67%, which suggests that many teachers hope to be able to better utilize the online Internet-based English course resources to the actual English classroom and to attract students' interest and attention to English learning through innovative, diversified and practical online course resources to achieve better teaching results.

The lowest score among these four items is item 22 ( $M=3.33$ ), which indicates that many teachers would prefer to participate in IT training activities (e.g., multimedia equipment operation training, multimedia courseware production training, etc.). The reasons for the above situation can be considered from two aspects: firstly, university English teachers are busy with teaching and research tasks and are more willing to spend time to complete their teaching tasks and obtain research results; secondly, most of the teachers have mastered a certain amount of multimedia application technology and also have a specific ability to produce courseware, which has been able to meet the needs of usual course teaching. In addition, the university English of the universities under study requires the use of uniform teaching materials, which are usually equipped with complete teaching courseware and audio-video, which teachers can put into classroom use with slight modifications according to the actual teaching situation. Some teachers do not need additional multimedia training.

In addition, when it comes to item 23, the mean value is 3.50, which indicates that most teachers agree with the idea of assigning more tasks to students in online English courses, hoping to combine the advantages of "Internet + Education" and innovate based on the traditional English classroom assignment model. As students can submit their assignments online, they can use specific English learning platforms to make further modifications when prompted by the system. For example, on the Criticism Network platform applied in the English literacy classrooms of the universities studied, teachers log in to the website and set up English writing assignments to proactively generate the assignment numbers. Students can log in to the Criticism Network and search for the assignment numbers to join the classroom. They can also modify further according to the system's prompts when submitting their assignments. Further revisions are made. After that, the teacher can choose some model compositions and share them with the whole class for students to evaluate each other, and then the teacher will comment on them to achieve the expected progress.

Overall, DUOCCR in the context of "Internet+Education" will become an irreversible trend, and teachers are full of expectations. However, the key to consider is improving

and turning expectations into real life. The efficiency of online English teaching in Xueersi is shown in Figure 8.

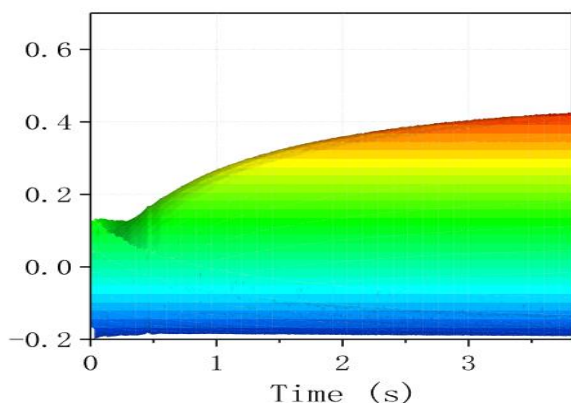


Figure 8 Efficiency of Xueersi's online English teaching

## 5. Conclusion

The first research question asked about the general situation of DUOCCR in the studied universities in the context of "Internet + Education." By comparing teachers' and students' perceptions, it can be seen that teachers and students in the studied universities have a relatively high level of knowledge about the development and use of online university English course resources, and they are also more confident in their ability to develop and use online university English course resources. According to the comparison of teachers' and students' practices, most teachers and students are aware of or have contacted online college English course resources due to the syllabus of College English in the studied universities. However, the degree of understanding could be more extensive; all have used them. However, they have yet to have the opportunity to participate in their development, which relates to the level of teachers' and students' professional knowledge and ability. They also foretell the development and use of course resources by college English teachers. The comparison of teachers' and students' expectations leads to the conclusion that teachers and students in the studied universities have positive attitudes and high expectations and expect to develop and use more systematic and scientific online English course resources.

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