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Research Article

Study on MOOC's English Learning Mode Based on Pattern Recognition

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The rapid development of the Internet has accelerated the reform of educational methods, with a trend toward flexible and open lifelong education systems. However, the traditional classroom learning mode cannot meet the needs of all students. This research adopted a descriptive and analytical approach. A quantitative survey was used to collect the necessary data. 218 undergraduates from Three Gorges University participated in survey questionnaire on the MOOC learning mode. Based on the MOOC platform, the current study tries to investigate the MOOC's learning effect and the MOOC English learning mode and indicate the current users' experience of MOOC learning mode. The results of the analysis reveal that insufficient types of resource content, poor interactivity, and poor self-learning effect, as well as tension and seriousness, do exist in the current MOOC learning mode. Thus, this paper proposes strategies including a MOOC-based English learning mode based on the above issues to improve satisfaction with MOOC, enrich the learning resources of the MOOC platform based on the Internet, enhance the interaction between teachers and students, strengthen students' adaptability to the MOOC learning mode, arouse students' interest online, and introduce online breaks.

1. Introduction

In recent years, artificial intelligence has brought profound changes in the field of education driven by the rise of technologies such as the Internet, big data, Internet of things, speech recognition, face recognition, and neural networks, providing new educational technologies and teaching methods to meet the different learning needs of individual learners. With the help of computer-assisted technology, learners achieve deep learning and meaningful learning, so that learning can happen anytime and anywhere; furthermore, online communication, intelligent assessment, and fragmented learning efficiency are improved. MOOC is the product of the combination of information technology, computer science, and education, which distributes excellent teaching resources to all parts of the world through online platform, not only providing free teaching resources, but

also providing a high-quality learning experience. In 2011, Sebastian Thrun and other colleagues at Stanford University offered a free academic course on artificial intelligence and received favorable comments by thousands of college students. MOOC breaks through the limitations of teaching resources. Lemke said, "MOOC promotes the educational equity because its curriculum resources are open, massive and substantial, and learners can join high-quality courses through online media" [1]. Larry believes that "MOOC has created a way to integrate educators and learners from all over the world, as well as various educational resources, closely connecting super large learning community" [2]. MOOC changed the teaching method of education. Reich pointed out that "MOOC should pay more attention to the completion rate of courses and credit certification and other related teaching management systems" [3]. Meyer paid attention to the impact of MOOC on the long-term

development of educational resources, pointing out that it may affect the sharing and openness of education [4]. The different teaching ways of education affect various teaching trends, and the advanced education takes the lead regarding advanced society. MOOC is full of innovation. Pappano believes that "MOOC is an effective way of learning English, because MOOC highly integrates learning, life and social interaction" [5]. The traditional classroom is teacher-centered, while it is student-centered in the era of big data, and Berlin says, "Small data, or one dimensional teaching and learning analytics, provide quality feedback to teachers and students" [6]. MOOC breaks the deadlock of traditional teaching, providing students with interactive opportunities through classroom-flipping and reviewing platform, forming a mode of teacher-student cooperation and student-student cooperation. Assisting traditional teaching, MOOC-based blending teaching cultivates students' independent learning and promotes teacher-student emotional communication and personalized experience. A powerful management system tracks and records learners' learning frequency, learning performance, and learning behaviors to boost teaching and learning quality and students' self-learning ability.

MOOC is undergoing rapid development. The traditional English learning mode at Three Gorges University, teacher-centered, cannot fully mobilize students' motivation and enthusiasm. MOOC-based blending English teaching mode brought about enlightenment. Some scholars have put forward the definition and core concepts of MOOC. For example, Wang believed that "MOOC is based on the Internet with the spreading and sharing of knowledge" [7]. Mou and others declared that "the main purpose of MOOC is to spread and widely share knowledge, and to encourage teachers implement educational activities, and instruct teaching content by modern internet-based technology" [8]. Wang believed that "the MOOC mode can connect English learners all over the world to share knowledge and learn together" [9]. Wang pointed out, "The most important thing about MOOC is free. The increasing students can learn English through the Internet, which meets people demands for knowledge" [10]. Scholars have claimed types of MOOC: "MOOC is divided into three types, namely vMOOC, cMOOC and xMOOC." Yuan said that "The MOOC mode of cMOOC is established on the basis of the theory of connectivity" [11]. Fan pointed out, "cMOOC is different from traditional face-to-face classroom teaching. It allows learners to communicate freely" [12]. Li believes that "the xMOOC model focuses on the innovation of knowledge, which relies on the interpersonal communication" [13]. Scholars pay attention to the application and effect of MOOCs, including platforms such as the MOOCs of Chinese universities with a large number of high-quality MOOC English teaching resources provided on these famous MOOC platforms. Yuan said, "MOOC attaches great importance to the combination of independent learning and cooperative learning in teaching practice, which is tightly related to the development of MOOC and English learning in China." [14]. Gu pointed out, "In Shanghai, MOOCs' education have already been conducted at universities and academic research fields. However, further researches are needed to accelerate the localization and diversity in domestic education-related fields in China" [15].

When it comes to the construction, application, and management of MOOC, MOOC calls for thorough discussion and exploration. According to a survey based on 9 Harvard courses, Reich (2015) found that all students want to graduate and achieve MOOCs' certification, but the fact is that only 22% of students really did it [16]. Nowadays, there are not many books on the research of the implementation of MOOC in English teaching, and there are few researches on its application and development. Therefore, this topic will focus on filling the gaps through the comparison between the traditional teaching and MOOC, analyzing the advantages and disadvantages of MOOC, and discussing the English MOOC learning mode and traditional offline teaching mode. Then, the difficulties of applying MOOC to the traditional classroom will be indicated, with observations and thoughts on challenges brought by MOOC English learning mode theoretically and practically, so as to provide some resolutions for schools to deal with MOOCs.

2. Methodology

This paper adopts the research literature method and survey. A large number of materials about MOOC and English classroom teaching mode were consulted through CNKI, Google Scholar, and other search engines, and we summarized the current research status at home and abroad from the aspects of research background, significance, content, and methods. A questionnaire method was used to investigate college students on English MOOC and traditional teaching, satisfaction with MOOC, and students' views on the learning mode of MOOC. After the approval of the Academic Committee of China Three Gorges University, 218 undergraduates from the university participated in this questionnaire. The subjects are students in different grades taking English MOOC. The personal information involved the age, gender, and grades, and we conducted a detailed comparison of the testers. 22 survey questions were compiled, and Lee's Scale was used for the survey. The questionnaire was published and collected online. In this survey, a total of 218 questionnaires were distributed, and 201 valid questionnaires were finally recovered. The validity of the questionnaire is as high as 92.2%. Then, we used SPSS software to process and analyze the survey data, and set an English MOOC learning mode. Distinctly, there are several problems, especially the reasons for low satisfaction. In response to specific problems, corresponding improvement measures are proposed to promote the deepening and optimization of MOOC English learning mode.

2.1. Reliability Analysis. The internal reliability analysis is employed to improve the quality of the questionnaire and make the results more practical and effective. The detailed results of the reliability analysis show that the questionnaire is of high reliability, as shown in Table 1.

TABLE 1: Questionnaire reliability.

Secondary index	Three-level index	Alpha coefficient	Combination index alpha coefficient
	Overall alpha coefficient: 0.837		
Content quality	Comprehensiveness	0.831	
	Accuracy	0.867	0.825
	Abundance	0.832	
Teaching interaction	Appropriateness of assignment distribution	0.726	
	Timeliness of job completion	0.687	
	Interaction between students in the learning process	0.741	0.754
	Interaction between teachers and students in the learning process	0.735	
	Convenience of interaction	0.783	
Ability improvement	Mastery of knowledge	0.839	
	Improvement of skills	0.587	
	Improvement of autonomous learning ability	0.687	0.807
	Improvement of problem-solving ability	0.649	
	Improvement of teamwork ability	0.886	
Attitude to learning	Communication with classmates or teachers about English learning	0.889	
	It is easier to use this learning mode	0.677	
	This learning mode makes me learn English more actively	0.614	0.758
	Compared with the traditional English learning mode, I prefer the new mode	0.843	
	Preference for learning English in this mode	0.765	

2.2. Descriptive Analysis Results

2.2.1. Personal Characteristics of Testers.
It can be found from Table 2 that the gender distribution of the survey subjects is almost the same, and the number of people in each grade is also relatively balanced.

2.2.2. The Testers' Computer Level.
Figure 1 is the result of the survey on the computer level of the surveyed persons. The analysis is carried out at four levels, so the interference factors of the user's computer level on the study of MOOC's English learning mode can be basically eliminated.

2.2.3. The Preference of Learning Mode.
From Table 3, it can be seen that the proportion of people who regard pure online learning as the ideal learning mode is 11.59%, and face-to-face learning accounts for 13.04%, but a combination of online and face-to-face learning achieves the highest popularity among users, like the MOOC's blending mode, reaching 49.28%.

2.3. Satisfaction with MOOC.
Table 4 uses the formula $CSR = \Sigma W_i K_i$ to calculate the mean value of each factor according to the satisfaction degree with the MOOC English learning mode from a macro perspective.

From the calculation results, we can see the satisfaction scores of each indicator in each dimension. Among them, the highest satisfaction score is that of the content comprehensiveness index under the content factor dimension, being 3.90, which is 3 points higher than other indexes, and the lowest score is the attitude factor, which is 2.30 points.

2.3.1. The Shortage of Resources.
In terms of content factors, all indicators are higher than 3 points in Table 5. In addition, the average value is higher, but in contrast,

the comprehensiveness of the content is better, with lower richness of the content, and the performance is relatively inferior. It can be seen that under the MOOC learning mode, students believe that the MOOC content arranged by the teacher is comprehensive, but the richness of content is not enough. In terms of content, the MOOC-based English learning mode has better comprehensiveness and accuracy, with a higher score. However, in terms of the richness of content, the MOOC English learning mode is relatively at lower point. The MOOC English learning mode is in an advantageous position in terms of the comprehensiveness and accuracy of the content. Compared with the other teaching types, the MOOC English learning mode has the advantages of completeness and wide coverage, while the teacher when teaching ignores the details of the content, which results in insufficient resources.

2.3.2. Insufficient Teaching Interaction.
As shown in Table 6, the satisfaction score of the interactive factor dimension is 2.88, which is lower than the average value. Among various indicators, the timeliness of completion of homework and the interaction between teachers and students in the learning process are not enough, being lower than other items. The score of timeliness of completion is 2.80, and the score of interaction between teachers and students in the learning process is 2.40. It can be seen that under the MOOC learning mode, the students' evaluation of MOOC's interactivity is not satisfactory, especially in the interactivity between teachers and students and the timeliness of homework completion. The interactivity indicators are associated with students' satisfaction with the interactivity of MOOC English learning mode. The reasons can be analyzed in terms of the five indicators in Table 6. First, under this MOOC learning mode, it is difficult for students to complete the

TABLE 2: Gender and grade of the respondents.

Gender	Number	Percentage	Age	number	Percentage
Male	95	47.3	Freshman	49	24.38
			Sophomore	61	30.35
Female	106	52.7	Junior	56	27.86
			Senior	35	17.41

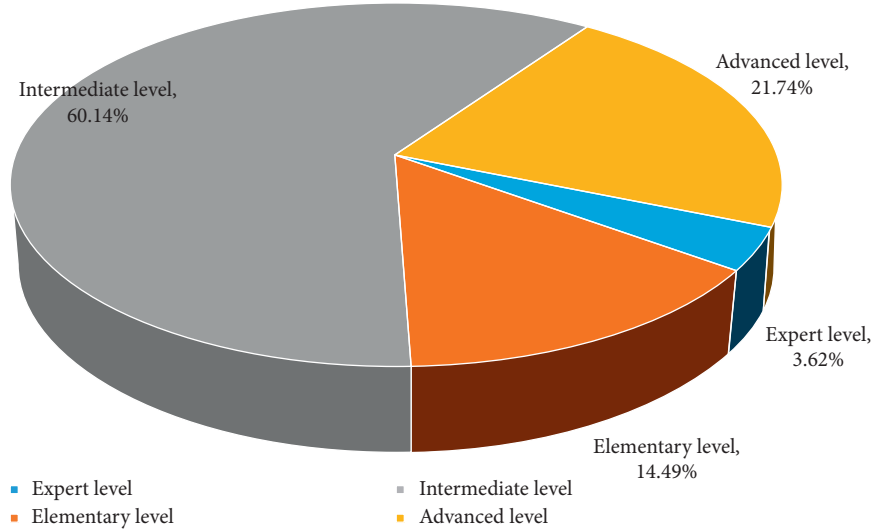FIGURE 1: Testers' computer skills.

TABLE 3: The preference of learning mode.

Mastery of knowledge	Frequency	Percentage (%)
Simple network learning	23	11.59
Simple face-to-face learning	26	13.04
Face-to-face teaching	99	49.28
Face-to-face teaching, supplemented by network	22	10.87
Network-based learning	31	15.22

homework and submit it to the teacher in time as in the traditional classroom. Second, the interaction between teachers and students is poor and indirect because the MOOC English learning mode is mainly in the form of recording and broadcasting. It is difficult to get timely feedback in the process of teacher-student interaction, and this cannot meet the needs of students for teacher-student interaction, as well as the appropriateness of assignments, the interaction between students, and the convenience of interaction. In summary, strengthening the interaction between teachers and students in MOOC's English class and learning mode should be given high attention.

2.3.3. Insufficient Self-Learning Ability. Satisfaction with self-learning ability focuses on whether students have mastered knowledge or not. From Table 7, it can be concluded that students' self-learning ability and problem-solving ability under the MOOC-based English learning mode need to be improved; they have the lowest score among the three-level indicators, because students lack the

adaptability to the learning mode and have not got rid of the habit of traditional classrooms. In terms of improving teamwork ability, data shows higher values and better satisfaction. Therefore, the MOOC-based English learning mode should focus on the problems of poor autonomy reported by the students, so that students can achieve better results in the MOOC-based English learning mode.

2.3.4. Students' Learning Attitudes. The attitude satisfaction score of MOOC English learning mode is 3.09 in Table 8, which has just reached the satisfaction standard of 3 points. In-depth analysis of the reasons for the insufficient score of this indicator shows that the problem of attitude dimensions under MOOC English learning mode is mainly focused on the deficiency of ease. The value of this indicator is less than 3 points. It shows that students think that MOOC learning is more rigid and serious in the process of using MOOC learning, which is not as easy as face-to-face classrooms. In the MOOC English learning mode, students are faced with insufficient feedback and interaction. To sum up, the problem of poor relaxing in the

TABLE 4: Average value of each factor.

Factor		Average
Content factor	Content comprehensiveness	3.90
	Content accuracy	3.55
	Content richness	3.35
Interactive factors	Appropriateness of assignment distribution	3.10
	Timeliness of job completion	2.80
	Interaction between students in the learning process	3.10
	Interaction between teachers and students in the learning process	2.40
	Convenience of interaction	3.00
Effect factor	Mastery of knowledge	3.10
	Improvement of skills	3.20
	Improvement of autonomous learning ability	2.55
	Improvement of problem-solving ability	2.40
	Improvement of teamwork ability	3.35
Attitude factor	Communication with classmates or teachers about English learning	3.60
	It is easier to use this learning mode	2.30
	This learning mode makes me learn English more actively	2.90
	Compared with the traditional English learning mode, I prefer the new mode	3.60
	Preference for learning English in this mode	3.05

TABLE 5: Satisfaction with MOOC's English learning mode and content quality.

Evaluating indicator		Average	Weight	Average * weight
Content factor	Content comprehensiveness	3.90	0.215	0.837
	Content accuracy	3.55	0.205	0.727
	Content richness	3.35	0.181	0.606
	Satisfaction with content scored 3.53 (70.58%)			

TABLE 6: MOOC English learning mode and teaching interaction satisfaction.

Evaluating indicator		Average	Weight	Average * weight
Interactive factors	Appropriateness of assignment distribution	3.10	0.214	0.664
	Timeliness of job completion	2.80	0.193	0.541
	Interaction between students in the learning process	3.10	0.198	0.613
	Interaction between teachers and students in the learning process	2.40	0.208	0.500
	Convenience of interaction	3.00	0.187	0.561
	The satisfaction score of interaction factors was 2.88 (57.55%).			

MOOC English learning mode leads to insufficient performance in students' learning attitudes. Therefore, to build an active atmosphere of the MOOC English learning mode is significant to improve the satisfaction.

3. Results and Discussion

3.1. Enriching Platform Learning Resources Based on the Internet. MOOC English learning mode is high-quality English classroom teaching accompanied by technology. Technology is a strong push toward online courses supported by enriched online resources, not limited to multimedia, recorded online teaching, and online transmission of teaching courseware, and network technical support is the key. The fast information technology assists online education to achieve interactive and instant teaching. Therefore, in order to make network technology keep up with the pace of educational development, we should increase investment in network technology to meet the needs of students for learning resources. Besides, teachers should learn to make

better use of these online resources. This can not only broaden the quality of students' learning, but also greatly improve their satisfaction with MOOC learning mode.

3.2. Enhancing the Interaction between Teachers and Students Based on the MOOC Platform. No matter what the form of education is, the interaction between teachers and students is indispensable. If the interaction between teachers and students in a learning mode cannot be guaranteed, no matter how new science and technology are developed and how the teaching mode is innovated, it is difficult to meet the needs of learning and teaching between the two parties. Based on MOOC English learning mode, enough attention should be paid to how to improve the interaction between teachers and students. The previous analysis shows that the interaction is mainly limited by the lack of interaction in the form of recording and broadcasting lectures, which will affect students' learning interest and efficiency to a certain extent. Therefore, it is necessary to strengthen the interactivity of the

Table 7: MOOC English self-learning ability.

	Evaluating indicator	Average	Weight	Average ∗ weight
	Mastery of knowledge	3.10	0.227	0.702
	Improvement of skills	3.20	0.217	0.694
Effect factor	Improvement of autonomous learning ability	2.55	0.219	0.559
	Improvement of problem-solving ability	2.40	0.175	0.421
	Improvement of teamwork ability	3.35	0.197	0.660
	The satisfaction factor scored 3.04 (60.72%)			

Table 8: MOOC English learning attitudes.

	Evaluating indicator	Average	Weight	Average ∗ weight
	Communication with classmates or teachers about English learning	3.60	0.179	0.465
	It is easier to use this learning mode	2.30	0.175	0.550
Attitude factor	This learning mode makes me learn English more actively	2.90	0.155	0.479
	Compared with the traditional English learning mode, I prefer the new mode	3.60	0.158	0.491
	I prefer learning English in this mode	3.05	0.165	0.503
	Attitude satisfaction scored 3.09 (58.92%)			

learning mode and use the form of online live lectures and discussion forums as supplementary methods to encourage teachers to carry out a variety of teaching activities, so as to enhance the interaction between teachers and students, enhance students' learning interest, and improve their positivity.

3.3. Strengthening Students' Adaptability to New Learning Mode.
In order to enable students to keep pace with the curriculum and adapt to new developments and changes, and strengthen students' adaptability to this learning mode, it is strongly significant to provide hardware facilities, gradually improve students' ability to solve problems, and improve self-discipline ability. The development of MOOC's English learning mode should be dedicated to distance teaching. This is a teaching mode that uses multiple media for systematic teaching and communication, sends courses to one or more students outside the school, establishes a comprehensive system, and focuses on the development of new teaching modes. To ensure the continuous and stable development of MOOC English learning mode, instructional syllabus and practical English online teaching will be further researched.

3.4. Improving Students' Interest in Traditional Teaching and Online Teaching.
First of all, MOOC English learning mode must analyze and understand its own characteristics in detail, clarify the advantages and disadvantages of the learning mode, give full play to its strengths of efficiency and flexibility to have listening and oral English training, and avoid students with attitude of shyness and anxiety. For the MOOC English learning mode, the classroom can be more interesting and interactive by rich online resources. Teacher-taught courses are more time-limited, and online classrooms are added to make teachers and students closer and allow them to chat freely online. This mode not only breaks teacher-centered traditional lessons, but also extends the traditional classroom outside the school. The MOOC English learning mode encourages brainstorming among students, resulting in learning community and students' enlightenment. The online class breaks are more unique, fresh, and fun, allowing teachers and students to get closer and chat with each other. Through the above measures, under the learning mode, students' positive learning attitude can be effectively optimized.

4. Conclusion

With the increasing development of Internet and modern technology, the accumulating pressure for higher education, and the fierce competition between online platforms, the innovation of learning and teaching methods is also facing huge opportunities and challenges. MOOCs expand traditional classroom teaching, providing students with more English training scenarios, establishing a multiple evaluation system, expanding the time and space of English learning, and forming the interaction between teachers and students, to promote the fairness of English teaching and improve the quality of English teaching. However, the rapid development of new mode has many hidden problems. Therefore, it is necessary to analyze the current situation based on MOOC English learning mode in time, figure out the practical problems, and find out timely solutions. There is a need for technical support and training programs for teachers and students. This paper selects the perspective of students' learning satisfaction and takes MOOC-based English learning mode as the main research target to analyze the students' learning effect and investigate teachers' teaching methods. Next, we are committed to investigate teachers' teaching methods and assessment for further research, hopefully making major contributions to improve the quality of MOOCs.

Data Availability

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

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