

College English Mobile Learning Patterns Based on Multi-Modal Learning From “Internet +” Perspective

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Abstract: Under the background of Internet Plus, the rapid development of the mobile Internet technology has led to the widespread use of the PCs and smartphones, bringing out new chances for college English mobile learning. More importantly, with the trend of globalization, the complex situation has set higher demands for this generation. In order to promote college students' English learning effectiveness and enhance comprehensive English skills, this paper explores possible mobile learning patterns based on multi-modal learning that college students can apply in English learning, according to the theories of the Multi-modal Discourse Analysis and mobile learning. Included in the study are the employment of questionnaires and interviews. The results show that teachers' construction of multi-modal teaching and students' after-class multi-modal learning play a significant role in improving college students' English proficiency. The research, therefore, will provide some possible insight into cultivating college students' comprehensive English skills to adapt to the changing society.

Keywords: Internet Plus; College English; Multi-Modal Learning; Mobile Learning patterns.

1. Introduction

Over the several decades, the emergence and development of the Internet and smart terminals have had a tremendous impact on today's society especially in terms of education and teaching. It has brought out new ideas to the innovation and development of teaching and learning models, which helps to activate students' motivation and promote knowledge internalization. The multi-modal learning methods, which is an all-in-one method made up of text, pictures, audios, videos and other forms of multi-modal discourse communication, have gradually taken the place of the traditional one-dimensional text communication method. It makes up for the shortcomings of traditional paper media including being uni-modal, static, and slowly updated. The application of the Internet intelligent terminals and the introduction of *multi-modal theory* have made possible the combination of texts, pictures, audios, videos and other resources, which creates a more vivid situation for language learning, effectively stimulating self-learning motivation and helping to achieve the goal of intercultural communication. As a result, the multi-modal method has become an effective way to improve the quality of foreign language teaching and learning in the context of “Internet Plus”. It is a useful attempt to improve students' application of foreign languages.

By reviewing the previous literature, this paper is specially aimed at exploring possible mobile learning patterns based on multi-modal learning that college students can apply in English learning according to the theories of the *multi-modal discourse analysis* and *mobile learning*, which may provide possible insights for college students to enhance English proficiency and become international talents in line with social development and globalization.

2. Theoretical Framework

2.1. Multi-Modal Discourse Analysis Theory

Human beings need to receive information from the outside through five senses including ears, nose, tongue, eyes, and body system. According to the type of senses, human beings

have visual modality, auditory modality, olfactory modality, gustatory modality, and tactile modality. The so-called modality is the application of the senses such as vision and auditory to form a good way of interacting with the external environment in the process of recognizing the external things. The communicative activity through one modality is called uni-modality such as listening to music or reading books. Music is through the auditory mode, and reading is through the visual mode. Multi-modality refers to communication with the external environment through more than two sensory modalities. [1, 2, 3]

The theory of Multi-modal Discourse Analysis emerged in Western countries in the last century, which is a new way of discourse analysis proposed by OToole (1994), Kress (1996) and van Leeuwen (2001). They combine social semiotics with system-functional grammar and more theoretical knowledge, arguing that language is a social symbol, and other non-verbal symbols outside of language such as pictures, music, body movements, etc., can be visualized and express meanings.[4]

The significance of Multi-modal Discourse Analysis lies in integrating language with other relevant resources. The function of the exchange of meanings in the language system in people's communicative process, and the effectiveness of other symbolic systems such as images, colors, motions, etc., can be more clearly distinguished, so that people can have a more comprehensive and accurate understanding of the meaning of the discourse, achieving the goal of effective communication.

2.2. Mobile Learning

Mobile learning is a type of digital learning pattern that utilizes wireless mobile devices and Internet technologies, and takes place at any time and anywhere. Mobile learners are able to get a variety of educational information, resources and services in need through wireless mobile communication and information devices, and realize the effective interaction between teaching and learning through wireless mobile network technology.

Individuation, convenience, interactivity, timeliness, etc. are the typical advantages of mobile learning. It makes possible to create a personalized digital learning environment for learners to meet the needs of individual learning anytime and anywhere according to the age differences. Mobile learning, as one of the most brand-new learning patterns in the media age in the 21st century, is more suitable to meet the needs of public learning.[5]

2.3. Trend of Multi-Modal Mobile Learning

According to the 52nd Statistical Report on the Development of China's Internet Network published by CNNIC, the number of Internet users in China has reached 1079 million by June 2023, which has become the largest scale in the world. The Internet penetration rate has reached 76.4% and the number of mobile network users among netizens has reached 99.8%.[6]

In the all-media era, with smartphones, tablets, laptops and other mobile terminals gaining increasing popularity, college students can benefit a lot from scientific and technological progress. Intelligent mobile terminals have become an indispensable partner for them to do their learning, which provides hardware for multi-modal mobile learning.

More importantly, there are multiple English platforms that support multi-modal English learning in terms of software such as Chaoxing learning platform, grading network, Ted, etc. These platforms not only make up for the static single text of traditional paper-based textbooks, but also provide vivid situations composed of images, audio, and video to stimulate learners' motivation. Learners can also share vocabulary, listening, reading, writing, and speaking content via QQ, WeChat, fun dubbing, BaiCiZhan, etc. It is beneficial for learners to make good use of Internet learning resources in their spare time. Teachers and lectures are no longer the only way for students to receive knowledge. Students can take their initiative to choose learning environment, learning tools as well as learning strategies.

3. Literature Reference

Since the rise of the Multi-modal Discourse Analysis Theory in the West in the 1990s, many scholars at home and abroad have studied it. The domestic scholar Zhu Yongsheng conducted a comprehensive study of the appearance, the definition of multi-modal discourse, the nature and theoretical basis, the content, methods and significance of Multi-modal Discourse Analysis. He pointed out that there are five communicative modalities from perception channels: visual modality, auditory modality, olfactory modality, gustatory modality and tactile modality. It also involves channels and mediums of communication, including symbolic systems such as language, technology, images, colors, music, etc. He also reviewed and looked forward to discourse analysis, pointing out that the theory of discourse analysis can play an important role in the compilation of teaching materials and teaching methods.[7] Zhang Delu summarized the progress of discourse analysis, and also proposed that Multi-modal Discourse Analysis should pay more attention to practical application in education.[8]

In view of this, many scholars have applied this theory to their teaching. Based on the theory of Multi-modal Discourse Analysis, there are scholars exploring the application of multi-modality in Junior High School English writing and reading. Some scholars researched on the application of

Multi-modal Discourse Analysis theory in vocabulary, listening and speaking teaching. In the classroom teaching, the impact of this model was discussed, and it was found that the teaching effect of this model was obvious.

Wang Yongfang investigated the understanding of multi-modal teaching among high school students and teachers, and the effects exerted on the students (2017). Ji Wenting conducted a research and analysis on the current situation of multi-modal teaching in a higher vocational college, and found that higher vocational students had a positive attitude towards multi-modal learning (2019). Zhong Mingling investigated the overall application of multi-modality by high school English teachers (2020). There are also scholars who study from the perspective of connotation of the theory, digging deeper in the classroom introduction, vocabulary learning, text learning, class activities, after-class activities, etc., exploring the multi-modal collaboration in English teaching. Ge Jiji explored the practical application of this theory in several areas of junior high school English teaching, including classroom interactive teaching, audio-visual teaching, and diversified evaluation (2019).

Foreign scholars Jewitt studied discourse and context from a multi-modal perspective, and discussed how images, colors, gestures, gaze, posture and motions as well as writing and speech were united and organized by teachers and students, and how they formed context (2007). [9, 10] In recent years, it has also been investigated the improvement of listening comprehension ability in a multimedia context. With the development of multimedia technology, it provided the prerequisite for the emergence of various teaching modes.

In summary, in the field of Multi-modal Discourse Analysis, most scholars focus on the application of multi-modal theory in different types of courses, including vocabulary, listening, reading, etc. Foreign scholars also emphasize the importance of interactive classrooms. There is not much research focusing specifically on the group of college students to put forward effective English learning methods. The theory of Multi-modal Discourse Analysis enriches language teaching through a variety of meaningful expressions such as images, sounds, colors and animations. This paper analyzes college students' attitudes through questionnaires, put forward targeted suggestions based on the problems found and foster their English learning effectiveness and efficiency.

4. Literature Methodology

4.1. Research Questions

This paper focuses on the application of multi-modal mobile learning in college students, aiming at taking effective methods to help college students enhance English learning effectiveness and efficiency. Specific research questions are as follows.

(1)What is college students' attitudes towards multi-modal learning?

(2)What challenges are college students faced with when applying multi-modal learning?

(3)How do college students apply multi-modal learning? What innovative methods can be used to enhance the effectiveness of multi-modal mobile learning?

4.2. Participants

Participants of the present study were 110 college students with different degrees in various discipline-humanities, art, engineering, mathematics, medicine, etc. from Jiangsu University. 15.45% of them are from arts, 36.36% from science, 29.02% from engineering, 19.09% from medicine. The ages of the participants ranged from 18 to 25 years.

4.3. Research Instrument

The two instruments used in this study were: 1) questionnaire 2) interview. This study adopts a master-slave research method combining quantitative research with qualitative research. Among them, quantitative research is the main research method, supplemented by qualitative research.

More specifically, in quantitative research, it is mainly based on the questionnaire. The questionnaire was designed according to the actual needs of this study, based on the multi-modal teaching theory defined by Jewitt (2007, 2008), and with reference to the questionnaire of Wang Yongfang (2016). The questionnaire includes a total of 9 questions, as shown in Table 1.

Table 1: Question Design

Sequence	Question number	Question Purpose
1	1	Background information
2	2-3	The application and effectiveness of multi-modal English teaching in college English class
3	4-8	College students' attitudes towards multi-modal mobile English learning
4	9	Challenges college students are faced with when using multi-modal mobile English learning

The questionnaire uses a five-level Likert scale, with five options including strongly disagree, basically disagree, uncertain, basically agree, and fully agree.

In qualitative research, interview is adopted to get a deeper understanding of college students' view towards multi-modal mobile learning. Three students, one in English major, one in marketing, one in engineering, are chosen to have an interview in order to survey their application of multi-modal mobile learning, as well as know their specific and individualized feelings of application.

4.4. Research Procedure

In the first step, questionnaire is designed according to the multi-modal teaching theory defined by Jewitt (2007, 2008), and with reference to the questionnaire of Wang Yongfang (2016). Next, questionnaire is handed out to the participants, and quantitative data are collected. Then reliability and validity are analyzed with the help of SPSS25.0. Finally, interview is adopted with three of the participants in order to survey in more details their application of multi-modal mobile learning, as well as get an understanding of their individualized feelings of application. In conclusion, innovative ideas will be put forward to help enhance college students' English proficiency and competence via multi-modal mobile learning.

4.5. Data Collection and Analysis

After the questionnaire was taken back, the data were processed and analyzed using SPSS25.0 to calculate the percentages for each option. In order to ensure the validity of the questionnaire, the reliability and validity analysis were performed on the collected 110 sample data. The interview with three of the participants were recorded for further analysis.

4.5.1. Reliability Analysis

Cronbach's Alpha is utilized to analyze the reliability of the data. In the reliability analysis, the Cronbach's Alpha is generally above 0.7, which reflects the high reliability, and the questionnaire can be further analyzed. According to Table 2, the Cronbach's Alpha of each dimension in the questionnaire is greater than 0.7, indicating that the overall reliability of the questionnaire is high.

Table 2: Reliability analysis table

Dimensions	Cronbach's Alpha	Number of terms
Current situation and effectiveness of multi-modal college English teaching	0.712	2
Attitudes of college students towards multi-modal English mobile learning	0.792	4
Total Scale	0.868	6

Sensitivity analysis: The last column "Cronbach's Alpha if Item Deleted" in Table 3 is high, indicating that the question is well set and the consistency is high.

Table 3: Total item statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Current situation and effectiveness of multi-modal college English teaching 1	18.2091	19.763	0.715	0.836
Current situation and effectiveness of multi-modal college English teaching 2	18.3182	20.402	0.686	0.842
Attitudes of college students towards multi-modal English mobile learning 1	18.3091	22.105	0.616	0.854
Attitudes of college students towards multi-modal English mobile learning 2	18.2091	20.442	0.640	0.850
Attitudes of college students towards multi-modal English mobile learning 3	18.3727	20.218	0.697	0.840
Attitudes of college students towards multi-modal English mobile learning 4	18.3091	20.417	0.643	0.850

4.5.2. Validity analysis

Factor analysis is used for validity analysis. Generally speaking, in validity analysis, if KMO value remains at above 0.5, the survey will be suitable for factor analysis. As can be seen from Table 4, the value obtained by KMO test is $0.868 > 0.5$, the Bartlett's Test of Sphericity significance is $0.000 < 0.05$, indicating that the data are suitable for factor analysis.

Table 4: KMO & Bartlett test

KMO Measure of Sampling Adequacy		0.868
Bartlett's Test of Sphericity	Approximate Chi-Square	275.271
	degree of freedom significance	15 0.000

As can be seen from Table 5, the total variance is 60.367%, indicating that the factor explanation ability is good. The extracted factor can retain most of the original information.

Table 5: Total variance

Components	Initial Eigenvalues			Extracted loading sum of squares		
	Total	Variance percentage	Cumulation percentage	Total	Variance percentage	Cumulation percentage
1	3.622	60.367	60.367	3.622	60.367	60.367
2	0.670	11.166	71.533			
3	0.557	9.284	80.817			
4	0.445	7.417	88.235			
5	0.368	6.134	94.369			
6	0.338	5.631	100.000			

5. Conclusion

5.1. Application of Multi-Modal English Teaching in College English Class

The first part of the questionnaire is to investigate current situation of the application of effective multi-modal classroom teaching in college English class. For these questions, "Your English teachers always use multi-media tools such as PPT, videos, body language, etc. to conduct English class", "Multi-modal English teaching in classroom including pictures, audios, videos in PPT is conducive to your English learning", most participants choose "fully agree" or "basically agree", accounting for 60% or more. Only 7.27% of the participants totally don't think their English teachers often use multi-media tools for teaching, and 5.45% of them totally disagree multi-media is conducive to their English learning.

We can conclude that most college English teachers conduct multi-modal teaching in English class and to some extent students are beneficial from multi-modal teaching. However, still some percentage of students don't think highly of such a method. One of the participants from engineering holds that PPT is too gaudy, not containing much useful knowledge. Although pictures or videos can help students understand some knowledge, most time it is a waste of time without much important elements.

5.2. College Students' Attitudes to Multi-Modal Mobile English Learning

The second part of the questionnaire studies further college students' attitudes towards multi-modal mobile English learning. After analyzing the data, it is concluded that the majority of college students hold positive attitudes towards multi-modal mobile English learning. To be more specific, 60% of the participants conduct online English learning over 2 hours per week. 60.91% of them fully or basically agree multi-modal mobile English learning promotes motivation, 65.46% fully or basically agree they enjoy such a learning method. 55.46% enjoy learning English by pictures, videos and films. 57.27% fully or basically agree they have more access to learning resources through mobile learning.

In a word, multi-modal mobile English learning shows a relatively positive development in college students. More than half of college students are willing to adopt such kind of method in learning English because of various effects.

5.3. Challenges in Application of Multi-Modal Mobile English Learning

Although the majority of students are willing to apply multi-modal mobile English learning, there are still a lot of problems they are faced with in application. According to the subjective question in the questionnaire, 74.55% of the participants hold that it's hard to choose proper approaches due to abundant resources. 69.09% of them think they are lack of self-discipline without monitors. 55.45% of them cannot guarantee daily learning time. 28.18% of them are hard to persist because of unremarkable effects.

5.4. Methods for application of Multi-Modal Mobile Learning

The Internet has made Ubiquitous Learning a reality. In application of multi-modal mobile learning, mobile networking should be taken good advantage of by college students to create an ecological environment for self-learning, with the help of multi-modal theory to solve the existing problems.

5.4.1. Digitalization

In the process of self-learning, abundant and appropriate resources play a critical role in English study. College English teachers have the responsibility to select proper learning materials, and also guide students to find appropriate and personalized learning resources and methods.

5.4.2. Modularization

The behavior of self-learners depends on the degree of learning progress and the awareness of the current needs of learning. It is necessary for learners to grade learning tasks in difficulty. Only if they have a certain level of correctness can they move on to the next level. It may make sense due to the fact that college students lack teachers' supervision.

5.4.3. Personalization

Learners should focus on the choice of learning resources. Resources and content must motivate learners' interest and enable learners to use language better rather than just teach language knowledge alone. It is better to have a close relation with daily life or majors, so that it will enhance the practical effects.

5.4.4. Collaboration

Collaboration is an important factor in developing academic autonomy. College students can form learning groups, setting joint goals and sharing rewarding learning resources. Group members can help with each other, enlighten each other and cultivate communication ability. It is advisable to achieve a balance between independent development and mutual progress, motivating learning desires through collaboration and competition.

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