Research on College English Expansion Classroom Based on Mobile Learning in the Era of New Media

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Abstract: With the rapid development and popularity of intelligent and mobile devices, the new media era has entered an unprecedented climax, and various products have emerged, such as networked media platforms, digital television, digital newspapers and magazines, etc. The education model has also undergone great changes and breakthroughs. Traditional teaching philosophies, methods and resources are relatively homogeneous, with some teachers focusing on the instrumental aspects of English to the detriment of its humanistic aspects, thus limiting the enhancement of students' English literacy. In addition, the atmosphere of English learning and students' motivation also greatly affects the efficiency of English learning. This article uses mobile learning as a method to explore its effects on the extended English classroom at university, with the aim of better helping university English teachers to build an effective extended English learning classroom. Using some common English learning indicators, the aim of the article is to investigate and analyse the effectiveness of mobile learning as a way for students to develop their English language skills. The results of the experiment showed that students' ability to learn English independently at university increased after using mobile learning, with a 1.89% increase for English majors and a 5% increase for non-English majors who chose 'often learn independently'. In addition, the proportion of students who were not sure whether they would study independently dropped by 1.11% and 0.22% respectively, indicating that students have become more clear about their goals and orientation after mobile learning. All in all, mobile learning based on new media platforms has a beneficial effect on the expansion of English classes in universities.

1. Introduction

In recent years, new media have been widely used because of their speed of communication and interactivity. Mobile learning has also become a new learning style and development trend. Contemporary university students are more receptive to mobile English learning and use mobile English devices more frequently. With the advent of the 5G era, mobile learning is widely considered to be an indispensable mode of learning for the future. College English is a compulsory subject for university students, but there are problems with students' low motivation and

independent learning ability in the classroom teaching of college English. Therefore, teachers of university English should take advantage of this and keep up with the current trend.

The extended college English classroom can be a good way to meet the self-respect and self-actualisation of college students in the English classroom. Many scholars have conducted research on the topic of teaching English in the university classroom. li M focuses on a virtual reality technology-based university English immersion contextual teaching method based on artificial intelligence and machine learning, with the aim of improving students' English learning ability. Through a comparative teaching experiment with two freshman classes at a university, the experimental class was taught an immersive virtual context based on VR technology from a constructivist perspective, while the control class used common multimedia devices and traditional teaching methods [1]. Monobe G describes how a second-year teacher used whole-class repeated reading (WCRR) to promote social interaction, develop English learners' reading confidence (ELs) and briefly reviews the professional literature on the challenges of ELs and the benefits of repetitive reading. He also provides pedagogical suggestions for teachers interested in using WCRR in their classrooms and considers how WCRR can help create inclusive classrooms and ultimately help all students learn together in a positive, meaningful and enjoyable environment [2]. Qian W explores the key factors that influence students' intercultural competence in English courses, with the aim of promoting effective teaching and learning of intercultural competence and providing an evidence base for university English course reform. The results show that classroom participation, self-directed learning, and intercultural competence are the most important factors. The results showed that classroom participation, independent learning and teaching methods had significant effects on the overall level of intercultural competence and its specific dimensions, while English language skills and satisfaction had no statistically significant effects on intercultural competence[3].Cheng X conducted a pilot study using multimedia and explored how multimedia networks could effectively help higher-level business English majors enrich their work experience by improve their overall practical English skills, computer skills, communication skills and collaboration skills. He aims to explore how multimedia networks can be used to help higher-level business English students gain work experience [4]. The above scholars have used various technologies and strategies to facilitate English classroom teaching, but they have not conducted experiments to test their ideas and lack data to support them.

Mobile learning is based on advanced web and multimedia technologies, thus enabling society to achieve the developmental goal of lifelong learning. A number of scholars have conducted extensive research on this topic. The Crompton H review provides a recent synthesis of research on mobile learning in PK-12 education from 2010-2015, which includes a comprehensive quantitative and qualitative analysis of specific mobile learning activities. The findings show that 40% of the time, researchers designed mobile learning activities that were consistent with behaviourist approaches to learning. This allowed students to consume knowledge without taking full advantage of the potential of mobile devices for students to become producers, collaborators and creators of knowledge [5]. Alemran M found that few studies addressed the issue of educators' perceptions of mobile learning, which is a very important factor in the success of smart education. He conducted a questionnaire survey at Al Buraimi University College, Oman, to examine educators' awareness and attitudes towards the use of mobile learning. The findings showed that female teachers were more active in using mobile learning than male teachers [6]. Gunter G A was keen to understand how technology was being used in PK-12 classrooms, and he was particularly interested in identifying the most effective ways to educate teachers to integrate new technologies into the curriculum. The aim of his study was to understand teachers' disposition towards the relative value of mobile learning and whether authentic, integrated, subject-specific professional development enabled teachers to fully and effectively integrate mobile learning into their curriculum [7].Ismaili J aimed

to examine the potential for using smartphones and tablets as assistive technology devices as an alternative learning tool in formal and informal learning environments. He compared seven free Google Play healthcare apps with seven assistive technology devices in terms of functionality and price [8]. Several of the aforementioned scholars have linked mobile learning to education and teaching, thus facilitating its development, but they have not analysed the use of mobile learning in specific teaching sessions.

The experimental results of this paper show that university students have their own different approaches to mobile learning, and this diversity suggests the feasibility of promoting mobile learning in the university English classroom. The mean difference in final grades between the experimental and control groups after the experiment was 4.28 points. The experimental group's score increased by 6.82%, with the experimental group showing a greater increase than the control group. We can therefore conclude that mobile learning has helped and improved the English performance of university English learners. Over 50% of the students agreed that they had improved in all indicators, which shows that mobile learning plays an important role in expanding students' English language skills in the classroom and in helping them to gain more knowledge and skills in the process of learning English.

2. Mobile Learning and the Extended Classroom in the New Media Era

2.1 New Media Era

New media is a form of media, the term was coined in 1967 and is known as the fifth major media. It is mainly supported by new digital mobile technologies, where "new" is relative to traditional media, such as newspapers, radio, television and so on. There are many different types of new media, but most of them are linked to the Internet, such as various portals, e-mail, QQ, WeChat, communities, blogs, mobile phone messaging, online TV, mobile entertainment magazines, etc.[9]. It has a range of characteristics, namely fast information dissemination, instant interaction, massive resources and data sharing, and thus has also entered every aspect of our daily work and life. New media meet the quest for a cultural environment for lifelong learning.

The new generation of university students strives to keep up with fashion trends and is therefore one of the core groups of the new media, using the internet to keep up with the events and happenings around the world and the latest developments in society. The main features of the new media age are digitalisation, networking and globalisation. Nowadays, the most common representatives of new media are WeChat, Weibo and live streaming [10]. As far as universities are concerned, new media has become the most convenient and effective channel for students and teachers to obtain knowledge and information, and thus to learn about and follow social developments, and is therefore very popular. In addition, teachers and students can communicate with each other via the Internet, in different media such as text, audio, video and pictures, in order to achieve the basic objective of teaching and learning together.

In the traditional university classroom, the teacher is the central focus, and the main process is for the lecturer to understand and digest the knowledge in the textbook, and then sort out and integrate all the information collected. However, the level of education varies from one university to another, and so does the receptiveness of teachers and students, which can lead to different teaching effects for the same course content. The traditional classroom model is boring, whereas modern technology presents students with a movable courseware. These materials contain knowledge and background information beyond the classroom. The three main applications of new media technologies in education are catechism, micro-lessons and extended classroom, which are used in a wide range of applications. Mootools are referred to as MOOCs, or massive open online course, which translates to massive open online course [11]. It is a disruptive change to the traditional 'I talk,

you listen' classroom model. The concept of microlearning emerged at the beginning of the 21st century, with the aim of making different knowledge accessible to non-specialists through short video lessons.

2.2 Mobile Learning

Mobile learning can be abbreviated as ML, or mobile learning. Mobile learning is basically defined as interactive teaching and learning activities and information exchange between teachers and students with the help of wireless mobile networks and multimedia technology and mobile smart terminals. In a broader sense, it is an expanded model of digital learning. It was born in the era and environment of new media, and is represented by mobile terminals [12]. This type of learning transcends the constraints of time and place and allows for a more comprehensive and integrated education and learning. It provides a new way and platform for English learning and has become one of the most important tools for modern English learning, which can well enhance learners' learning efficiency. The mobile learning-based extended classroom teaching model is shown in Figure 1 below.
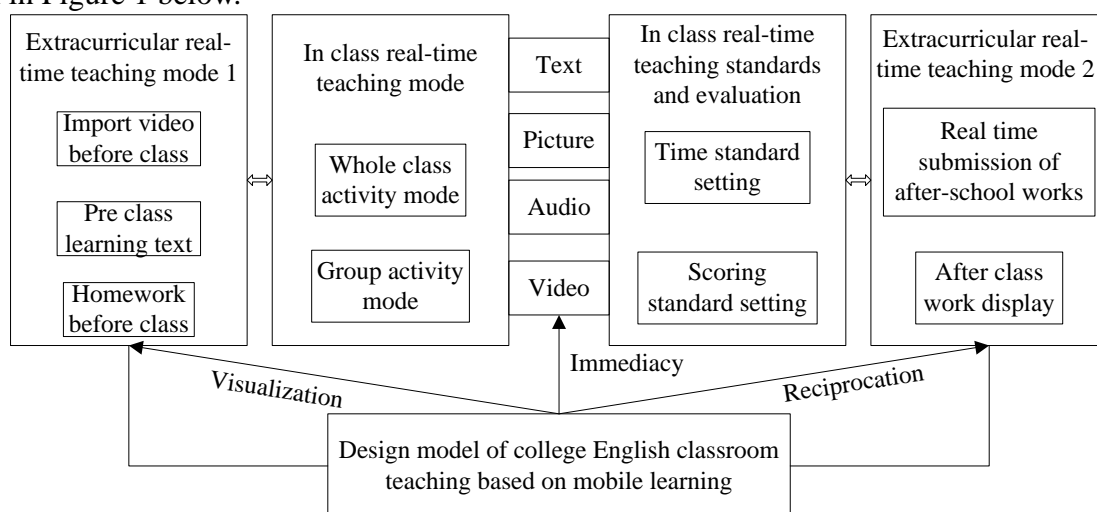

Figure 1: A mobile learning-based model for teaching English at university

The fundamental advantage of mobile learning is that it provides students and teachers with a relatively free time and space for learning, something that cannot be broken through in traditional learning. Mobile learning takes place in informal settings and at irregular times, which allows teachers to plan their English learning time and place according to students' needs. In addition, mobile learning focuses on broadening students' horizons and gaining knowledge about current events and news, so that they can truly learn anywhere, anytime. Mobile learning is also fragmented, which includes two main aspects: learning time and reading behaviour. For one thing, mobile learning is generally carried out at odd hours, such as in the car, while waiting, before going to bed, and so on. This distinguishes it from the traditional classroom model. Secondly, the knowledge of mobile learning is more dispersed, which makes it easier for learners to adapt their learning plans to the actual situation. In addition, a complete knowledge module can be acquired in a relatively short period of time. Mobile learning is student-centred, with a major emphasis on the autonomy of student learning [13-14]. The characteristics of mobile learning recognised by scholars are shown in Figure 2 below.
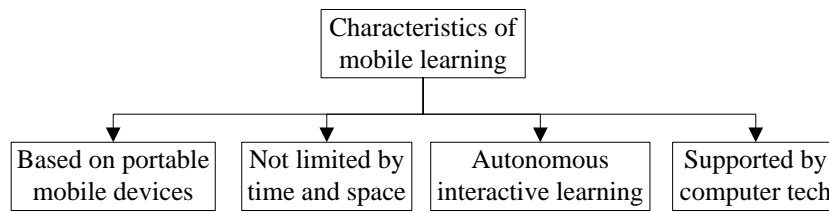
Figure 2: Characteristics of mobile learning

Mobile learning is achieved by devices that are portable and lightweight, do not require connectivity, are mobile, etc. Today, the most common mobile learning device for English is the smartphone, which allows for two-way flow of information and interaction between teacher and student, and the process is real-time and efficient. As a result, learners are motivated to learn and their attention levels are increased. The traditional classroom model makes students who are more introverted intimidated by learning English, especially in terms of speaking practice, which in part weakens their motivation to learn English. Mobile learning avoids this awkward scenario by driving away their timidity and burden, thus enabling easier one-to-one teaching and achieving the goal of individual teaching [15]. The development process of mobile learning can be divided into three basic stages according to the different characteristics of the teaching model, as shown in Table 1 below.

Table 1: The development process of mobile learning

Development stage	Theoretical basis	Key features			Learning mode
Phase 1	Behaviourism	Content design	Content delivery	Infinite interaction	Instant classroom feedback system
	Cognitivism				SMS-based mobile learning services
Phase 2	Constructivist idea	Solving real problems through mobile devices for knowledge handling and processing			Mobile inquiry-based learning
Phase 3	Learning contextual awareness	Realistic contextual activities through mobile technology			Handheld device learning
					Micro-learning
					APP-based learning

The design of a mobile learning environment is divided into seven elements, namely technical feasibility and convenience, cost, teaching and learning, interactivity, novelty and speed of transmission. Based on the above basic theories of mobile learning, the learners, learning content and activities, and technology in the mobile learning environment can be systematically designed to build a mobile learning context model, as shown in Figure 3 below. The mobile learning context can then be characterised to identify the three elements of the mobile learning based model, namely the learner, the learning content and the learning environment, which interact with each other [16].
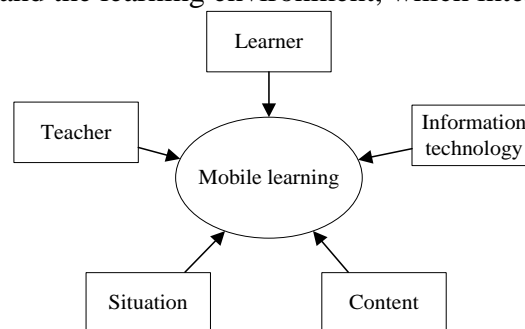

Figure 3: Contextual development model for mobile learning

2.3 Extended Classroom

The extended classroom is an important supplement to the regular classroom, with content that is more relevant to real life and situations and a more flexible and varied teaching style. The extended classroom is a key to the success of English language teaching reform at university level. Teachers should strive to stimulate students' interest in learning according to their different developmental needs; and choose teaching content and methods of varying difficulty according to their differences and characteristics, so as to achieve the goal of improving the quality of teaching in the extended classroom. English is an official second language and is now used in an increasing number of contexts, hence the growing demand for English learning. Mobile learning terminals are the linking bridge between in-class and out-of-class English teaching and learning, as well as enabling the extension and expansion of classroom content, which requires the selection of new media platforms with advantages. One of the tools of choice for modern teaching is WeChat, with its powerful social networking and media linking capabilities. It was launched by Tencent in 2011 and consumes much less traffic than other platforms in sending and transmitting voice, video, images and text. As a result, more and more teachers are also seeing WeChat as an important medium for teaching and learning activities in university English classes [17-18]. In addition, a range of applications have also developed to serve as supplementary support for English language teaching, as shown in Table 2 below.

Table 2: Platforms for university English teaching resources

App name	Teaching purposes	Functional features
Sina Weibo	Learning resource sharing	Open platform, online sharing of massive learning resources
Wechat	Oral visual training	Two way real-time interaction of audio and video information, providing online chat, file transmission
Shanbay Word, BaiCiZhan	Vocabulary Learning	Customized thesaurus, online test
Mint Reading	Reading training	Customized reading articles, match vocabulary learning and reading exercises
English Dubbing Show	Speech training	Voice imitation and oral input
We Sing, Sing Bar	English song singing service	K-song application, providing English song original singing, backup singing, song ordering, subtitle, scoring, comment

In practical terms, an extension course means an expansion of knowledge. They help students to build a more complete body of knowledge and, in addition, to develop their planning skills and interest in learning English at a deeper level. The extension course is a follow-up course to the foundation stage of university English. The development of university English extension courses in universities can meet the needs of those students who have the capacity to learn, ensuring that they can study English without interruption throughout their time at university [19-20]. In the long run, students' interest and level of English learning will increase, laying the foundation for the development of high quality English language talent in society. The shortage of English learning resources can be solved in an extended classroom model that incorporates mobile learning, the basic model of which is shown in Figure 4 below.
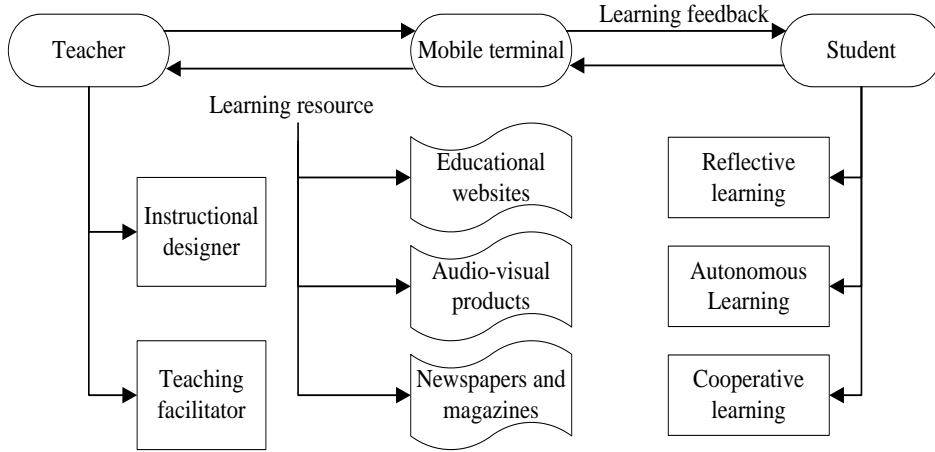
Figure 4: The integration model of mobile learning with the extended university English classroom

2.4 Mobile Learning Taps into the Extended University English Classroom

In the context of mobile learning, learners often want to be able to study anytime and anywhere, but the relatively fragmented time cannot be adapted to the available course resources and teaching habits. Under such circumstances, an inappropriate learning environment can directly affect learners' confidence and thus lead to their low learning efficiency [21]. To this end, this paper fully explores learners' motivation and group characteristics, where the process of excavation is shown below.

$$\mathcal{F} = \sum_{i=1}^{n} h_i \mathcal{g} b_j \tag{1}$$

$$\mathcal{g}(x, y) = f(x_y f_g) \tag{2}$$

$\mathcal{F}$ is the data mining function, which describes the whole process of data mining, and $\mathcal{g}$ is the number of data branches, which will determine how many categories the data will be divided into after mining.

After the data mining is basically completed, we immediately follow the data with a clustering analysis, where the process of clustering is as follows.

$$\mathcal{Q} = \frac{\mathcal{T}_n}{y_{ij} \mathcal{N}} \tag{3}$$

$$\mathcal{R} = \sum_{i}^{m} y_{ij} \mathcal{N} \mathcal{L}_h \tag{4}$$

In this case, $\mathcal{Q}$ denotes the clusters of the clusters, but in this classification process we do not assign objects to definite clusters, but according to the relationships between them. $\mathcal{R}$, on the other hand, denotes the affiliation between objects.

Having sorted out the relevant clusters, we define an incentive function.

$$f = \mathcal{D}\sqrt{\mathcal{P}_s} \mathcal{T}_e \tag{5}$$

Where f represents the incentive function, $\mathcal{D}$ represents the learner and $\mathcal{T}_e$ represents the motivation to learn. In this process, if the learner is less motivated to learn, then the value of the incentive function will be reduced accordingly.

At the same time, in order to respond in a timely manner to the signal sent by the incentive function, we encapsulate it to ensure that the response time is minimised, and the encapsulated incentive function is

$$\mathcal{f}(c|\theta) = \sum E_y[\mathcal{D}\sqrt{\mathcal{P}_s}\mathcal{T}_e] \tag{6}$$

$$\theta = \arg\min_{\theta} \mathcal{f}(c|\theta) \tag{7}$$

In the above equation, $\mathcal{f}(c|\theta)$ is the encapsulated excitation function, θ represents the learning content and E_y represents the learning environment. Also, its minimum value was taken in order to maximise the minimisation of response duration.

To ensure motivation, we have also included the function expectation value to simulate the learner's psychological state in real time and to adjust the relevant strategies for mobile learning in time.

$$\vartheta_c = \frac{\sum_{j=1}^{r} \hbar\mathcal{H}_j}{\sqrt{\max_c \mathcal{Q}_j}} \tag{8}$$

$$\mathcal{Q}_j = \mathcal{L}_\hbar\mathcal{J} \Big/ \sqrt{\hbar\mathcal{H}_j} \tag{9}$$

$$\hbar = \int_a^{\mathcal{b}} \left(\mathcal{K}_d \sin a \sqrt{\cos \mathcal{b}}\right) dx \tag{10}$$

Where ϑ_c denotes the function expectation, where we maximize the likelihood function expectation for a given parameter. $\mathcal{Q}_j$ denotes the learner's psychology, and $\hbar$ denotes the improved mobile learning strategy.

The psychological distribution of learning based on the improved mobile learning strategy is:

$$\mathcal{A} = \sum_i^{\mathcal{g}} \mathfrak{H}\mathcal{R}_i = \frac{\mathcal{K}+1}{\mathcal{K}_a} \tag{11}$$

Where $\mathcal{A}$ indicates the psychological distribution of learning, which portrays the likelihood of learners recovering their motivation.

3. Effectiveness of Mobile Learning for Extended University English Classes

In the mobile learning process, different content formats and lengths of learning have different effects on the effectiveness of the extended classroom. In order to fully investigate the effect of mobile learning on the extended classroom, this paper first tested the motivation and length of concentration of the students before the experiment, and the results are shown in Table 3.

Table 3: Comparison of motivation and length of concentration between groups

Groups	Experimental group	Control group
Motivation for learning	7.98	7.66
Length of concentration	10.15	11.52
Length of study(s)	259	262

Table 3 shows that there was little difference in motivation and length of concentration between the different groups before the experiment. In particular, for the experimental group, mobile learning was able to generate higher levels of motivation. In terms of duration of concentration, the control group had a higher duration of concentration during mobile learning than the experimental group. In terms of the duration of learning, the difference between the experimental and control groups was not significant.

Based on Table 3, we conducted an experiment using mobile learning in an extended college English classroom. In order to assess the final learning effect, we set three indicators: average performance, transfer performance and retention performance. Among them, the distribution of test scores of each group after the experiment is shown in Table 4.

Table 4: Distribution of test scores by group

Groups	Experimental group	Control group
Keeping grades	9.55	9.26
Relocation achievements	9.28	7.98
Average score	9.345	8.52

Table 4 shows that for the above two groups of learners, the experimental group had a significantly better learning effect than the control group. In terms of retention test scores, the control group scored 9.26 ($p > 0.05$), which was not significant, while the experimental group scored 9.55 ($p < 0.01$), which was extremely significant. In terms of transfer scores, the experimental group scored 9.28 ($p < 0.01$), an extremely significant change in performance, while the control group scored 7.98 ($p > 0.05$), an insignificant change in performance.

In order to further clarify the relationship between English learners' motivation and attention situation under mobile learning, this paper investigated a number of factors affecting the effect of mobile learning using the incentive function combined with the expectation function, of which the relationships between the factors are shown in Table 5.

Table 5: The relationship between the different factors

Influencing factors	Learning result	Motivation	Duration
Learning result	1	0.427	0.677
Motivation	0.382	1	-0.421
Duration	-0.092	0.521	1

Table 5 shows that there is a positive correlation between learners' learning effectiveness and motivation and length of learning, i.e. the more motivated students are, the longer they will learn English and the better the learners' learning effectiveness will be. However, we also found that there was no significant positive relationship between learning effectiveness and learning. There is also a negative relationship between the length of learning and motivation, i.e. too long a learning period will discourage learners' motivation and lead to low learning outcomes.

The above experiment shows that there is a clear correlation between learner motivation and length of study. Therefore, in order to motivate learners to learn and to develop good habits of independent learning, we used a questionnaire to analyse the effect of mobile learning on the extension of English in the university classroom, using students at University A as the target population. We selected 300 non-English majors to ensure that the experiment was fair and impartial, and 280 valid questionnaires were collected. The experiment involved different students from six majors, including 132 male students and 148 female students, covering a wide range and a relatively even gender ratio, and the results of the survey are shown in Figure 5.

According to Figure 5 above we can see that the mobile learning hardware facilities used by the students at the university are relatively well developed, with their effective network coverage reaching 100%, which indicates that students can study anytime and anywhere online, thus providing a relatively reliable network for their mobile learning of university English. In addition, they have their own different approaches to mobile learning, and this diversity suggests the feasibility of promoting mobile learning in the university English classroom.

Next, to further verify the impact of mobile learning on students' behavioural performance in the extended university English classroom, 300 English majors were selected so as to compare and analyse their independent learning abilities before and after the use of mobile learning methods, the results of which are shown in Figure 6.
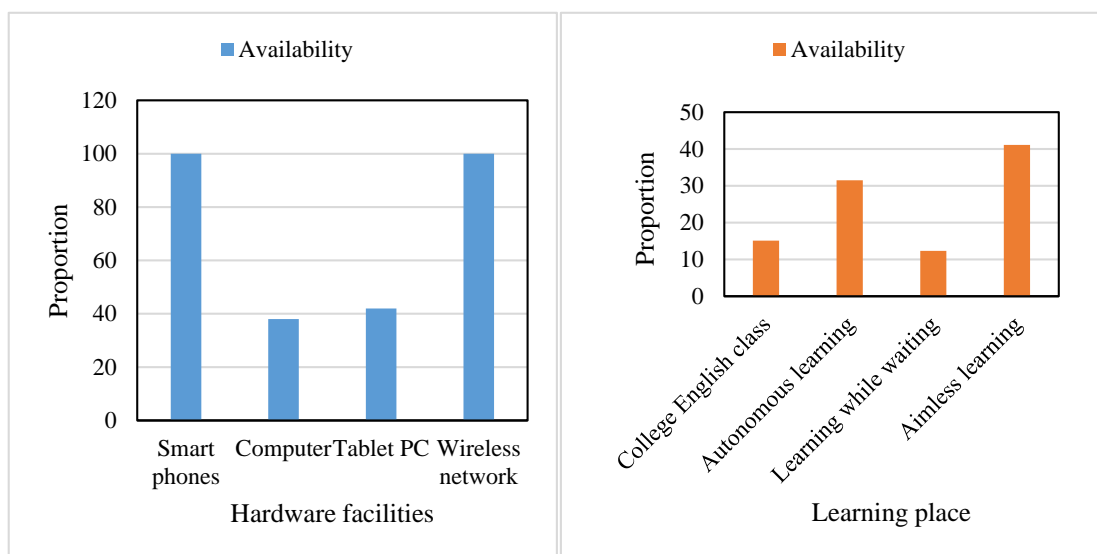
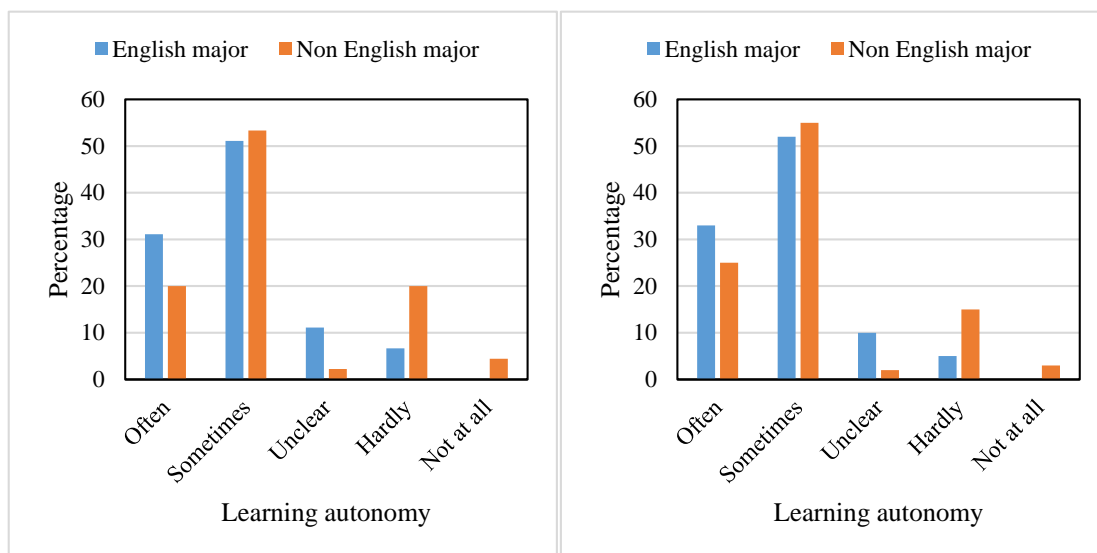Figure 5: Mobile device terminals and learning venues used by students

Figure 6: Comparison of students' independent learning skills

Based on the data in Figure 6 above, we can tentatively conclude that students' ability to learn English independently at university has improved after using mobile learning, with a 1.89% increase in English majors choosing 'often learn independently' and a 5% increase in non-English majors. In addition, the proportion of students who were 'not sure if they would study independently' decreased by 1.11% and 0.22% respectively, indicating that students have become more clear about their goals and orientation after mobile learning.

Next, we selected students of comparable English proficiency and divided them into equal numbers in the experimental and control groups to study the impact of mobile learning on their performance in the extended English classes at university. The test indexes were mainly classroom performance, speaking, regular grade, final paper, overall grade and some other comprehensive factors, and the results are shown in Figure 7.
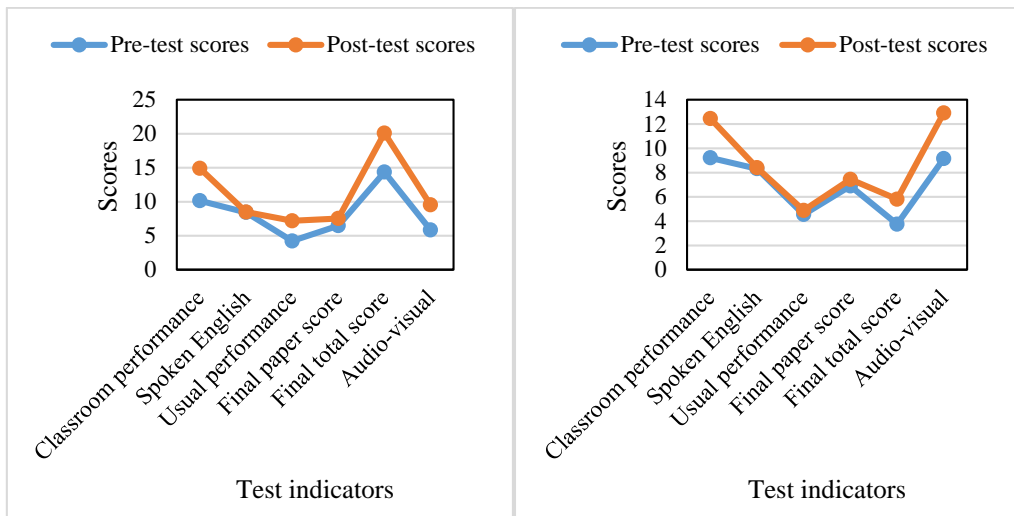
Figure 7: Comparison of the assessment results of the experimental and control groups

Based on the experimental data in Figure 7 above we can see that there was a difference of 4.28 points in the mean scores of the final grades of the two groups after the experiment. The experimental group's score increased by 6.82% and the experimental group improved more than the control group's score. We can therefore conclude that mobile learning has helped and improved the English performance of university English learners.

To further verify the ability of mobile learning on specific modules among the extended college English classroom, we used the questionnaire method and selected six indicators such as raw word memory, vocabulary, reading speed, writing standard, mobile platform usage, and improvement of independent learning ability to analyse the learning effect of mobile learning, and the results are shown in Figure 8 below.
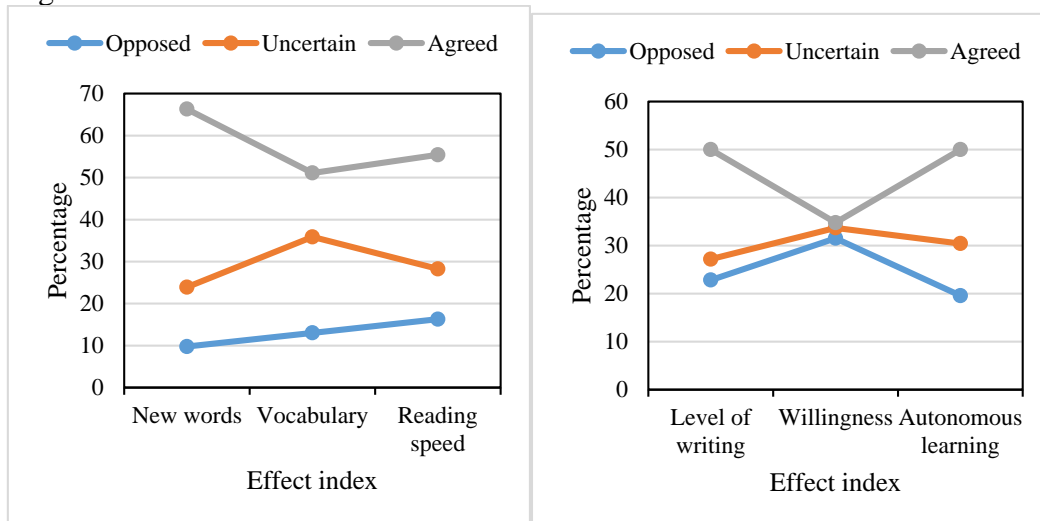

Figure 8: Learning outcomes of mobile learning

Based on the data in Figure 8 above, we know that the majority of students agreed that they had improved in all indicators. With the exception of the willingness to use the mobile platform, the number of students agreeing to all modules exceeds 50%. This shows that the mobile learning approach plays an important role in expanding students' English language skills in the classroom and in helping them to gain more knowledge and skills in the process of learning English.

4. Conclusion

In the new media era, university English teaching has a new learning platform and extremely rich learning resources, and the interaction between teachers and students is characterised by autonomy, mobility and immediacy. The increased speed of the internet has contributed to the rapid spread of mobile university English learning devices. The application of modern mobile learning in the university English classroom can update the teaching methods and make them modern, diverse and convenient. In this paper, we develop a mobile learning-based teaching model for university English classes and conduct an experimental study to provide new ideas and methods to help university students improve their English skills. The experiments show that the study of an extended college English classroom based on mobile learning is conducive to improving the efficiency of college students' mobile English learning, enhancing the interaction between teachers and students, and improving college students' overall English proficiency and independent learning ability. However, there are some shortcomings in this paper. The experiment is relatively short because English learning requires continuous accumulation and long-term persistence, so the reliability of the experimental data still needs further testing. In addition, the group of subjects is not large enough, and the next step could be to expand the students to a different geographical area and range, so as to enhance the credibility of the data results.

References

[1] Li M. An Immersive Context Teaching Method for College English Based on Artificial Intelligence and Machine Learning in Virtual Reality Technology. Mobile Information Systems, 2021, 2021(2):1-7.

[2] Monobe G, Bintz W P, Mcteer J S. Developing English Learners' Reading Confidence With Whole-Class Repeated Reading. Reading Teacher, 2017, 71(3):347-350.

[3] Qian W. An Empirical Study on College English Curriculum Assessment and Cultivation of Intercultural Communication Competence. Linguistics and Literature Studies, 2017, 5(6):417-423.

[4] Cheng X, Liu K. Application of Multimedia Networks in Business English Teaching in Vocational College. Journal of Healthcare Engineering, 2021, 2021(4):1-9.

[5] Crompton H, Burke D, Gregory K H. The use of mobile learning in PK-12 education: A systematic review. Computers & Education, 2017, 110(7):51-63.

[6] Alemran M, Shaalan K. Academics' Awareness Towards Mobile Learning in Oman. IJCDS Journal, 2017, 6(1):45-50.

[7] Gunter G A, Reeves J L. Online professional development embedded with mobile learning: an examination of teachers' attitudes, engagement and dispositions. British Journal of Educational Technology, 2017, 48(6):1305-1317.

[8] Ismaili J, Ibrahimi E. Mobile learning as alternative to assistive technology devices for special needs students. Education and Information Technologies, 2017, 22(3):883-899.

[9] Wu H X, Li Y, Dong S. A Feasibility Data Study on the Necessity of Ideological and Political Education in College English Courses Based on Computer Technology. Journal of Physics Conference Series, 2020, 15(7):12-49.

[10] Wang G. Application of Blended Learning in Business English Class. Frontiers of Educational Research, 2020, 10(1):7-10.

[11] Guan A. Research on Blended Teaching Model in College English Based on Mobile Learning APP. Journal of Contemporary Educational Research, 2021, 7(1):46-49.

[12] Li Z. Research on the Construction and Application of College English Mixed Teaching Mode Based on MOOC. Journal of educational theory and management, 2021, 5(1):4-9.

[13] Park K. On the effect of English learning motivation on college students' adaptation to college life and job stress about employment. Indian Journal of Public Health Research and Development, 2018, 9(9):4-6.

[14] Hwang M, Kim E, Lee H K. A study of the development of an EAP program model: Focusing on college English classes. Foreign Languages Education, 2020, 27(1):139-172.

[15] Wang X. Study on Challenges and Suggestions of College English Teachers' Professional Development. Education Study, 2021, 3(1):152-157.

[16] Su J, Hao Y. Development of MySQL-based e-learning platform for college English. Journal of Engineering College, 2017, 32(4):674-679.

[17] Zhu X. Career development of College English Teachers in the Era of Big Data. Journal of Physics Conference

Series, 2020, 153(3):42-75.

[18] Teng S, Lian Z, Jiang M. Research on the Application of Flipped Classroom Teaching in College English from the Perspective of Mooc Based on WeChat Public Platform. Journal of Physics: Conference Series, 2021, 1992(2):19-22.

[19] He, W., Autonomous Development Strategies for College English Teachers in a Mixed-mode Learning Community. Contemporary Educational Research, 2020, 1(3):61-65.

[20] F Li. Model research on the development and transformation of college English teaching paradigm under the ecological environment of education. Journal of Engineering College, 2017, 32(5):322-326.

[21] Han J, Zhao Y, Liu M. The development of college English teachers' pedagogical content knowledge (PCK): from General English to English for Academic Purposes. Asia Pacific Education Review, 2021, 2(7):1-13.