

The Application Practice of Ubiquitous Learning in Secondary School English Teaching

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Abstract

Ubiquitous learning is the extension of digital learning, and meanwhile the trend under the new situation of educational concept innovation as well as technological development. secondary school English classroom is the main place of English education, and English teaching innovation is regarded as the core content of improving the English efficiency of secondary school. Based on the innovative concept of ubiquitous learning, this project adopts a combination of qualitative and quantitative research methods to study the application of ubiquitous learning in English teaching in secondary schools. It is found that ubiquitous learning is beneficial to cultivate the concept of lifelong learning and enhance the effectiveness of students' independent learning. It is hoped that this project will provide a theoretical framework for the current problem of English teaching in secondary schools in the context of ubiquitous learning, and provide practical suggestions for policymakers and educational practitioners to make the advantage of online teaching.

Keywords

Ubiquitous learning; secondary school English; teaching innovation; application.

1. Introduction

With the advent of the era of information and intelligence, teaching methods have undergone unprecedented changes. The development of education has experienced and witnessed traditional classroom learning, virtual online learning, mobile learning, and now the rise of ubiquitous learning, i.e., constant communication and ubiquitous learning, which indicates that anyone can get any learning information they need anytime and anywhere.

In the ubiquitous learning environment, learning has unprecedented convenience, expands the space of learning, extends the learning time, and greatly improves the effect and quality of learning. In order to thoroughly implement the spirit of the 19th National Congress of the Communist Party of China, 2018, the Ministry of Education formulated the Education Informatization 2.0 Action Plan to run online education, actively promote the development of "Internet + education", and provide direction for accelerating the modernization of education and building China into a country with strong education. On July 8, 2021, the Ministry of Education and other six departments issued a document promoting new infrastructure construction of education to enhance high-quality education support system, which points out that it is urgent to build information network, platform system as well as new infrastructure system of digital resources. In recent years, China has been committed to optimizing the information service ecology, facilitating the cultivation of cutting-edge talents, actively reconstructing the value orientation of education, constantly strengthening the teaching ability of teachers, striving to achieve innovative development, and establishing the development concept of lifelong learning.

Ubiquitous learning can provide convenient conditions for realizing the goal of English teaching in secondary schools. Therefore, the research on ubiquitous English learning should be strengthened to improve the fairness of English education, improve efficiency, reduce costs, realize the fair distribution of high-quality English educational resources, and promote the development of English education. However, in terms of ubiquitous learning research, ubiquitous learning still needs to be explored. Therefore, this paper attempts to discuss the problems existing in secondary school English education from the aspects of teaching resources, teacher specialization, and emphasis on English teaching. On this basis, the education technology on English teaching in China is discussed to improve the level of English education. Therefore, the purpose of this project is to provide a general situation for English learning in the context of the information age.

2. Literature review

2.1. Research on ubiquitous English learning in China

As an important part of compulsory education, English is a compulsory course for all levels of education in China. In addition, with the development of information technology in education, English teaching has made further progress in the past few years through the "Internet +" English teaching model. Under this framework, a lot of researches on ubiquitous learning have been conducted by English teachers, research institutions, and local education departments, which have laid a theoretical foundation for guiding and developing new English teaching models.

In the field of English education, some Chinese scholars have published papers on the application of flipped classroom teaching in foreign language classrooms. According to the research, flipped classroom teaching has a positive effect of improving the effect of foreign language classroom teaching, that is to say, flipped classroom teaching improves students' ability to solve problems and trains students' critical thinking and creative thinking. The flipped classroom teaching mode is a derivative of the development of "Internet + education" mode and is the trend of The Times. The application of the flipped classroom teaching mode breaks the "time limit" and "space limit" of the traditional teaching mode (Tian, 2023). This can improve problem-solving skills and train critical and creative thinking. Flipped classroom provides students with a better learning experience, better grades, and more peer-to-peer learning feedback opportunities. In China, the English learning software represented by MOOC highlights the technical advantages of the Internet, promotes the diversification of English teaching methods, and improves students' learning enthusiasm. The Internet is revolutionizing the way that ubiquitous English learning adopts.

As the leading software in the speaking industry, "Fluent English" has fully released the technology divided in the combination and processing of technology and practical business, and in the aspects of capital application and product promotion. Recognized by the market and students, the "Internet + education" mode has been pushed to a new height (Li, 2019). In 2016, Shanghai Foreign Language Education Press developed the corresponding accompanying classroom (We Learn) mobile application supporting the teaching materials, to connect online and offline, in and outside class, realize the purpose of management through the functions in the software, and facilitate students to conduct fragmented independent learning in their spare time. Teachers and students can use the App platform to effectively assist the subject teaching and increase the input and training of language knowledge (Nong, 2020). The independent English learning mode based on "WE Learn accompanying classroom" is characterized by independence and convenience. Students in each module can complete the learning task independently, and the operation is more convenient than the traditional learning mode. The platform diversifies the forms of English learning and improves the interest of students'

learning English. It not only enhances students' subjective initiative of independent learning, but also provides students with technical resources and teaching support needed for independent learning (Yao, 2021).

2.2. Research on ubiquitous English learning abroad

In May 2022, UNESCO released *Beyond Limits: New Ways to Reinvent Higher Education* at the Third World Conference on Higher Education, drawing a roadmap for promoting the renewal of ideas and practices in higher education and ensuring the sustainable development of mankind and the earth. Technology plays an increasingly important role in higher education, and advances in artificial intelligence, Internet of things and automation technologies have transformed traditional teaching and research methods, promoting the democratization of knowledge and liaison and cooperation within and across countries.

In November 2022, OpenAI launched the ChatGPT (Chat Generative Pre-trained Transformer) supported by the latest natural language processing technology, which is a new generative artificial intelligence based on the pre-training of large-scale language models (Yu & Su, 2023). Surveys show that 89 percent of American college students use ChatGPT to complete their homework, and the State University of New York at Buffalo plans to include smart tools as a required course for freshmen to discuss academic integrity, and Furman University is updating its curriculum in the same way. Ethan Mollick, a professor at the Wharton School of the University of Pennsylvania, uses smart tools such as ChatGPT in all courses. In order to help students maximize the use of smart tools, he also provides guidelines for artificial intelligence applications and requires students to use at least five prompts to complete a five-paragraph article (Yang et al., 2023).

Generalized learning in the form of ChatGPT can increase students' participation and collaboration, and provide students with a more efficient and personalized learning experience (Cotton et al., 2023). ChatGPT has the potential to support students' basic psychological needs (Crawford et al., 2023), which can effectively improve the quality and efficiency of teachers' teaching, and greatly reduce the burden and increase the efficiency of teachers (Feng, 2023). In addition, ChatGPT can also bring new opportunities for educational researchers (Qiu & Li, 2023).

2.3. Review of ubiquitous English learning

Through the analysis of the current research situation at home and abroad, it can be seen that in the early stage of ubiquitous learning, the development of ubiquitous learning theory is mainly actively promoted through the development of relevant policies and plans. Nowadays, the main focus is on the application of online learning and how learning materials can be successfully delivered through existing smart devices, enabling humans to interact with the environment. In addition, technology-assisted research has also been emphasized, highlighting how to use ubiquitous information technology to create learning content and learning environment. The focus is on developing broadband facilities and technology environments to enhance the application of ubiquitous learning in real life. In recent years, ubiquitous learning has become increasingly feasible and has begun to emerge in a variety of educational settings, including problem-solving in the classroom, interaction in museums, exploration in the outdoor environment, and language learning in everyday life.

In order to improve the efficiency of English teaching in secondary schools through ubiquitous learning, a good, immediate, and relevant ubiquitous learning environment is demanded. On the one hand, the content presented should be relevant to the learning context and provide personalized services for the learners. On the other hand, learning information should be collected from various angles, and the same information should be presented in different ways. Similarly, the learners' ideas as well as their learning habits must also change.

3. Research Design

3.1. Research Methodology

In order to have a comprehensive and in-depth understanding of the practical application of secondary school English teaching in China, a mixed method of qualitative and quantitative is adopted in this study. The research tools used in this study include an observational checklist, interviews, questionnaires, and statistical data. Qualitative methods were used to obtain various information on teaching practices through classroom observations and interviews. On the other hand, quantitative method is employed to understand and outline the actual implementation of the application of the English ubiquitous learning platform.

3.2. Research Questions

To achieve research purposes, the following research questions are raised.

- 1) What are the problems existing in the promotion and application of the ubiquitous learning platform of English education in secondary schools in China?
- 2) Under the guidance of the learning strategy for all, what measures can effectively help to improve the construction and promotion of the ubiquitous English platform?
- 3) What progress has been made with the rapid development of the Internet?

3.3. Participants

Teachers and students who participated in this study are selected at two private secondary schools in Sichuan Province, who were invited to share their first-hand experience as well as views on ubiquitous English language education, express understanding and opinions on Internet + education strategies and give opinions on the promotion of ubiquitous English language learning.

3.4. Collection and analysis of the data

Data were collected through classroom observation, questionnaire survey, and interview. First, an observation checklist is designed to monitor the teaching process and evaluate the teaching quality of English classes. Second, questionnaires were distributed to teachers and students respectively. Each questionnaire contained nine items to check the participants if their English education met the requirements of the rural vitality strategy, with five options arranged in the following way: A = always; A = usual; B = normal; C = sometimes; D = little; E = never. Third, two open-ended interviews were also conducted at the target school. Interviews were conducted within 15 minutes by telephone or face-to-face communication. Furthermore, the main focus of the interviews was on the participants' personal feelings about the teaching status and the actual implementation of rural vitality strategies. Ultimately, to better understand the blueprint and relevant measures of this strategy, government documents on vitalization in rural areas need to be reviewed.

4. Results and Discussions

4.1. Main difficulties in the promotion and application of the ubiquitous learning platform for English education in secondary schools

4.1.1. Construction and insufficient research of secondary school English ubiquitous learning platform

At present, the generally existing quality of network resources is an uneven phenomenon. As far as English teaching is concerned, some English resources have biased views or wrong information. The development of many English online learning platforms and application software is in a state of low-level repetitive construction. At the same time, relevant platforms

also have problems such as user information spillover, packaging and transmission by others, and information fragmentation. For example, the existing English word learning software on the market mainly helps learners to remember their vocabulary through images, example sentences, online pronunciation, and other visual and auditory multi-sensory ways, which should also be equipped with fill-in-the-blanks, judgment, selection, and other review and detection modes. Meanwhile, in order to cultivate learners' habit of memorizing words and strengthen their learning initiative, this APP also has clocking-in tasks. In general, the learning mode and design concept of this APP are more personalized and diversified than the traditional way. At present, many similar apps are being developed, but there are few researches on the learning effect generated by using the ubiquitous learning concept of "4A".

4.1.2. Insufficient coping ability of teachers

Currently, many teachers are poor in digital teaching ability, new resource development and integration ability, new information technology operation level and new knowledge acquisition ability, which cannot effectively integrate ubiquitous learning resources. Thus it is difficult to get rid of the inertial thought on teachers and classroom teaching. Under the trend of ubiquitous education, learners have broadened their horizons and as their knowledge increases, teachers are no longer the only transmitters of knowledge. The new educational ecological environment is urgent to change their roles, reshape the relationship between teachers and students, and lead learners to achieve healthy and effective learning. In the future, the mode of "learning by teaching" will gradually be replaced by "learning". It is no longer what teachers teach and how to teach, and students learn and how to learn, but learners can get what they want to learn, and learners can arrange the progress and how they want to learn. In addition, the power of ubiquitous education has not yet exploded in the formal education system, but it is strong. Ubiquitous education is both a challenge and an opportunity for every practitioner in the education industry.

4.1.3. Lack of coping ability of learners

Before the Internet era, the dilemma facing learners is mainly the lack of learning resources. But now they are in the Internet era, so massive information resources bring unprecedented information explosion, cognitive load, digital dependence, network addiction, and other digital survival challenges while expanding the "breadth" of learners' cognitive understanding and reducing the "depth" of knowledge inquiry. Learners' information overload makes it difficult to focus on the same thing. At the same time, the "ubiquitous" learning environment requires high learners' independent learning ability, concentration, and self-control, and does not directly bring a linear improvement in learning efficiency.

4.1.4. Chat GPT impact on the existing education system

Based on a large-scale language model, the algorithm of this Chat GPT model has been trained from large language blocks on the Internet. Facing the retrieval problem, the robot predicts the next most likely word according to the previous reading training of numerous sentences, which contain several words from the retrieval problem. A traditional search engine provides a series of links but the chat bot integrates natural answers.

The emergence of Chat GPT has also greatly impacted the existing education system, which can provide online learning, distance education, personalized education and feedback, instead of a large number of human resources. By quickly integrating the existing materials with the advantages of low cost and fast speed, learners can rely on it, which is a great challenge for the purpose of this project and even the global education cause.

4.2. Measures to improve the ubiquitous English learning platform in secondary schools

4.2.1. To improve and optimize the digital English teaching platform and teaching resources

Digital English teaching resources of the construction of the sharing mechanism is the key, which should be based on the education informationization strategy, and conform to the requirements of the English curriculum standards at all levels as well. Consequently, development and management system of English digital teaching resources should be introduced, enabling it to be a linkage, integration of co-construction and sharing system.

4.2.2. To improve the construction of the digital English teaching platform

The digital English teaching platform does not simply move the offline teaching resources to the online but should cover the whole teaching design, teaching resources, teaching management, teaching evaluation, teaching communication, and academic research of English teaching.

In addition to teaching resources and a management evaluation system, the English teaching system should also have a learning management system (LMS) to evaluate, collect and analyze relevant information of learners, so as to provide perfect services for English teaching and research. On the one hand, it provides teachers with teaching design resources, teaching test and evaluation data, and related scientific research data. On the other hand, it provides learners with an online learning platform, independent learning platform, and independent testing and evaluation system, which is more intelligent and convenient in the fast digital English teaching process.

It is necessary to construct and optimize the construction and sharing of digital English teaching resources from the perspective of differentiation, characteristics, and modularization, so as to carry out the personalized, professional, and characteristic construction of English digital teaching resources by means of independent development, project drive, cooperation, as well as linkage. And the modular construction mode also provides a good foundation for resource sharing.

(2) The construction of English digital resources should be dominated by the research results in the field of English teaching so that technology can truly serve language teaching. For example, audio, video, and virtual reality technology (VR) are used to create simulated situations and tasks for language learning. It can be also employed to combine with English corpus to complete two-way transmission of auxiliary teaching and data acquisition. Besides, it can be used to build online digital language learning game to explore the response and effect of learners to different language learning tasks in the digital environment. Furthermore, it can be utilized to realize personalized teaching, environment virtualization, and management dynamic. Additionally, it can be used to improve and optimize digital resources according to the research results of digital learning strategies, beliefs, cognitive style, technical acceptance and self-efficacy.

Meanwhile, the policy guidance and technical support should be underlined in the construction and sharing of digital English teaching resources, which will enhance the enthusiasm and participation of all parties through the cost-sharing mechanism, benefit distribution mechanism as well as resource exchange mechanism, further make the digital English teaching in different regions at the same level, and maximize the utilization efficiency of the construction along with sharing of digital English teaching resources, so as to improve the contribution to digital English teaching.

Digital literacy covers the collection, understanding, and evaluation of information, which is the key to the success of digital English teaching. Teachers should strengthen the learning of educational technology, learn to obtain digital resources, compile supporting network

resources, and build a network learning community, so as to have a deeper and more comprehensive understanding of the psychological process of language learning and digital English teaching, which is an important basis for the implementation of digital English teaching. In the digital English teaching environment, students' digital literacy, multi-modal reading ability, and digital English learning strategies are all new goals of English teaching. Teachers should start from these changes in digital teaching, design English courses suitable for digital teaching, effectively integrate the resources and means of digital teaching in teaching, and appropriately combine technology with foreign language teaching methods, so as to better complete the task of English teaching. In addition, digital teaching is an interdisciplinary job, which requires all-around learning of ideas and means, including the learning of educational technology and the related training of digital literacy, which should be emphasized by English teachers.

4.3. Research progress of English ubiquitous learning platform under the development of the internet

In recent years, the research on ubiquitous learning at home and abroad has been deepened, focusing on the theoretical discussion, ubiquitous learning environment construction, ubiquitous learning platform framework, ubiquitous learning resource construction, ubiquitous learning key technologies, and ubiquitous learning application while applied research is concentrated in the fields of science, language art and social science.

Domestic uneven development in the field of applied research is caused by technical level, urban and rural differences, uneven education concept, research design level as well as various limitations. More researches have been done from the theoretical level of selection in learning application mode, means, and activity strategy. The method of carrying out scientific teaching experiment to verify the effect is observed on the overall planning data of combining theory and practice for many times, but it has no reasonable effect on practical teaching. In practice, it is difficult for ubiquitous learning to form scientific guidance and play a real role in learning practice. On the whole, the number of domestic experts and scholars' research on the practical application of ubiquitous learning is insufficient. By promoting the internationalization of education, the change of educational concepts and the improvement of computer Internet technology level, related applications with good development trend have emerged around the public. However, with the advancement of education internationalization, the change of educational concept and the improvement of the level of computer Internet technology, there are still some related applications with a good development trend such as MOOC and flipped classroom.

5. Conclusion

The rapid development and integration of the Internet and mobile communication technology have promoted the transition of learning methods from E-learning to M-learning and then to ubiquitous learning (U-learning), which has undergone a major change. Ubiquitous learning has become a hot topic worthy of attention and research in the field of education for quite a long time in the future. Ubiquitous Learning (U-learning) is a new learning paradigm derived from ubiquitous computing, which emphasizes that any learner can use any variety of terminal devices to obtain any required learning resources at any time and place. U-learning, the existing upgraded version of digital learning and mobile learning, is more intelligent in learning environment through sensors and resource integration, and the perception of learners' situation, location together with learning requirements, which provides intelligent learning resources, distance education resources, education resources supply, education comprehensive services such as situational, individualized, ubiquitous learning services. The realization of ubiquitous learning makes digital teaching more convenient, completely breaking

the physical space and time restrictions of the campus, building a modern education information platform for modern education, conducting the connection, sharing as well as transmission of educational resources, and forming a fully connected form of education in the Internet era.

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