

A Practical Study of Project-based Learning Approach Pointing to Deep Learning in College English Teaching

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Abstract: *With the further development of English teaching theories, English teaching modes have become more and more diverse, but the problems of shallow teaching, fragmentation of learning information, and low motivation of learners in the classroom are still prevalent. Deep learning is based on cognitive theory, which takes deep processing of knowledge information and transforming it for application in new scenarios as its main purpose; the project-based learning method takes learners as the core and encourages them to explore actively as its main purpose. Therefore, this paper aims at the deep learning theory and applies the project-based learning method to the English classroom in colleges and universities, hoping to add to the deep learning theory and make reference to the teaching mode in colleges and universities.*

Keywords: *deep learning; project-based learning method; university English teaching*

1. Introduction

Deep learning refers to the learning process in which learners are able to critically understand concepts and cognitive objects on the basis of empirical understanding, penetrate them into their own cognitive structure, interconnect multiple concepts, and transfer existing cognitive objects to new environments, and thus make problem assessment and processing. Guo Hua et al. researched and discussed the five characteristics of deep learning, namely activity and experience, connection and integration, substance and transformation, transfer and creation, value and assessment. Activity and experience are the fundamental features of deep learning, emphasising the need to implement the students' subjective position so that they are fully engaged in the learning activities. Association and structure are the prerequisites for active learning, emphasising the connection between students' experience and classroom knowledge, and then constructing a new knowledge system. Essence and variation emphasise the need for students to process the learning object in depth. Transfer and Innovation are practical activities that emphasise students' ability to transfer what they have learnt to real situations and solve problems creatively. Value and judgement, on the other hand, emphasise the learner's informed assessment of knowledge information and perceptual processes in order to achieve transformation and overall application of knowledge. Based on the characteristics of the English curriculum, Wang Q. et al. set internalisation and communication as the sixth feature of the in-depth curriculum, i.e. learners need to be taught to internalise their knowledge based on illustrative, comprehensible, communicative and operative activities based on their subjective competence and new knowledge structures.

Project-based learning programmes are now commonly used in institutions of higher learning in the United States, Scandinavia and other countries. Some new colleges and universities in the United States, such as Khan Lab School and Summit Public School, have also started to introduce the project-based teaching programme in their teaching, expecting that the experiential learning method can fully mobilise the interest of the learners, and then train their ability of in-depth thinking as well as their critical thinking ability, etc. In the European Union, Finnish higher education has also become the forerunner of the European project-based teaching programme, which has not only changed all the higher education institutions in the European Union, but also changed the way of teaching and learning. In the European Union, Finnish higher education has long been the forerunner of project-based teaching in Europe, which has not only changed the traditional teaching mode of all higher education institutions in the European Union, but also implemented project-based teaching as the basis of teaching in higher education institutions throughout Europe. In China, some schools, including Beijing Shunyi International School and Zhongguancun No. 4 Primary School, have also adopted the

project-based learning method as the most important teaching mode. Some institutions have also organically integrated Stem teaching and project-based teaching and have made remarkable teaching achievements.

In the 1970s, the concept of language project has been commonly integrated into Hedge's (1993) second language acquisition curriculum and favoured by learners due to its novelty and applicability, thus establishing the key role of the project education theory in the reality of foreign language teaching for our students. Not only that, but Professor Hedge also revealed the importance of the project management education theory in improving the potential of foreign language teaching for our students after his research. Not only that, Professor Hedge also revealed the significance of project management education theory in improving the potential of foreign language teaching for Chinese students, which laid an important theoretical basis and realistic cornerstone for the subsequent research on foreign language applied education. In the 1990s, the project management learning method was introduced into our country again, which triggered a public outcry but also gained some progress.

2. Definition of relevant concepts

2.1. Deep Learning

Deep learning is a learning process in which learners are able to critically acquire new knowledge and integrate it into existing cognitive structures based on their understanding, and transfer and apply the existing knowledge to new situations in order to solve problems. The concept of deep learning was first proposed by Marton et al. Subsequently, Entwistle, Biggs, He Ling et al. elaborated the definition of deep learning. For this reason, this paper, drawing on previous work, defines deep learning as a learning process in which learners are able to critically acquire new knowledge based on their understanding of knowledge, integrate the new knowledge into their existing cognitive structure, and are able to transfer the existing knowledge to new contexts in order to solve problems.

2.2. Project-based learning approach

The project-based learning method originates from the idea of "experiential learning" put forward by John Dewey, which embodies the concepts of "learning by doing" and "learning by using". Many scholars have defined project-based learning as a method, model or strategy from different perspectives. So far, this paper, based on the previous work, defines the project-based learning method as a learning process in a real situation, student-centred, challenging problem-oriented, requiring students to integrate and create new and old knowledge through collaborative learning to complete the outputs and to continuously explore the learning process.

2.3. Relationship between the project-based learning approach and deep learning

Deep learning emphasises critical thinking and the integration and transfer of knowledge on the basis of learners' understanding, and the project-based learning method provides the environment and means to implement deep learning. The project-based learning approach offers the possibility for students to achieve deep learning by posing challenging problems in authentic situations and encouraging students to engage in collaborative enquiry learning. At the same time, deep learning also provides a prerequisite for the implementation of the project-based learning method, i.e., learners must achieve a certain level of understanding and critical thinking skills in order to effectively acquire new knowledge, integrate existing knowledge and transfer and apply it in project-based learning.

3. The important role of project-based learning in enabling deep learning

Project-based learning plays an important role in promoting deep learning. Deep learning is a type of learning that improves education through in-depth understanding and mastery of problems, and it focuses not only on the learner's attitude to learning, the structure of knowledge content, and the variety of learning forms, but also on the development of the learner's ability to think at an advanced level, his or her creativity, and his or her skills in solving real-world problems. In order to achieve this goal, a large number of research ideas need to be understood and summarised.

Deep learning is often organised and implemented on a unit basis, where a unit usually refers to the activities of a society as a whole, a curriculum or a learning module, rather than individual parts of

knowledge content. For this reason, transforming the knowledge points and items of a teaching unit into the design of a small unit can help to change the fragmented teaching of subject knowledge and achieve an organic connection between the design of the school curriculum and its objectives. Teaching in small units can re-establish the links between individual elements and form a holistic teaching and learning process.

Scientific studies have shown that the use of innovative and experimental teaching methods based on topics, research or objectives can be effective in promoting deep learning. Project-based teaching is able to break through the logical structure of the curriculum and integrate teaching content in a goal-oriented manner. As a result, project-based teaching has become one of the most central teaching strategies and an important learning method for developing students' advanced thinking skills. In basic research courses, teachers can use project-based learning methods to conduct purposeful, practical basic research that aligns with school curriculum standards and connects to the real world. By integrating advanced thinking and helping students engage in real-world learning activities, they can further explore important curricular connotations, effectively promote deeper learning for students, and improve their core professional qualities and creative abilities.

4. "Compatibility" between project-based learning and in-depth teaching and learning

Despite the different forms of education, both in-depth teaching and project-based learning work together to guide the learner, guided by the teacher, to learn to explore problems autonomously. This is where the two come together to form the alloy of adhesive. Although the educational approaches of the alloy and the binder differ, their core concepts and practical experiences are significantly linked, while the knowledge and pedagogical perspectives are more distinctive, and their underpinning concepts and practical experiences are more closely aligned, thus making the alloy and the binder more complete in their pedagogical perspectives. The notion of praxis refers to the idea that bystander epistemology and practised pro-epistemology can be effective in helping people to solve problems through reflective, critical and sustained cognitive interest, and praxis emphasises assumption-based, problem-solving-guided, and sustained corrections or resets of problem-solving outcomes.

While compatibility is significantly different from the educational philosophy of teaching-as-dialogue, bridging stresses the need to be guided by the needs of students and rooted in their interests for more learning opportunities as well as more hands-on experience, so as to achieve the best educational results. The core concept of the value of the two inversions lies in deepening the educational approach of the classroom, which can be classified into six forms: problem-based approach with value orientation as the cornerstone, problem-based approach with authentic situations as the cornerstone, problem-based approach with high-quality problems, problem-based approach with integrative problems inside and outside of the classroom, problem-based approach with philosophical reflection as the cornerstone, and innovative research-based curriculum with micro-enquiry and micro-exploration as the cornerstone. It is for this reason that project-based curricula are seen as the most powerful way to advance educational progress. Project-based learning is widely recognised as the cornerstone for building deep learning curricula. Design-based learning places greater emphasis on the integration of design-based learning principles into classroom practice to help students better understand and use the key points they are learning, leading to a more holistic approach to professional knowledge.

5. Teaching and Learning Implementation of Deep Learning and Project Based Learning Approach to College English Classroom

5.1. Determine the project theme and clarify the direction of deep learning

The target of the project-based teaching carried out by the author is the sophomore students whose university English placement test is grade B. Integrating project-based learning into a part of the university English course and counting it as part of the usual grade in the final exam requires a lot of preliminary preparatory work in the first place. Considering that the overall English proficiency and level of the participating students is in the middle of the grade, the themes of the projects are mainly taken from the unit themes of the university English textbooks used by the students, or an extension of this theme, or popular topics close to social life. Considering that the project courses currently used in schools are the most advanced at that time, which can balance students' language knowledge and professional skills, develop their ability to use spoken language and explore topics of interest to

contemporary university students, it is hoped that the teaching method of the project courses will assist them in applying what they have learnt to their practical work, so as to overcome the problems that may arise in their practical work. In addition, the direction of in-depth learning should be clarified, the topics of students' interest should be extended, and students should be encouraged to use what they have learnt in the classroom both orally and in writing during the project activities, so as to help them familiarise themselves with the vocabulary and phrases in the text and use them repeatedly, and at the same time, they should be encouraged to collect more words and phrases on related topics through the Internet and use them in the later writing output and oral presentation sessions. In this way, students' thinking and horizons can be broadened and their dialectical thinking skills enhanced, while taking into account the repeated practice of basic knowledge.

5.2. Clarify group division of labour to complete in-depth learning content

Project learning is usually arranged at the end of the unit study of the textbook, which means that students have finished learning the thematic background of the unit, text analyses, common vocabulary and complex sentence patterns under the unit theme. Students work in small groups, freely combining in groups of five members and electing group leaders. The teacher in the classroom firstly needs to explain the general direction of the research topic of the project, the logical structure of the analysis of the research report, the research methodology, the considerations in the production of PPT, and answer the questions raised by the students, so as to avoid the students from taking a detour in the latter part of the work. Then for the specific direction of the research topic, using English as the working language, students can hold group meetings in class to develop their thinking, brainstorm, form opinions and establish a logical framework. During this time, the teacher can provide individual guidance on the group project by observing the group discussion and answering different questions that group members may have. After class, the teacher asks students to continue in-depth research and study with the help of the Internet, campus online educational resources and the library. By studying with others, students can improve their ability to acquire, compare, process and research information, and find more relevant information and arguments for their viewpoints. In addition to group discussions and individual search for information, students should also be encouraged to adopt a richer and more flexible research methodology, such as conducting questionnaires and campus interviews to carry out research studies. Teachers can ask students to provide samples of project research reports as reference, summarise the information they have collated in the preliminary stage, and write an English research report or reflection report to improve their language writing skills. After the teacher receives the report, he/she can discuss it with the group online and make further revisions. In the preparation stage, students need to determine their own research methodology, make a detailed work plan, assign tasks to group members, sort out responsibilities, rely on each other and work together, and every part of the process requires the active participation of group members and their full commitment. Finally, based on the research report, they will make a PPT and report the research results in the form of a classroom presentation to be evaluated by the whole class and the teacher.

5.3. Demonstrate and evaluate project results for migration and application of deep learning

The presentation stage is the acceptance stage of the learning results of the preliminary project, and the evaluation is done by the class and the teacher. Teachers can use classroom time to present and explain excellent research reports, pay attention to the application of logical writing structures and writing strategies, advocate the use of text-related thematic corpus, emphasise the accuracy of vocabulary and sentence patterns, and help students get a preliminary exposure to academic English writing. In the PPT classroom presentations, teachers should encourage multiple students to act as speakers, emphasising collective collaboration and broad participation. In judging, teachers should focus on the correctness of the speaker's expression and the expressive power of the words, and on the authenticity, thoughtfulness, continuity and fluency of the language expression. Through a variety of interactive communication methods of English oral presentation and live defence, students can be provided with more opportunities to use English, thus promoting the improvement of their oral communication skills. In the production of PPT, attention should be paid to examining the meticulousness of the students' team thinking and logic and the cultivation of their critical thinking ability, such as whether the content of the PPT is detailed, whether the viewpoints are clear and definite, whether the arguments are reasonable and sufficient, and whether the structure is complete, hierarchical and logically organised, and so on. After the presentation is completed, the learning group and the teacher should jointly comment and give suggestions, summarise the strengths and weaknesses, encourage further discussion between the presentation group and the students on the stage, deepen their

knowledge of the topic and help them solve practical problems better. In the project activities, the teacher should pay attention to the students' mastery and review of the basic knowledge of the unit, advocate the students to use the key words and phrases appearing in the texts of the same theme, and should not neglect the accuracy of the language while cultivating the students' language communication ability, and always pay attention to the unity of the humanistic and instrumental nature of the language learning, as well as the unity of the communicative nature of the language ability and the accuracy of the language.

6. Conclusion

In summary, this paper discusses project-based learning at the basic education stage and examines the possibility of project-based curriculum to promote deep learning. The research content of this paper can show that there are advantages in the project-based education in the past, but in the process of guiding students' deep learning, there is still a need to make appropriate adjustments to the teaching methods and management modes in order to give full play to the maximum advantages of project-based teaching. In the future of project-based learning in the educational process, there is also a need to improve the teaching mechanism and methodology according to modern teaching concepts, so as to achieve the desired goal of teaching reform.

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