

THE CURRENT SITUATION AND ITS COUNTERMEASURES OF ENGLISH LEARNING ENGAGEMENT OF SCIENCE AND ENGINEERING STUDENTS IN BLENDED LEARNING ENVIRONMENT

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Abstract: In the post-pandemic era, blended learning has become the new trend in modern education. Learning engagement is a key factor in improving students' academic quality. Therefore, examining students' learning engagement in blended learning environments is crucial for assessing their subjective initiative, evaluating the achievement of teaching objectives, and enhancing learning and teaching effectiveness. "English learning engagement" refers to the application of learning engagement theory to the field of English language learning. However, existing research has paid insufficient attention to the English learning engagement of Science and Engineering Students. This study investigates the current state of English learning engagement among Science and Engineering Students in a blended learning environment, focusing on three dimensions—behavioral, emotional, and cognitive engagement. Based on the identified issues, targeted improvement strategies are proposed.

Keywords: Blended learning environment; English learning engagement; Science and engineering students

INTRODUCTION

The Ministry of Education issued the Guiding Opinions on Deepening the Reform of Education and Teaching in Colleges and Universities Affiliated to the Central Department on June 13th, 2016 (Jiaogao [2016] No.2), which clearly pointed out that it is necessary to promote the deep integration of information technology and education and teaching, promote the online and offline blended teaching in colleges and universities, and advance the student-centered reforms in teaching and learning methods. In the era of rapid development of information technology, "Internet+education" has become the general trend. Online learning platforms such as China University's MOOC (massive open online course), Xuexi Qiangguo, Xuexitong, and DingTalk have emerged and continuously improved, providing more possibilities, choices and help for college students' online English learning. Especially in the post-epidemic era, blended learning has become the new normal of modern education and an important form to improve students' academic quality [1].

In 2019, the Ministry of Education's "Implementation Opinions on the Construction of First-class Undergraduate Courses" proposed "increasing students' learning input", which marked that the term "learning input" was formally incorporated into the national policy discourse system [2]. Learning engagement is the key content to improve students' academic quality [3]. Therefore, paying attention to students' learning engagement in mixed learning environment is of great significance to examine students' subjective initiative, test the achievement of teaching subject goals, and improve learning and teaching effects. At present, English learning in blended learning environment is developing vigorously in a good direction, but the challenges and problems it faces can not be ignored, especially the lack of research on English learning input of science and engineering students.

1 THE THEORETICAL BASIS

1.1 Blended Learning

Blended Learning, also referred to as hybrid learning or integrated learning, is the product of the deep integration of modern information technology and education. Researchers at home and abroad have defined the concept of blended learning from different angles. Although there are some differences in expression, the essence consistently reflects that blended learning is not merely a mechanical combination but rather an effective integration of diverse instructional methods and resources to maximize teaching effectiveness [4], which has potential advantages in promoting learning engagement [5].

1.2 The Blended Learning Environment

The concept of Blended learning environment comes from blended learning. Due to different perspectives, the academic circles have different definitions of blended learning. In a narrow sense, blended learning environment refers to the combination of traditional classroom space and online teaching platform [6]. Broadly speaking, the focus of blended learning environment lies in the integration of online digital learning environment and offline physical learning

environment, and at the same time brings the integration of other teaching elements, such as teaching methods, resources, models, etc. Its main purpose is to optimize learning effect and improve learning quality.

1.3 Learning Engagement

The concept of “learning engagement” first appeared in the field of educational psychology, which mainly refers to the psychological input and efforts made by learners when learning, understanding or mastering knowledge and skills [7]. With the expansion of research, the scope of learning engagement gradually covers learners’ input in actual behavior and personal feelings [8]. Researchers have put forward many theoretical models to define the conceptual dimensions of learning engagement, among which the most representative and widely applied is the “three-dimensional model” by Fredricks et al. (2004) [9]. This model posits that learning engagement consists of behavioral, cognitive, and affective dimensions. Behavioral engagement refers to learners’ observable actions and participation in the learning process, such as adhering to classroom rules and engaging in discussions. Cognitive engagement is manifested in learners’ use of various cognitive strategies and learning strategies in the learning process, and their efforts to understand knowledge or master skills, such as problem solving and self-regulation. Emotional engagement is embodied in learners’ emotional attitudes in the learning process, such as love and happiness. “English learning engagement” refers to the transfer of learning engagement to specific disciplines.

Therefore, the success of college students’ English learning in a blended environment depends on the interaction of three dimensions of learning engagement, namely, behavior, emotion and cognition, which affect each other and are inseparable. Only by working together can they form a lasting and positive emotion and cognition, enhance internal and external driving force and urge students to learn actively.

2 THE CURRENT SITUATION OF COLLEGE STUDENTS’ ENGLISH LEARNING INVESTMENT IN THE BLENDED LEARNING ENVIRONMENT

An online survey of English learning engagement of science and engineering college students in blended learning environment (hereinafter referred to as “engagement survey”) involves three dimensions: behavior, emotion and cognitive engagement. Among them, behavioral engagement includes three dimensions: autonomy, cooperation and persistent learning, emotional engagement includes three dimensions: learning willingness, learning experience and value recognition, while cognitive environment includes three dimensions: metacognition, cognition and resource management strategies. The main findings are as follows:

Firstly, the English learning engagement of science and engineering students in the blended learning environment is not optimistic as a whole. Specifically, behavioral engagement is the highest, emotional engagement is the second, and cognitive engagement is the lowest. Learning autonomy under behavioral engagement and learning willingness under emotional engagement are not strong, and metacognition and cognitive strategies under cognitive engagement are seriously lacking. Specific to the differences in gender, major and grade, there are significant differences in behavioral engagement, emotional engagement and cognitive engagement between male and female students. There is no significant difference in students’ learning engagement in majors. There are significant differences in students’ behavioral engagement and emotional engagement among different grades, but there is no significant difference in cognitive engagement among different grades.

Secondly, the time devoted to English learning is seriously insufficient. A striking 50.81% of students reported studying English for less than 0.5 hours per day, while only 12.47% devoted more than 1.5 hours daily. This indicates that the majority of students allocate minimal time to English learning, reflecting a general lack of engagement with the subject. Thirdly, the awareness of English autonomous learning is weak. College English is a public compulsory course, accounting for a certain number of credits. In order to graduate smoothly, students will try their best to improve their learning efficiency and strive for credits. Most students tend to finish English learning tasks passively, and few students learn English independently, often “studying for exams” or “studying for learning”. Moreover, their avenues for engaging with English learning remain limited, with most relying solely on passive classroom instruction.

Fourthly, emotional engagement varies from person to person. Students’ interest in English, students’ English foundation, teachers’ teaching style and personal charm are all influencing factors.

3 STRATEGIES TO SOLVE COLLEGE STUDENTS’ ENGLISH LEARNING ENGAGEMENT PROBLEM

The above problems can be solved from the following aspects through literature research and teaching practice:

3.1 Optimizing Learning Methods and Enhance Cognitive Engagement

College students should recognize the situation clearly, renew their learning philosophies, keep up with the pace of the times and optimize their learning methods. In order to learn English well, students must adopt blended learning methods, combine face-to-face traditional learning with online learning, and learn the advantages of various learning methods. On the one hand, students should make full use of the advantages of the platform, use rich and colorful English resources to expand their knowledge, internalize the language foundation, actively participate in the discussion activities of the platform, exchange and discuss the problems encountered in learning, realize common learning progress, accumulate basic English knowledge and increase the continuous motivation of learning; On the other hand, students should make

full use of classroom learning opportunities, actively participate in classroom activities such as group tasks and speeches, and improve their communication self-confidence and cross-cultural communication skills.

3.2 Stimulating Learning Motivation and Promote Emotional Engagement

Stimulating learning motivation can be considered from two aspects: learning interest and autonomous learning consciousness. Fully realize the value and importance of English learning. In addition, students should improve their awareness of autonomous learning. First of all, we need to be clear about our dominant position and give full play to the role of English learners. As many students have mentioned, “If we don’t study ourselves, it won’t help even if the outside world creates the best conditions”. Secondly, students should establish the awareness of English autonomous learning, develop the habit of English autonomous learning, and shift from a passive mindset (“I have to learn”) to an active one (“I want to learn”), gradually explore the suitable English autonomous learning methods, and flexibly apply them to English learning activities to truly realize “learning to learn”.

3.3 Clarifying Clear Learning Objectives and Increase Behavioral Engagement

Non-English majors’ feelings and attitudes towards English learning vary by individual and discipline, yet they share common learning objectives, but they share the same learning goal. Superficially, college students’ goal of learning English is to pass various exams, such as final exam, CET-4 and CET-6, national talent exam, postgraduate entrance examination, etc. However, from a long-term perspective, learning English is for career development and further study and communication. In today’s information-exploded global village, English has become one of the lingua franca, and international communication and cross-cultural communication are becoming more and more normal. Students should be aware of this situation, take an active part in online and offline learning activities, study hard, and gradually improve their language skills such as listening, speaking, reading, writing and translation, so as to lay a solid foundation for future success. Moreover, blended teaching emphasizes the implementation of students’ dominant position in learning, and also attaches importance to teachers’ leading role. Only by organically combining students’ subjectivity with teachers’ dominance can we achieve the best learning effect. Before class, students’ autonomous learning can not be carried out without the guidance of teachers’ clear teaching objectives. Teachers should make clear the learning task objectives and the completion time, so that students can examine their learning behavior against the task objectives. Teachers give feedback on students’ practice and testing in face-to-face class, organize students to carry out activities such as classroom observation and comments, guide students to monitor their learning process, and students adjust their learning status in time to reflect on their mastery of knowledge.

4 CONCLUSION

Blended learning effectively promotes the organic integration of online teaching resources and offline classroom teaching, realizes the complementary advantages of traditional learning methods and online learning methods, and extends the learning time and space. Students’ English learning investment in behavior, cognition and emotion is directly proportional to their learning results. The greater the learning investment, the higher the learning efficiency and the better the blended learning effect.

COMPETING INTERESTS

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