The Impact of Teacher-Student Interaction on Learning Engagement in Blended Learning

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The blended learning environment has the advantages of both traditional teaching and online learning on the Internet, and is highly sought after by educators. As learning engagement is an important guarantee for effective learning outcomes, and teacher-student interaction behaviour is one of the key factors influencing students' learning engagement, it is important to clarify the mechanism between teacher behaviour and learning engagement to optimise teachers' teaching ability, promote students' learning engagement, and enhance their learning outcomes. In this study, a structured questionnaire was used to investigate the online teaching component of blended learning, and the questionnaire was divided into two parts: a survey on student engagement and a survey on student-teacher interaction. Student behavioural input was high but inefficient. Student cognitive input is low. There is a timeliness of student affective engagement.

Keywords: blended learning environment, teacher-student interaction, learning engagement

Introduction

With the acceleration of modernization, Internet technology and information technology have developed rapidly and matured, and have had an impact on all areas of people's learning, work, and life. On this basis, educators have begun to focus on the integration of information technology and education teaching, and this has led to a number of research directions, one of which is blended learning. With the emergence of the 2020 epidemic, traditional offline education and teaching cannot meet the requirements of teaching policies in the context of epidemic prevention and control, and blended learning is being used more and more, especially in the higher education sector. In the Opinions of the Ministry of Education on Accelerating the Construction of High-level Undergraduate Education to Comprehensively Improve the Cultivation of Talents, it is pointed out that the learning revolution should be promoted through teaching reform, actively promoting blended learning, flipping the classroom, vigorously promoting the construction of smart classrooms, and building a teaching model that combines online and offline teaching (He, 2005). It is thus clear that blended learning environments play an extremely important role in higher education teaching in China, and are key to promoting changes in contemporary education and teaching in China. Along with the in-depth promotion of blended learning environment, how to vigorously improve students' learning effect has become the core issue of higher education

teaching and learning. The Notice on Grasping the Implementation of the Spirit of the National Conference on Undergraduate Education in the New Era issued by the Ministry of Education proposes to strengthen the management of the teaching process of undergraduate education, strengthen the management of students' learning process, and effectively improve the quality of education and teaching (Li, 2004). Students' engagement in learning is an important dimension in evaluating the effectiveness of students' learning. Teachers are the foundation of education and the source of education, but most of the current studies are based on online learning or traditional classroom learning environment. It is important to investigate the impact of online interaction between teachers and students on students' learning engagement in a blended learning environment, which is an important way to improve teaching quality.

Concept Definition

Blended Learning Environment

It is often used to describe a variety of learning practices including teleconferencing in traditional seminars, email contact between learners in traditional classrooms, and multi-point television broadcasts in traditional seminars (Xiao & Zhang, 2016).

In 2003, Chinese scholars Zhu Zhiting and He Keqiang both published articles on blended learning, as a result of the new connotations given to blended learning abroad. According to Chinese scholar Professor He Keqiang (2004), blended learning combines the advantages of traditional learning methods and e-Learning (digital or networked learning), in which the teacher plays a leading role in guiding, inspiring, and monitoring the teaching process, while fully reflecting the initiative and enthusiasm of students as the main subjects of the learning process. According to Professor Li Kedong (2004), blended learning is a way of teaching that organically integrates traditional teaching with online teaching in order to reduce costs and improve teaching effectiveness. According to Huang Ronghuai (2006) and other scholars, blended learning is a mixture of teaching methods, teaching strategies, teaching modes, and other teaching elements to deliver appropriate knowledge to learners with appropriate learning styles through appropriate technology to achieve the optimization of teaching. In this study blended learning adopts Professor He Keqiang's perspective. The blended learning approach here mainly refers to the use of a combination of an online platform and a traditional offline classroom.

Learning Input

The concept of "engagement" was first applied to the world of work, referring to the state in which staff enter into work and self-manage. As the field of research expanded, some scholars introduced input into the field of education and began to focus on students' engagement in learning.

Fredricks argues that learning engagement should consist of three dimensions: behavioural, affective, and cognitive engagement. Behavioural engagement refers to students' participation in classroom discussions, discipline, homework, and school activities; affective engagement refers to students' enjoyment of school and their positive attitudes towards their studies, teachers, and peers; and cognitive engagement refers to students' involvement in the learning process in terms of mental resources, thinking styles, and cognitive strategies (Fredricks, Blumenfeld, & Paris, 2004). Sun Weiwen (2009) suggests that learning engagement is the degree of behavioural involvement, the quality of affective experiences, and the level of cognitive strategies used by students in completing tasks, and includes three dimensions: behavioural engagement, affective engagement, and cognitive engagement, and that learning engagement represents a genuine psychological investment by students

in the learning process. Drawing together the views of scholars, this study defines learning engagement as the active state of learning that students demonstrate in the course of their learning activities. Given that the concept proposed by Fredricks reflects the diversified characteristics of learning engagement, covers the process of interaction between the behavioural, cognitive, and affective dimensions, and has more comprehensive evaluation indicators, this paper mainly uses Fredricks' study as the basis for investigation.

Teacher-Student Interaction

The term "interaction" was first used in the field of computing, but as society continues to develop, "interaction" is gradually being used in other fields. In relation to "teacher-student interaction", Professor Yuan Weixin (2002) believes that teacher-student interaction refers to all interactions and influences between teachers and students. Professor Wang Xiaochen (2015) argues that there are different forms and levels of teacher-student interaction, resulting in different forms of interaction such as reflective interaction and experiential interaction. Completion psychology, on the other hand, believes that human behaviour is determined by the interaction between the individual and the environment in which the behaviour takes place, and emphasises that behaviour is an external activity governed by consciousness (Pan, 2004). Accordingly, this study defines teacher-student interaction as follows: teacher-student interaction is a series of communication, collaboration, and discussion between teachers and students in a blended learning environment in order to achieve teaching and learning goals.

Study Subjects and Implementation Context

Study Subjects

A questionnaire survey was conducted in order to understand the mechanism of teacher-student interaction on students' learning engagement in a blended learning environment, so as to optimise teaching behaviour and improve students' learning engagement. The respondents were a total of 98 students in three second year English classes in our school. Among them, 57 (58%) were female students and 41 (42%) were male students.

Study Environment

By collecting online teaching and learning data from the online teaching platform of the English course the Contemporary College English course in our university, this project uses the learning analysis method of big data to refine the key factors of teacher-student interaction models in online and offline blended teaching, and to analyse and test the interaction relationship between the factors, and to explore the types and models of active online interaction activities between teachers and students in a blended learning environment, in order to improve the initiative and effectiveness of students' learning. To ensure the validity of the study, this study is based on the following principles.

In order to ensure the validity of the study, a structured questionnaire was used, which was divided into two parts: a survey on student engagement and a survey on teacher-student interaction behaviour. There were 22 questions in the learning engagement section and 15 questions in the teacher-student interaction section. The questions were distributed through the class QQ group. A total of 98 questionnaires were distributed and 98 were returned, of which 90 were valid. The survey return rate was 91.8%.

Survey Results and Analysis

Teacher-student interaction behaviour is one of the important factors affecting students' learning engagement. This study analyses the impact of teacher-student interaction behaviour on students' learning

engagement in terms of behavioural engagement, cognitive engagement, and affective engagement in student learning, and the findings are analysed as follows.

Student Behavioral Input Is High but Inefficient

Behavioral engagement refers to the behaviour of students engaged in the learning of the course. The survey showed that only 5% of the students were very much engaged in the learning process, 20% of the students were engaged in the behaviour of pre-learning before class, while only 8% of the students listened fully and attentively to the teacher in class, and over 70% of the students deserted the class. This shows that students' self-management and control skills have been strengthened. When teachers and students interact online English courses focus on theoretical knowledge and are relatively boring, students tend to slacken off and lose concentration. There are too many temptations on the Internet, and students are easily attracted when consulting materials and retrieving information, which leads to inefficient learning.

Low Student Cognitive Engagement

Cognitive input refers to the learning methods and strategies used by students to achieve their learning goals. The survey of students' cognitive input showed that although 95% of students did complete the homework arrangements set by the teacher, when teachers and students interacted online because they could not communicate face-to-face to learn, 63.4% of students mostly helped each other when facing teacher interaction, retrieved answers from various browsers, and lacked their own serious thinking. Only 37.6% of the students completed their online learning tasks seriously.

There Is a Timeliness to Students' Emotional Engagement

Emotional engagement refers to the emotions, enthusiasm, and interest in learning that students invest in the learning process. The survey results show that students' attitudes towards the act of online teacher-student interaction are mixed. At the beginning, 91% of the students were enthusiastic and had great enthusiasm for online learning, and most of them could actively participate in class discussions or express their views and ideas in the discussion forum; however, as time went on, only 50% of the students remained enthusiastic and interested in learning, and only 20% of them ended up actively participating in the interaction and continuing to listen to the lectures. This is due to the monotony of online learning, the lack of sufficient teacher-student interaction, and the technical limitations of teacher-student interaction; in addition, the survey found that 75% of students prefer face-to-face interaction in offline classes to online communication, as real human interaction is more warm and emotional. In contrast, the state of engagement in English classroom learning among university students in a blended learning environment is relatively better than engagement in online learning alone.

Coping Strategies to Improve Student Learning Engagement in a Blended Learning Environment

Increased Frequency of Interaction and Behavioural Engagement

As teachers, students should be given time to gradually adapt to the educational process. Most students who have just entered university are not used to asking questions, but are better at solving problems, and learn mainly by mechanical memorisation, without thinking deeply about the problems and without having their own opinions and views on the issues. Teachers can improve students' behavioural engagement in learning by engaging in more discussions about course issues, so that more students are involved in the discussion process. Teachers should also pay attention to the many ways in which they can stimulate students' interest in learning and fully

mobilise their enthusiasm and initiative. Teachers should follow the principle of gradual progression in the difficulty of the discussion questions they set, from easy to difficult, and guide students to complete them gradually. In the process of group discussion, teachers can update or modify the discussion questions by integrating students' views and ideas, so as to make sure that the discussion questions can better promote the development of students' thinking skills. The teacher can then make scientific and dynamic adjustments to the content to further improve the quality of learning when he/she is aware of the students' online learning data.

Improving Self-control and Learning Methods

As students, they should focus on their ability to reason abstractly about models and find efficient learning methods that suit them. As their previous studies were mostly memory-based, students should learn to think flexibly to change their views on problems, actively cooperate with the teacher on the course, and actively discuss the discussion questions assigned by the teacher after class. They should understand and master a variety of problem-solving thinking tools, and at the same time take the initiative to consult the teacher if they do not understand the problem, express their understanding of the course, and actively participate in the interaction of the course, so that the teacher can keep abreast of their understanding of the course which can also help the teacher to improve the quality of teaching and improve teaching methods.

Improving the Quality of Teacher-Student Interaction and Extending Students' Emotional Engagement Time

Teacher-student interaction should be an act of interaction between teacher and student, and teachers can improve the quality of teacher-student interaction to prolong students' enthusiasm and interest in online learning. In an online classroom where there is only one-way active communication from the teacher, students are not able to stay on the same channel as the teacher and do not receive knowledge efficiently and completely. Teachers use multiple forms of interaction to extend the time students are emotionally engaged.

Conclusion

This study is based on blended learning, unlike traditional online learning courses, where all students studying on the same online learning platform are in the same class, and there is a correlation between the offline classroom learning content and the online learning platform content taking over from each other. The teacher is also able to engage and evaluate the interactive content in a timely manner, so the online learning platform allows for an in-depth and effective teacher-student interaction process. This reflects the advantages of blended learning over online learning in that the teacher's instructional design and organisational behaviour can significantly influence the behavioural, cognitive, and affective dimensions of student engagement; facilitated dialogue can significantly influence students' cognitive and affective engagement; and instructional evaluation can significantly influence students' behavioural engagement.

In a blended learning environment, the teacher is not only the transmitter of knowledge, but also the guide and facilitator of students' learning. Teachers by creating an atmosphere of dialogue, creating reasonable questions to guide students' thinking, helping them to use their existing cognitive structures to establish connections with problems, encouraging them to share their unique insights, inspiring them to think about problems from all angles, share, and exchange, and engage in knowledge collisions, thus helping them to solve problems. At the same time, problem guidance and sharing of ideas in the classroom will stimulate students' interest and enthusiasm in learning and make them more willing to engage in learning activities. Teachers'

supervision and feedback on students' independent learning before class helps to urge students to actively complete their learning tasks, so that they can adjust and follow up on their learning tasks in a timely manner and take the initiative to learn new knowledge. The number of interactions between students during group discussions in the classroom is a good indicator of how well students are able to express themselves and interact with other group members. Being in different learning environments will have a different impact on students' willingness to communicate. Collaborative communication between students and their peers and clarification of individual problems will not only promote greater behavioural engagement, but also greater relevance.

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