

The Impact of Interaction Methods on Online Learning for English Majors

TANG Xiaonan, ZHU Xumei, QIAN Jiayan, SUN Hong
Xuzhou University of Technology, Xuzhou, China

Since the outbreak of the epidemic in 2019, online teaching has become one of the most mainstream teaching methods. The huge differences between online and offline teaching have led many teachers and students to try more diverse ways of interacting with each other. Through collecting online teaching and learning data from the online teaching platform (SPOC) of the Contemporary College English course at Xuzhou University of Technology, this project uses the learning analysis method of big data to refine the key factors of interaction models in online and offline hybrid teaching, and to analyse and test the interaction relationships between the factors to explore the types of positive online interaction activities achieved under a hybrid learning environment and the study also explores the types and models of active online interaction activities in a blended learning environment to improve students' learning initiatives and effectiveness.

Keywords: interaction, online learning, learning effectiveness

Introduction

Online learning teacher-student interaction is a kind of interpersonal communication activity with graphic symbols as the main carrier and computer network technology as a mediating tool (Yang & Xu, 2009), which is the embodiment of teacher-student interaction in the online teaching environment. In the offline classroom face-to-face communication context, teachers and students can use a variety of communication methods, while in the online classroom context, the network, as a mediating tool, not only assumes the function of information transmission, but also acts as a bridge for emotional communication between learners and educators, and teachers and students communicate their emotions in a relatively single way, which leads to a weak control of learning efficiency (Yang, Zheng, & Kong, 2008). Based on this, this paper discusses the relationship between different interaction styles and learning efficiency in online learning and expects to find strategies to improve online learning efficiency.

Different Types of Interaction

The term “interaction” was first used in the field of computing, but as society continues to develop, it is gradually being used in other fields. Interaction refers to the interaction between people, with the help of symbols such as language and text. The act of interaction can be understood as the interaction between the

TANG Xiaonan (Ethel), School of Foreign Languages, Xuzhou University of Technology, Xuzhou, China.
ZHU Xumei (Alien), School of Foreign Languages, Xuzhou University of Technology, Xuzhou, China.
QIAN Jiayan (Holiday), School of Foreign Languages, Xuzhou University of Technology, China.
SUN Hong, Associate Professor, School of Foreign Languages, Xuzhou University of Technology, Xuzhou, China.

“teaching” of the teacher and the “learning” of the students, as well as the interaction between different student behaviors. Based on the teaching interaction classification theory and the principle of equivalent interaction, online learning can be divided into five practice forms: online learning based on real-time teacher-student interaction, online learning based on resource interaction, online learning based on learning activities, online learning based on student-student interaction, and online learning based on human-computer interaction (Xu & Chen, 2021). This paragraph focuses on two-way teacher-student interaction as well as human-computer interaction in interactive teaching behaviors.

Two-Way Teacher-Student Interaction: Based Online Learning

Some scholars in pedagogy believe that “teacher-student interaction” refers to all the interactions and influences between teachers and students (Yuan, 2002). Some scholars believe that teacher-student interaction takes different forms and levels, resulting in different forms of interaction such as reflective interaction and experiential interaction (Wang, Jiang, & Huang, 2015). From a sociological perspective, some scholars argue that the purpose of education is to cultivate talents for society, and that teachers and students act as different roles in society (Zheng, 2019). Anthropologists argue that interactions cause changes in people’s behaviour, and these changes in turn affect the behaviour of others. Psychologists argue that teacher-student interaction is a one-way psychological exchange between two parties in a teaching situation, which depends on the context.

Combined with the above information, it is clear that research on teacher-student interaction is multidisciplinary and multi-faceted, summarized in the following features:

1. Teacher-student interaction is an act of interaction and mutual influence.
2. The development of teacher-student interaction is dynamic and sustainable.
3. The forms of teacher-student interaction are diverse and flexible.
4. The content of interaction between teachers and students is open, including not only the solution of cognitive tasks, but also the psychological needs are met.

Human-Computer Interaction: Based Online Learning

With the development of computer network technology and the deepening of the reform of quality education, in the new era universities are gradually adopting a teaching mode based on computer technology: human-computer interactive teaching.

Human-computer interactive learning mainly enhances the interaction, immersion, and experience of students when learning online through the interaction between students and the learning system and the feedback mechanism of the system (Xu & Chen, 2021). Human-computer interactive learning is based on one-to-one interaction between students and machines or systems (Yang & Zhang, 2015). The traditional teaching model is usually teacher-oriented, ignoring the main position of students, who are in a passive acceptance position and unable to exert their subjective initiative. This tends to weaken students’ enthusiasm for learning and reduce their learning efficiency. Most HCI (Human-Computer Interaction) teaching is carried out through game-based courses or learning products, which guide students to gradually master the content and complete their learning objectives. At the same time, HCI learning systems with their immediate responsiveness, adaptability, strong feedback, and autonomy can adjust the pace and speed of learning and stimulate students’ interest and motivation. The HCI learning system can meet the individual needs of students in different learning environments, realizing the “shift from teacher-centred to student-centred” and changing the passive indoctrination of students.

Testing Methods of Learning Efficiency

In this project, two English teachers of the same grade taught the Contemporary College English course in our English major's online teaching platform (SPOC) in the academic year 2021-2022, one of them chose the traditional classroom for teaching and the other chose the interactive platform for online teaching, to collect learning data and analyse their course video and audio. The 45-minute class was divided into 15 nodes according to the progression of time, and status readings were taken at three-minute intervals. Frequency and percentage were used to describe the distribution of various behaviors in the classroom. To facilitate the analysis, this study divided the level of student learning engagement into three static states such as high engagement, medium engagement, and low engagement accordingly. Through big data learning analysis of the five states, we investigate how students' learning engagement levels are related to different classroom teaching styles, and attempt to analyse the influencing factors and their mechanisms of action from multiple aspects and angles of teaching styles leading to changes in learning engagement states. The specific design is as follows.

Subjects Studied

A total of 60 students, including eight male and 52 female students, in two classes of English majoring in the class of 2020 from Xuzhou University of Technology.

Testing Methods

Conversation, practice, independent learning, group collaboration, practical exercises, question answering.

Measurement Tools and Data Analysis Methods

(1) Online course platform audio and video data analysis: by recording audio and video in the online course, coding the data, counting the frequency of learning styles and marking the corresponding student learning engagement levels (high, medium, and low).

(2) Questionnaire survey: survey 60 students' recognition and self-evaluation of learning engagement in traditional classroom and interactive platform classroom teaching, labeling the corresponding learning engagement levels (high, medium, and low).

Table 1

Comparison of Classroom Behaviour in Traditional and Interactive Platform Classrooms

Behavior	Traditional classroom teaching ($n = 977$)		Interactive platform teaching ($n = 1,003$)	
	Frequency	Percent (%)	Frequency	Percent (%)
Teachers' words	827	84.65	352	35.09
Students' words	80	8.19	489	48.75
Classroom silence	11	1.13	49	4.89
Technical behaviour	59	6.04	113	11.27

In this study, self-evaluation forms on the recognition and learning engagement of teaching in traditional classrooms and interactive platform classrooms were distributed to 60 students, allowing them to mark their perceived level of learning engagement. A total of 60 questionnaires were distributed and 57 were returned, with 54 valid rolls, a return rate of 95%, and an effective rate of 90%; the subjects were selected taking into account the typicality of the platform they used on the one hand, and the nature of the course taught on the platform on the other. The questionnaire was divided into two main sections: learning engagement during traditional teaching and learning engagement during interactive activities based on the platform. For the

traditional teaching section, the objective was to determine students' satisfaction and engagement with traditional teacher teaching methods; for the platform-based teaching and interactive learning section, the objective was to determine students' awareness of and need for teaching and learning interactions, and their engagement with learning through teaching and learning interactions. In the validated questionnaire, only 10% of students with high engagement and 70% with low engagement were found in the traditional teaching approach, while 30% of students with high engagement and only 30% with low engagement were found in the interactive platform-based teaching model.

Research Findings

The study found that in the traditional classroom, the teacher's speech accounted for 84.65%, while in the interactive platform classroom, the teacher's speech accounted for only 35.09%, and in the traditional classroom, the interaction between "teaching" and "learning" was only through verbal interaction. In contrast, in the interactive classroom environment, teacher behaviour and student behaviour are closer to 1:1, indicating that the interactive platform classroom environment is more conducive to student-teacher interaction and student-student interaction, which is more conducive to student initiative. The results of this study show that there is a difference in the proportion of specific student verbal behaviors between the two types of classroom teaching. In the traditional classroom teaching, students' verbal behaviors are mainly reflected in students passively responding to the teacher, whereas in the interactive platform classroom teaching, students spend more time on their own learning and actively participate in the classroom, which reflects the essential difference between the interactive platform classroom and the traditional classroom. Basically, all students are more engaged and motivated in the interactive classroom.

Impact of Interactive Teaching Methods on Engagement With Learning

In the interactive classroom, technology facilitates teaching and learning, allowing teachers to use technology to both present content and share "student work". The presentation of students' work resonates with students, stimulating a collision of ideas that expands the learning of all students and creates an atmosphere of self-reflection and self-solution (Yang & Cui, 2019).

(1) Student initiative is very important in the classroom environment of the interactive platform. Students' verbal technology is almost 1:1 to that of the teacher, who mainly uses technology to demonstrate learning content, find information to facilitate discussion, and make pedagogical judgments.

Students used technology mostly to demonstrate results, use technology to learn in depth and explore more. However, the study concludes that teacher discourse still plays too much of a part in the overall learning process and that students should be encouraged to explore independently and make better use of their own initiative.

(2) The forms of teaching and learning interactions are rich. In smart classrooms, verbal interaction is mainly used to guide students in their thinking or understanding of the learning process. Technology allows for deeper interaction between teachers and multimedia, and between students and multimedia, and can provide a basis for teaching diagnosis. Teaching evaluation is no longer a verbal assessment by the teacher, but students are held accountable for their own learning, helping them to reflect and improve.

(3) The interaction is more effective. Interaction in the interactive classroom breaks down the constraints of time and space, as students can study and post their questions based on the teacher's resources before class. In class, they can ask questions directly to the teacher or communicate with their peers, and are able to receive

feedback from the teacher as well as their peers, or they can start a debate, which students can evaluate on the app. This is an effective way of communicating as teachers help students to keep their knowledge up to date, guide them to think effectively at a deeper level and develop their creative thinking and problem-solving skills.

Suggestions for Improving the Efficiency of Online Learning

Using New Multimedia Technology to Obtain More Learning Resources

New multimedia technologies use the Internet to meet the need for students to choose information independently and to personalize their learning, improving the efficiency of using educational resources and reducing teaching costs. This reflects the characteristics of independent learning, i.e. learners are self-motivated, transforming passive cognition into active learning and the traditional way of “teaching” into a way of “learning”. It allows learning to be organized according to the most effective and personalized principles according to different learning objectives, adapting the content to the different needs and characteristics of the learning objectives over time so that learning meets the needs of the learner.

It is well known that the best way to learn a language is to create an “authentic” language environment in which students can develop their language skills and deepen their understanding of foreign cultures. There is no denying that online technology has created a very different environment for students to learn English, and the use of new multimedia technologies to access more learning resources can greatly enhance the efficiency of online learning.

For example, the use of human-computer interaction such as dialogue between AI and students allows students to master and make use of these more systematic and targeted learning resources, allowing them to use their own fragmented time to learn English to imitate and practise English pronunciation and to feel the sense of English (Xu, 2022).

Conducting Online Group Communication and Interaction

In distance learning, teachers and students are separated, making it difficult to guarantee effective interaction between teachers and students and students’ classroom experience. The separation of peers makes it difficult for students to communicate and collaborate with each other, and the sense of classroom participation and motivation to learn is greatly weakened compared to offline. The teaching environment is highly variable, making it difficult to implement a range of teaching services such as information delivery, feedback on assignments, and course assessment as originally planned.

Based on the characteristics of “organization over lessons, communication over assignments and feedback over evaluation”, the class creates an online learning community to provide a platform for students to collaborate, share, and promote each other’s progress (Liu, 2020). The public calendar of the online platform is used to show the course schedule and to create course reminders. With the help of screen or document sharing, and other functions in the video conference of the network platform, the interaction between teachers and students is promoted, the sense of participation in the classroom is improved, and the learning experience is enhanced. Use the platform to record lecture videos, which is convenient for students to review timely after class, and urge teachers to conduct teaching review in a timely manner, thereby improving the efficiency of education and teaching.

Improving Students’ Online Reflective Learning Skills

Reflective learning is a process that persists in a continuous cycle. It can help university students to complete the process of self-monitoring the online learning process, self-summarizing the online learning

content, self-reflecting on the online learning content, and self-adjusting the online learning strategies. In designing reflective learning activities, students are the main actors and the teacher is the guide and support. Therefore, in addition to having a clear understanding of the role they play in independent learning, teachers should first develop students' reflective learning skills. Students should always reflect on their own learning activities, learning methods, and learning goals, and analyse and solve various learning problems from a variety of perspectives; at the same time, they should develop the habit of independent thinking through active participation in various activities inside and outside the classroom.

Summary

The integration of teachers' teaching and students' learning with various information technologies, such as the Internet+, is an inevitable form of future development in education (Xu, 2022). And exploring different ways of interacting with each other is of great significance to the efficiency of online learning.

References

- Liu, W. H. (2020). Taking multiple measures to improve the efficiency of online learning. *Beijing Education (General Education Edition)*, 41(11), 93. (in Chinese)
- Wang, X. C., Jiang, S. Y., & Huang, R. H. (2015). Research on interactive observation tools for primary and secondary schools in the smart classroom. *e-Education Research*, 36(9), 59-53. (in Chinese)
- Xu, X. (2022). Research on strategies for improving and optimizing the efficiency of online English learning in primary schools. *Primary and Middle School Educational Technology*, 45(10), 69-71. (in Chinese)
- Xu, Y. Q., & Chen, L. (2021). Research on the law of complexity of online learning based on student-student interaction. *China Distance Education*, 41(10), 12-18. doi:10.13541/j.cnki.chinade.2021.10.002.(in Chinese)
- Yang, G., & Xu, X. D. (2009). The essence and characteristics of teacher-student network interaction in distance education. *China Audio-Technology Education*, 30(12), 50-55. (in Chinese)
- Yang, T. Q., Zheng, Y. D., & Kong, B. J. (2008). The influencing factors, mechanism and improvement strategies of teacher-student interaction in college students' online learning. *Frontiers of Chinese Psychology*, 4(7), 739-745.
- Yang, W., & Cui, Y. (2019). Research on interactive behavior of teachers and students in smart classroom based on ITIAS. *Chinese Journal of ICT in Education*, 25(7), 86-90. (in Chinese)
- Yang, X. B., & Zhang, L. (2015). Research on interactive strategies in blended teaching. *Software Guide*, 8(5), 41-43. (in Chinese)
- Yuan, W. X. (2002). On the interaction between teachers and students in the teaching process. *Educational Theory and Practice*, 22(S1), 2-3. (in Chinese)
- Zheng, H. S. (2019). *New revision of introduction to sociology*. Beijing: Renmin University of China Press. Retrieved from <http://www.weld.labs.gov.cn> (in Chinese)