

PROCEEDINGS ARTICLE

Characteristics of Teacher Support in Online Learning Environments Based on the Learners' Perspective

Ming Lv^{1,*}, Junjian Liang¹¹ School of Foreign Languages, Wuhan University of Science and Technology, Wuhan, China

ABSTRACT

This study focuses on the characteristics of teacher support perceived by students in an online learning environment. The findings demonstrate that the characteristics of teacher support in online learning environments differ significantly from those in face-to-face classrooms. In terms of autonomous support, online classrooms outperform face-to-face classes. Furthermore, students in a high-scoring class experience more teacher support.

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1. INTRODUCTION

With the rapid development of network technology and online education, the teaching environment has changed greatly. In addition to the traditional face-to-face classrooms, online teaching has gradually become an important part of classroom teaching, and improving the quality of online teaching has also become the focus of many studies. Studies have shown that teacher support can have a direct impact on students' engagement and academic performance. However, the questions, such as, what are the characteristics of effective teacher support and what kinds of support should be used in the online environment, need further research. Therefore, this study attempts to explore the characteristics of teacher support in online learning environment from the viewpoint of learners. The results can be used to improve the quality of online teaching.

2. TEACHER SUPPORT

Teacher support refers to the different forms of assistance provided by teachers in students' academic

activities. Teacher support in the traditional face-to-face teaching environment refers to a series of tangible support provided by teachers, such as to help, to trust, to make friends with students and to stimulate students' interests [1,2].

With the development of online education, the study on online teacher support mainly includes three aspects: (1) the role of teachers. The research on the role of teachers extends from traditional teaching leaders to the designers of learning resources and tools, the organizers of learning environment and learning activity, and the evaluators of learning results [3]. (2) The relationship between teacher support and students' academic achievement. For example, Fredricks (2004) has explored the relationship between teacher support and student learning engagement in face-to-face teaching settings. The results show that when students perceive more teacher support, they tend to show higher involvement in learning, and get higher academic achievement [4]. Other researchers, such as Liu Bin (2017) discusses the influence of teacher support on students' online learning engagement in online learning situation [5]. (3) Types of teacher support.

*Corresponding author. Email: 13631553@qq.com

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Research on the types of teacher support includes two parts: the overall one-dimensional research and the measurable multi-dimensional research. Early teacher support studies considered that teacher support was a overall one-dimensional variable [6,7,8]. In 1985, Tardy divided the teacher support into four multi-dimensional levels: information support, tool support, emotional support, and evaluation support [9]. Shelton (2003) divided teacher support into two dimensions: emotional support and professional support [10]. In the study of Malecki and Demaray (2003), teacher support included emotional support, tool support, information support, and evaluative support [11]. Chen (2005) also considered teacher support as a multi-dimensional psychological concept, and his teacher support questionnaire contained three dimensions: emotional support, instrumental support (such as providing learning resources), and cognitive support [12]. Based on self-determination theory, Banerjee & Halder (2021) discussed the influence of teachers' independent support, structure support and relationship support on the enthusiasm of middle school students. The three dimensions of teacher support can reduce the lack of motivation, but teacher's structure support is the most important [13]. Teacher support can not only increase students' learning motivation but also reduce the influence of the lack of motivation on learning. Based on the study of Babad (1990) and others on the differential behavior of teachers, Chinese scholar Ouyang Dan (2005) divided teacher support into three dimensions: learning support, emotional support, and competence support [14]. Her division of teacher support has been adopted by many Chinese scholars, such as Zhu Haoliang (2010) [15], Chen Yanlei (2016) [16], Cui Wei (2017) [17] and Chen Xu (2018) [18]. Chai Xiaoyun (2013) compiled the teacher support behavior scale and divided teacher support into three dimensions, autonomous support, cognitive support, and emotional support [19]. The teacher support behavior scale was adopted by Chinese scholars Liu Bin (2017) [5], Liu Ying (2017) [20] and Zhang Jiajia (2019) [21]. Jiang Zhihui (2018) established a teacher support model in an online environment, which included emotional, social, knowledgeable, and instrumental support [22]. Wu Huajun (2020) divided the learning support provided by teachers in the MOOC environment into three dimensions: teachers' technical support, teachers' emotional support, and teachers' cognitive support [23]. Existing research confirms the positive impact of teacher support on the quality of online learning, but further research is needed to distinguish the differences of teacher support between the face-to-face classroom and the online environment.

To sum up, the study attempts to do research on teacher support in online learning environment. The goal of this study is to reveal the characteristics of teacher support in online learning environment and to provide a reference for improving the quality of online learning in China.

The research questions are as follows,

1. Are there any differences on teacher support between face-to-face classrooms and online learning environments?
2. What are the features of teacher support in an online learning environment?
3. Are there any differences on student-perceived teacher support between high-score learners and others in online learning environment?

3. RESEARCH METHODS

3.1. Subjects

The subjects in the study are two classes enrolled in 2021. Class A is a high-scoring class selected through the entrance examination, with a total of 40 students, and Class B is a natural class, with a total of 45 students. Both classes have experienced online teaching for about four months.

3.2. Measurement Instruments

There are two instruments used in this study. One is for quantitative study and the other data collection instrument is for empirical study. All results are analyzed by SPSS.

The questionnaire used in the study is adapted from the questionnaire by Chai Xiaoyun (2013) [19]. Chai Xiaoyun's questionnaire is based on the theory of teacher support and combined with the classroom teaching in China. This questionnaire is originally used in traditional face-to-face classes, but some scholars have tested the reliability and validity of using it in an online environment [5]. This questionnaire investigates students from three aspects: autonomous support, emotional support, and cognitive support. Autonomous support mainly refers to teaching support provided by teachers for learners in terms of syllabus design and selection of learning tasks to enhance the learners' autonomy in learning activities. Emotional support refers to the emotional care given by teachers when students meet stress and challenges in learning activities. Cognitive support refers to the design of learning tasks and assessment for learners to provide advanced learning challenges.

The adapted questionnaire consists of 12 statements, with four statements for autonomous support, cognitive support, and emotional support respectively. Each of the statements has five choices ranging from "totally agree" to "totally disagree" (1/2/3/4/5). Students are told to make a choice after each statement. The higher the score, the more teacher support perceived by the learners. This questionnaire is administrated in Chinese.

To go deeper into student-perceived teacher support, an interview guide was designed. The interview randomly selected six students from class A and class B to compare the difference between face-to-face and online classrooms. The interview collected data on 3 aspects: autonomous support on teaching materials and learning resources, knowledgeable support on course, and emotional support from teachers.

3.3. Data Collection and Data Analysis

Data collection was conducted in class for about 10 minutes, and students were required to fill in two same questionnaires for face-to-face classes and for online classes. The results were put into computers, and SPSS was used to analyze them. After the questionnaire, the students participating in the interview were interviewed individually.

4. RESULTS

According to the data analysis, it is found that teacher support perceived by students is significantly different between traditional face-to-face classrooms and the online learning environment, and teacher support perceived by students is higher in traditional classrooms. But there are some features on teacher support in online classrooms. The data are as follows.

4.1. Differences in Teacher Support Between Face-to-Face Classrooms and Online Learning Environments

The data show there is a significant difference in teacher support between face-to-face classrooms and online learning environments. Table 1 shows that students perceive more teacher support in traditional classrooms than in online classes. Face-to-face classes have higher scores on cognitive support and emotional support. However, the scores of autonomous support in online environments are higher than those in face-to-face classes.

	Classroom	Mean	S.D.
Teacher support	face-to-face	4.051	0.505
	online	2.990	0.855
Autonomous support	face-to-face	2.585	0.700
	online	3.285	0.505
Cognitive support	face-to-face	4.295	0.505
	online	3.480	0.625
Emotional support	face-to-face	3.785	0.845
	online	2.320	0.525

Table 1. Comparison of teacher support in face-to-face classrooms and in online classrooms.

4.2. Features of Teacher Support in an Online Learning Environment

Autonomous support and cognitive support get higher scores in online classrooms, while emotional support scores lower. Interviews also show that online classes are superior to face-to-face classes in autonomous support because online classes often provide more autonomous learning materials and more flexible schedules. Students also realize that online classes require more autonomy. In terms of cognitive support, students believe they can better understand learning materials because they can "replay" online classes. Some students also mention that online classes provide more comprehensive guidance on learning methods and strategies. Therefore, the score on cognitive support is relatively high.

4.3. Difference in Student-Perceived Teacher Support Between High-Score Learners and Others in an Online Learning Environment

Table 2 shows that students in Class A score higher than in Class B. Interview data also show that both groups give lower scores to teacher support in online classes. However, in terms of emotional support, students in the high-scoring class (Class A) perceive more teacher support. The reasons include that in the high-scoring class, there is more interaction between teachers and students in the online environment. Students are more willing to interact with teachers and gain more attention from teachers. For the high-scoring class, it is easier to establish the emotional relationship between teachers and students.

	Class	Number of Students	Mean	S.D.
Teacher support	A	40	3.13	0.87
	B	45	2.85	0.93
Autonomous support	A	40	3.52	0.54
	B	45	3.05	0.47
Cognitive support	A	40	3.54	0.68
	B	45	3.42	0.57
Emotional support	A	40	2.61	0.56
	B	45	2.03	0.49

Table 2. Student-perceived teacher support in the online environment in Class A and Class B.

5. DISCUSSION AND SUGGESTIONS

The study shows that the teacher support, especially emotional support, perceived by learners in online classes is not much. This also confirms the relevant conclusions of other researchers [5], which reflects that the biggest obstacle in the online classroom is the communication between teachers and students. But the study also shows that communication problems in online classrooms and students' own learning ability have certain relevance. Therefore, online classrooms, on the one hand, need to seek more appropriate communication channels between teachers and students. On the other hand, learners also need to be more active, which can help them get more feedback in emotional support and create a better online learning atmosphere.

In terms of cognitive support, online learning has its unique advantages. Online learning platforms can track students' learning data, follow students' academic changes, and introduce kinds of learning strategies, which can benefit the learners.

In terms of autonomous support, online classrooms give students more choice because of flexible learning methods and rich learning materials. Therefore, when carrying out online teaching, teachers can provide different levels of teaching materials or supplementary materials to enrich students' choices, which are the advantages of online classrooms.

6. CONCLUSION

Different learning environments lead to different teacher support behaviors. The study explores the characteristics of teacher support and distinguishes the effective teacher support behaviors in the online environment from the perspective of students. However, the means to make up for the lack of emotional support in online environment need to be further studied.

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