

# The Influence of Teacher Support on EFL Learners' Online Learning Engagement: The Mediating Effect of Academic Self-Efficacy

Lanlan Wei

Department of College English, Zhejiang Yuexiu University, Shaoxing, China  
Email: 20122016@zyufl.edu.cn

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## Abstract

Amidst the rapid advancements in information technology, especially with the pandemic serving as a momentous catalyst since 2020, online learning has emerged as a widely accepted and standardized mode for English as a Foreign Language (EFL) education. Given the pivotal roles of teachers and learners as the two major participants in the learning process, teacher support, learning engagement and learners' self-efficacy in online learning are crucial factors that cannot be overlooked. Despite the widely acknowledged importance of teacher support and self-efficacy as significant predictors of students' learning engagement, there remains a notable dearth of profound investigations into the interconnection between teacher support, academic self-efficacy and online learning engagement in the academic context of EFL learning. This study investigates the relationship between perceived teacher support and online learning engagement among undergraduate EFL learners, examining the mediating role of academic self-efficacy in this context. Utilizing a mixed-methods approach, the study encompassed 530 undergraduate EFL learners as participants. The Structural equation modeling analysis using the AMOS 23.0 found that perceived teacher support positively predicts EFL learners' online learning engagement. Moreover, academic self-efficacy emerges as a significant mediator in the relationship between perceived teacher support and online learning engagement. These insights offer valuable guidance for EFL teachers on how to enhance college EFL learners' online learning engagement by fostering their perception of teacher support and strengthening their academic self-efficacy.

## Keywords

Teacher Support, Online Learning Engagement, Academic Self-Efficacy, EFL Education

## 1. Introduction

In the aftermath of the COVID-19 pandemic, the education sector underwent a seismic shift, particularly within the academic realm. Prior to this unprecedented global challenge, online learning, albeit promising, primarily operated as a supplementary modality to traditional, classroom-based instruction. Nevertheless, amid the emergence of the pandemic, online education underwent a rapid transformation, culminating in its emergence as the primary mode of instruction. To contain the spread of the virus, the Ministry of Education of China implemented emergency measures, including the “Suspending Classes without Stopping Learning” initiative. This initiative effectively facilitated a smooth transition for over 30 million university students from face-to-face learning to remote online learning. Since then, online learning has emerged as the prevailing mode of instruction. In Chinese higher education, a noticeable shift is occurring, as offline courses are progressively transforming into either pure online courses or blended formats. The widespread implementation of online education initiatives across the country has substantially contributed to the evolution and enhancement of online learning in China. However, it has also highlighted several key challenges regarding the quality of online education for university students, such as decreased engagement and a lower-than-expected completion rate for online courses (Wang et al., 2021). Against this backdrop, enhancing students’ engagement in online learning and identifying the potential factors that influence it has emerged as a pivotal research focus (Jang et al., 2021).

Learning engagement, defined as the depth and vitality of students’ active dedication to educational endeavors, serves as an essential indicator for gauging their progress towards academic objectives (Henrie et al., 2015). Prior research has identified teacher support as a crucial determinant of learning engagement, highlighting its substantial and direct effect on students’ sustained involvement (Wang et al., 2017). Specifically, students who perceive a higher degree of teacher support tend to exhibit greater engagement in online learning settings (Rao & Wan, 2020). This enhancement in engagement has been shown to significantly impact students’ overall academic achievement (Zhang, 2022). Moreover, teacher support plays a pivotal role in fostering learners’ social-emotional well-being (Liu et al., 2018). This, in turn, augments their academic self-confidence (Villegas-Puyod et al., 2020), motivating them to engage more profoundly in educational activities.

Furthermore, academic self-efficacy emerges as a pivotal individual variable, alongside its correlation with teacher support, that profoundly influences students’ achievement. As Cotterall (1999) postulates, learners who possess heightened levels of academic self-efficacy tend to invest more effort and time, thereby fostering a proactive engagement in language learning activities. However, within the evolving domain of online learning, a pertinent question remains: can teacher support augment students’ online learning engagement, with academic self-efficacy serving as a potential mediator? This question necessitates further

scrutiny to elucidate the complex interplay between these variables.

Additionally, although prior research has established connections between learning engagement, teacher support, and academic self-efficacy, these studies are predominantly focused on math and science. In contrast, the relationship between these variables in EFL learning remains understudied. Therefore, this study aims to investigate how teacher support influences online learning engagement among college EFL learners, and to examine the mediating role of academic self-efficacy in this relationship.

## 2. Literature Review

### 2.1. Learning Engagement

Learning engagement, as initially conceptualized by [Newmann \(1992\)](#), encompasses a student's active and profound participation in the learning process. Subsequently, [Schaufeli et al. \(2002\)](#) refined this definition, proposing a tripartite framework comprising vitality, dedication, and absorption. Prior to this refinement, researchers, such as [Finn \(1993\)](#), tended to view learning engagement as a dual-dimensional construct, encompassing behavioral indicators and emotional factors. More recently, the concept of learning engagement has been widely acknowledged as a trifecta, encompassing behavioral engagement (manifesting in students' dedication and efforts), cognitive engagement (reflecting strategic and critical thinking), and emotional engagement (expressing enthusiasm and motivation). This multifaceted understanding has sparked extensive scholarly inquiries across disciplines, including education and psychology, delving into the definition, classification, and influencing factors of learning engagement. In the domain of foreign language learning, the notion of engagement has garnered considerable scholarly interest. However, the extant literature pertaining to learning engagement within the specific context of online EFL instruction remains sparse. Therefore, the current study aims to delve into college students' online learning engagement in EFL, particularly focusing on its behavioral, cognitive, and emotional dimensions.

### 2.2. Teacher Support

Teacher support, an indispensable element of social support for students in their academic journey, has garnered significant recognition as a crucial factor, as emphasized by [Ghaith \(2002\)](#). This support can be bifurcated into perceived teacher support and actual teacher support, with perceived teacher support often exerting a more profound influence on students' academic performance and psychological well-being than the actual support rendered, as articulated by [Chen \(2008\)](#). Building upon [Ghaith's \(2002\)](#) conceptualization, teacher support encompasses the informational, evaluative, and emotional assistance perceived by students. [Zhang et al. \(2021\)](#) have further expanded this definition to encompass both academic and emotional forms of support. Specifically, in the realm of online learning, [Liu et al. \(2017\)](#) posit that perceived teacher support

primarily comprises emotional, autonomous, and cognitive facets. Despite the diversity in the conceptualization of teacher support, scholarly literature exhibits a consensus that when students perceive teacher support, they are not only granted access to resources that facilitate the attainment of academic goals but also foster a sense of appreciation and care from their teachers (Ghaith, 2002).

In this study, we categorize teacher support into three fundamental dimensions: autonomy support, cognitive support, and emotional support. Autonomy support empowers students to exercise discretion in choosing their tasks, content, and methodologies, thus fostering independent learning. Cognitive support involves challenging tasks, strategic guidance, and tailored exercises to enhance cognitive development. Lastly, emotional support comprises positive reinforcement and encouragement, assisting students in navigating academic challenges and maintaining a positive mindset.

### 2.3. Self-Efficacy

Self-efficacy, as originally conceptualized by Bandura (1997), represents an individual's cognitive evaluation of their ability to utilize their skills and competencies to achieve designated goals. Over the past four decades, this construct has garnered significant scholarly attention due to its profound implications for cognitive processes, affective schemas, and behavioral decisions. According to Pajares and Miller (1995), self-efficacy plays a pivotal role in shaping individuals' allocation of effort and time towards a given task, highlighting its centrality in cognitive and behavioral outcomes. Within specific domains, the integration of self-efficacy has been deemed crucial. In the academic context, academic self-efficacy specifically refers to students' perceived confidence in their ability to successfully execute and complete academic assignments, as defined by Bandura (1997). Students with high academic self-efficacy are inclined to devote considerable effort and energy towards their academic pursuits, persevering in their quest to complete their chosen endeavors with unwavering determination. In the realm of EFL learning, academic self-efficacy assumes a particular significance. It reflects learners' confidence in achieving English language goals and proficiency. Learners with high self-efficacy are more convinced in their ability to utilize English for various tasks, while those with low self-efficacy exhibit weaker beliefs and confidence in their English language abilities. Therefore, understanding and fostering academic self-efficacy in EFL learners is essential for enhancing their language proficiency and academic success.

### 2.4. The Correlation between Teacher Support and Learning Engagement

Within the ecological framework of educational systems, teacher support plays a pivotal role in shaping students' self-confidence, value orientations, and behavioral inclinations. Zheng and Zhang's (2008) research underscores this by elucidating how students' comprehension of teacher support reflects their perception of educators' concern for their academic pursuits and personal develop-

ment. This conceptualization aligns closely with theoretical frameworks such as social support theory and self-determination theory. Social support theory posits that individuals interpret and recognize supportive behaviors from their social networks as beneficial to their psychological well-being and overall growth (Berkman & Syme, 1979). Teacher support, as a distinct type of social support, holds significant influence in this context. Similarly, self-determination theory underscores the importance of the external environment in fulfilling individuals' fundamental psychological needs: autonomy, competence, and relatedness. When these needs are satisfied, they foster intrinsic motivation, promote the internalization of extrinsic motivation, and sustain engagement (Deci & Ryan, 1985). The significance of teacher support in promoting learning engagement is well-evidenced. Research conducted by Strati et al. (2017) found that teacher support perceived by students plays a significant role in fostering their engagement in the learning process. Furthermore, Wentzel (1997) observed that this perceived support enhances students' willingness to engage in learning tasks, both behaviorally and cognitively, and positively correlates with their interest in participating in classroom interactions. These findings further validate the critical role of teacher support in fostering a conducive learning environment. However, the question persists: does perceived teacher support similarly foster student engagement in the realm of online learning? The study conducted by Shea and Bidjerano (2009) provides compelling evidence that teacher support plays a pivotal role in augmenting the social presence of online learners, thereby enhancing their engagement in online learning environments. This finding is corroborated by a substantial body of research on online learning engagement, which underscores the influence of multifaceted teacher-related factors. These include, but are not limited to, engagement levels, instructional attitudes, student expectations, teaching modalities, task design, and the provision of feedback. Cumulatively, these studies indicate that perceived teacher support constitutes a critical component in bolstering students' learning engagement in online learning contexts.

### **2.5. The Mediating Role of Academic Self-Efficacy**

In exploring the intricacies of student engagement, the pivotal role of academic self-efficacy cannot be overstated, as highlighted by Fredricks et al. (2004). Students with heightened academic self-efficacy demonstrate an increased commitment and dedication, investing more time in language learning, thus enhancing their engagement in the learning process. More recently, Han et al. (2021) delved into the sustainability of college EFL learners' development during the pandemic, focusing on their engagement, self-efficacy, and satisfaction in online learning environments. Their study revealed a robust positive correlation between academic self-efficacy and learners' behavioral, emotional engagement, as well as their level of contentment with their online learning experience. Notably, academic self-efficacy emerged as a key mediator between the learning environment and learning outcomes, bridging the two due to its strong connec-

tions. In alignment with this, Liu et al. (2018) highlighted that perceived teacher support does not solely exert a direct influence on students' engagement across multiple dimensions, including behavior, cognition, social interaction, and emotions. Rather, it indirectly shapes these engagement levels through the mediating roles of academic self-efficacy and enjoyment. This underscores the importance of fostering a supportive learning environment that can cultivate students' self-confidence in their academic abilities, ultimately leading to more favorable learning outcomes.

## 2.6. Research Hypothesis

After a thorough examination of the extant literature, we discern distinct interconnections between teacher support, learning engagement, and academic self-efficacy. Nevertheless, these insights must be viewed with circumspection due to their inherent limitations. Firstly, the corpus of research pertaining to EFL learning, particularly in online environments, remains limited. A significant proportion of previous studies have predominantly focused on math or science subjects within the traditional classroom setting. Secondly, a dearth of research exists that simultaneously probes the intricate relationships among these three variables. Many prior investigations have confined their scope to examining the interplay between only two of these factors. Thirdly, the majority of prior research has targeted middle or high school students, overlooking the university-level learners. Given their paramount importance for college EFL learners, a more comprehensive exploration of how these variables interplay in university contexts is warranted. Given the aforementioned reasons, the current study endeavors to scrutinize the impact of perceived teacher support on university EFL learners' engagement in online learning, particularly through the mediating role of academic self-efficacy. The findings aim to serve as a pivotal reference for EFL educators and researchers in enhancing students' online learning engagement amid the normalization of online English learning. Drawing from the aforementioned literature review, the following four hypotheses are formulated in this research:

H1: There exists a positive and direct correlation between EFL learners' perceived teacher support and their engagement in online learning.

H2: EFL learners' perceived teacher support is positively and directly associated with their academic self-efficacy in English learning.

H3: EFL learners' academic self-efficacy in English learning exerts a significant and positive influence on their engagement in online learning.

H4: The relationship between EFL learners' perceived teacher support and their online learning engagement is mediated by their academic self-efficacy in English learning.

## 3. Methodology

### 3.1. Participants and Procedure

The research was conducted from November 2023 to April 2024, during which a

comprehensive survey was carried out among 530 undergraduate students not majoring in English. These students came from four universities located in Zhejiang Province, Eastern China—specifically, two universities in Shaoxing and another two in Hangzhou. Additionally, these students consistently engaged in designated English learning tasks at scheduled intervals on diverse online learning platforms, encompassing digital learning systems tailored to textbooks as well as mobile-based intelligent teaching platforms, such as Rain Classroom, Moso Teach, Zhihuishu, UMOOC, and SuperStar. The survey was administered by the author and entrusted to college English teachers from the respective universities, who disseminated the questionnaire via the Wenjuanxing platform in their respective classes.

To conduct a survey with a desired margin of error of no more than 5% and a confidence level of 95%, assuming a target event or characteristic has a probability of 50%, we need to gather a minimum sample size of 384. In addition, Barrett (2007) argued that structural equation modeling (SEM) often employs the maximum likelihood method, inflating Chi-square values for samples over 500. Therefore, we kept the sample size within the range of 384 to 500.

To ensure a comprehensive, scientific, and representative survey, we surveyed 530 students, taking into account potential invalid responses. Following a rigorous screening process, 52 invalid questionnaires were eliminated, resulting in 478 valid questionnaires for analysis. The demographic profile of the participating students is outlined in Table 1.

**Table 1.** Demographic statistics ( $N = 478$ ).

Variables	Frequency	Percentage (%)
<b>Gender</b>		
Male	198	41.4
Female	280	58.6
<b>Grade</b>		
Freshmen	109	22.8
Sophomore	225	47.1
Junior	87	18.2
Senior	57	11.9
<b>Major</b>		
Chinese Literature	77	16.1
Information Science	61	12.8
Architecture	74	15.5
International Trade	73	15.3
Communication	39	8.2
Mechanical Engineering	38	7.9
Editing and publishing	75	15.7
Others	41	8.6

### 3.2. Measurements

The questionnaire for this study contains the participants' demographic information and three scales: Online Learning Engagement Scale, Perceived Teacher Support Scale and English Learning Self-efficacy Scale.

#### 1) Online Learning Engagement (OLE)

We employed the Online Learning Engagement Scale, originally compiled by Sun and Rueda (2012) and later translated and refined by Liu et al. (2017). This comprehensive scale consists of 15 items that are grouped into three distinct dimensions: behavioral engagement (BE), cognitive engagement (CE), and emotional engagement (EE). Behavioral engagement pertains to students' actions and focus during online English learning, exemplified by the statement, "*I maintain my concentration while learning English online*". Cognitive engagement involves deeper cognitive processes, such as reading extended resources to enrich the learning experience, reflected in the statement, "*I delve deeper into online English learning by exploring additional resources*". Emotional engagement captures students' emotional responses during the learning process, exemplified by the sentiment, "*I feel pleased during the online English learning process*". Each item in the scale is rated on a 5-point Likert scale, ranging from 1 (indicating "not true at all") to 5 (indicating "completely true"). A higher cumulative score signifies a greater level of engagement in online English learning. In the current study, the reliability of the scale was assessed using Cronbach's alpha, yielding a value of 0.938, indicating high internal consistency.

#### 2) Perceived Teacher Support (PTS)

We utilized the 11-item Perceived Teacher Support Scale, which was revised by Liu et al. (2017), to gauge participants' perceived levels of autonomy support (AS), cognitive support (CS), and emotional support (ES) from their English teachers. Specifically, the statement "*My English teacher assigns us flexible online learning tasks and offers diverse learning options*" was utilized to assess students' perceived autonomy support. The item "*My English teacher provides us with guidance on online learning methods*" served to evaluate perceived cognitive support, while "*My English teacher respects our suggestions and opinions and offers feedback accordingly*" was designed to assess perceived emotional support. All items were evaluated on a 5-point Likert scale, spanning from 1 (indicating "Not true at all") to 5 (representing "Completely true"). Higher scores indicated a stronger perception of teacher support. The reliability of the scale in this study was ascertained through Cronbach's alpha, yielding a high value of 0.941.

#### 3) Academic Self-efficacy (ASE)

To evaluate students' academic self-efficacy within the realm of English language learning, the English Learning Self-efficacy Scale was adopted. This scale is a refined version of Liang's (2000) Academic Self-efficacy Scale, comprising 18 items that are further classified into two subdomains: self-efficacy in learning ability (SEA) and self-efficacy in learning behavior (SEB). SEA items gauge stu-

dents' confidence in their ability to overcome challenges encountered during online English learning, such as the statement, "*I am confident in my capacity to address challenges that arise during online English learning*". Conversely, SEB items evaluate students' perceived effectiveness in executing learning behaviors, exemplified by the statement, "*When completing online English assignments, I consistently review relevant learning resources to enhance the quality of my work*". The items were rated on a 5-point scale, ranging from 1 (indicating the lowest level of agreement) to 5 (indicating the highest level of agreement). A higher score indicates a greater manifestation of self-efficacy in online English learning. The reliability of the scale in this study was confirmed by a Cronbach's alpha value of 0.966.

### 3.3. Data Analysis

Following thorough data validation and refinement, a comprehensive dataset encompassing the details of 478 participants was imported into two dedicated software platforms. Initially, IBM SPSS Statistics, version 26.0, was utilized to carry out preliminary data organization and foundational statistical tests, thereby enhancing the precision and reliability of our initial analytical endeavors. Subsequently, for the intricate process of structural equation modeling, AMOS, version 23.0, was employed, offering the requisite sophistication to uncover intricate interrelationships within the data. This methodological framework ensures the rigor and credibility of the data analysis, ultimately strengthening the scholarly integrity of the present study.

Initially, in order to establish the credibility of the three scales utilized in this study, we conducted a rigorous internal consistency reliability analysis. Specifically, the Cronbach's alpha values for the 44 items assessing online learning engagement, perceived teacher support, and academic self-efficacy were exceptionally high, attaining values of 0.938, 0.941, and 0.966 respectively. These findings demonstrate a robust level of consistency and reliability across all three scales, thus affirming their validity for use in this research.

Subsequently, we proceeded with an exploratory factor analysis, commencing by rigorously assessing the adequacy of the data for this analytical procedure. The Kaiser-Meyer-Olkin (KMO) measure, which stands at 0.967, significantly surpasses the minimum threshold of 0.6, thereby satisfying the prerequisite conditions for factor analysis and confirming the suitability of the data for this methodological approach. Additionally, the data has successfully undergone Bartlett's test of sphericity, resulting in a statistically significant outcome ( $p < 0.05$ ), further validating the appropriateness of the research data for factor analysis.

Drawing from the statistics presented in **Table 2**, our factor analysis has distinctly isolated three factors, adhering to the criterion of an eigenvalue exceeding 1. These factors account for 25.681%, 20.054%, and 19.895% of the rotated variance explained, respectively. Collectively, they contribute to a cumulative rotated variance explained of 65.63%. This congruency aligns precisely with the number of dimensions intended in the questionnaire's design, signifying a high

level of correspondence between the theoretical construct and the empirical findings. To further scrutinize the alignment between the items and the factors, we employed the varimax rotation method. The results revealed that the communalities associated with all research items exceeded 0.4, indicating a satisfactory relationship between the items and the extracted factors. This signifies that the factors have effectively captured the pertinent information, thereby validating the reliability and validity of the factor analysis.

**Table 2.** Variance explained (VE).

Table of Variance Explained									
Factor ID	EV			VE Before Rotation			VE After Rotation		
	EV	VE %	Cum %	EV	VE %	Cum %	EV	VE %	Cum %
1	16.231	36.888	36.888	16.231	36.888	36.888	11.3	25.681	25.681
2	8.443	19.189	56.077	8.443	19.189	56.077	8.824	20.054	45.735
3	4.203	9.553	65.63	4.203	9.553	65.63	8.754	19.895	65.63
4	0.982	2.231	67.862	-	-	-	-	-	-
5	0.837	1.902	69.764	-	-	-	-	-	-
6	0.814	1.849	71.613	-	-	-	-	-	-
7	0.679	1.543	73.156	-	-	-	-	-	-
8	0.605	1.376	74.531	-	-	-	-	-	-
9	0.553	1.257	75.788	-	-	-	-	-	-
10	0.528	1.2	76.989	-	-	-	-	-	-
11	0.514	1.169	78.158	-	-	-	-	-	-
12	0.494	1.123	79.28	-	-	-	-	-	-
13	0.478	1.087	80.368	-	-	-	-	-	-
14	0.456	1.036	81.404	-	-	-	-	-	-
15	0.437	0.992	82.397	-	-	-	-	-	-
16	0.426	0.967	83.364	-	-	-	-	-	-
17	0.4	0.909	84.273	-	-	-	-	-	-
18	0.389	0.884	85.157	-	-	-	-	-	-
19	0.375	0.853	86.01	-	-	-	-	-	-
20	0.371	0.843	86.852	-	-	-	-	-	-
21	0.356	0.809	87.661	-	-	-	-	-	-
22	0.35	0.796	88.457	-	-	-	-	-	-
23	0.332	0.754	89.211	-	-	-	-	-	-
24	0.314	0.713	89.924	-	-	-	-	-	-
25	0.299	0.68	90.603	-	-	-	-	-	-
26	0.295	0.671	91.274	-	-	-	-	-	-
27	0.291	0.661	91.935	-	-	-	-	-	-
28	0.28	0.636	92.571	-	-	-	-	-	-

## Continued

29	0.267	0.606	93.176	-	-	-	-	-	-
30	0.256	0.582	93.759	-	-	-	-	-	-
31	0.248	0.563	94.322	-	-	-	-	-	-
32	0.243	0.551	94.873	-	-	-	-	-	-
33	0.235	0.534	95.408	-	-	-	-	-	-
34	0.229	0.522	95.929	-	-	-	-	-	-
35	0.221	0.503	96.432	-	-	-	-	-	-
36	0.216	0.49	96.922	-	-	-	-	-	-
37	0.207	0.471	97.394	-	-	-	-	-	-
38	0.19	0.432	97.825	-	-	-	-	-	-
39	0.181	0.411	98.236	-	-	-	-	-	-
40	0.176	0.399	98.636	-	-	-	-	-	-
41	0.165	0.375	99.011	-	-	-	-	-	-
42	0.156	0.355	99.367	-	-	-	-	-	-
43	0.145	0.33	99.697	-	-	-	-	-	-
44	0.133	0.303	100.0	-	-	-	-	-	-

Subsequently, we conducted a confirmatory factor analysis (CFA) to evaluate the measurement relationships. When considering the standardized loading coefficients, if their absolute values for all measurement relationships exceed 0.6 and demonstrate statistical significance, it indicates a robust and positive measurement relationship between the measurement instruments and the targeted variables, as evident in **Table 3**. After conducting the CFA encompassing three factors and eight analytical items, the results in **Table 4** reveal that all three factors exhibit AVE values above 0.5 and CR values exceeding 0.7. This signifies that the data analyzed in this study possesses strong convergent validity, indicating a reliable and robust measurement of the underlying constructs.

**Table 3.** Factor loading matrix.

Latent Variable	Observed Variable	Loadings	SE	CR	<i>p</i>	Std. Loadings
OLE	BE	1	-	-	-	0.854
OLE	CE	1.139	0.043	26.731	0	0.913
OLE	EE	1.046	0.038	27.535	0	0.933
PTS	AS	1	-	-	-	0.954
PTS	CS	1.006	0.021	48.446	0	0.96
PTS	ES	1.028	0.021	48.04	0	0.959
ASE	SEA	1	-	-	-	0.975
ASE	SEB	0.963	0.056	17.152	0	0.943

The dash “-” indicates that this item is the baseline.

**Table 4.** AVE & CR.

Factor	AVE	CR
OLE	0.811	0.928
PTS	0.917	0.971
ASE	0.920	0.958

## 4. Results

### 4.1. Descriptive Statistics and Correlations

**Table 5** presents descriptive statistics for various variables, including means (M), standard deviations (SD), skewness, and kurtosis. In the context of online learning engagement, students exhibit remarkably high involvement in behavioral (M = 4.11), cognitive (M = 3.95), and emotional (M = 3.90) dimensions. This signifies not just active participation in executing learning tasks but also profound immersion in cognitive comprehension and emotional connectivity to the learning process. The low SDs further substantiate the consistency in engagement levels among students. Regarding perceived teacher support, students accolade their teachers' online guidance with high ratings, particularly in the domain of emotional support (M = 4.01). This underscores teachers' proficiency in fostering a nurturing and motivating learning environment. Additionally, autonomy (M = 3.97) and cognitive support (M = 4.00) also receive high scores, reflecting teachers' effectiveness in encouraging self-directed learning and providing cognitive facilitation. Despite intermediate self-efficacy scores in learning ability, behavior, and overall academic performance (ranging from M = 3.45 to M = 3.46), these results indicate that students possess a certain level of confidence in their English online learning endeavors. However, there is ample scope for improvement and addressing potential uncertainties to further enhance their self-efficacy.

**Table 5.** Descriptive statistics.

Variables	mean	Std. deviation	skewness	kurtosis
BE	4.11	0.76	-0.55	-0.39
CE	3.95	0.81	-0.39	-0.54
EE	3.90	0.73	-0.24	-0.37
<b>OLE</b>	3.98	0.72	-0.34	-0.50
AS	3.97	0.92	-0.62	-0.67
CS	4.00	0.92	-0.64	-0.70
ES	4.01	0.94	-0.72	-0.60
<b>PTS</b>	4.00	0.90	-0.65	-0.77
SEA	3.46	0.83	0.13	-0.81
SEB	3.45	0.83	0.14	-0.82
<b>ASE</b>	3.45	0.81	0.17	-0.85

After validating the normality of the data, we progressed to perform Pearson correlation analyses. These analyses aimed to unpack and explore the intricate connections between engagement in online learning (OLE), perceived teacher support (PTS), and Academic self-efficacy (ASE). The results of our rigorous research are presented in **Table 6**.

**Table 6.** Pearson correlation coefficient.

	OLE	PTS	ASE
OLE	1		
PTS	0.518**	1	
ASE	0.321**	0.219**	1

\* $p < 0.05$ , \*\* $p < 0.01$ .

The correlation analysis conducted in this study offers compelling empirical evidence of a robust, positive correlation between students' engagement in online learning (OLE) and their perceived teacher support (PTS). In particular, the correlation coefficient of 0.518 signifies a statistically significant positive relationship between OLE and PTS, attaining significance at the 0.01 level. This finding underscores the integral role of PTS in fostering students' active engagement and participation in online learning environments. Furthermore, the analysis reveals a noteworthy positive association between perceived teacher support (PTS) and academic self-efficacy (ASE), evidenced by a correlation coefficient of 0.219, which is also statistically significant at the 0.01 level. This correlation underscores the critical influence of PTS on Students' academic self-assurance and their conviction of academic proficiency.

Collectively, these findings reinforce the pivotal role of PTS in promoting students' OLE and enhancing their ASE. The significant correlations underscore the importance of teachers' supportive guidance and interactions in online learning contexts, as they contribute significantly to students' engagement, motivation, and academic success. These results provide valuable insights for educators and policymakers in designing and implementing effective online learning strategies that prioritize teacher support and student engagement.

#### 4.2. Structural Equation Modeling (SEM) Construction

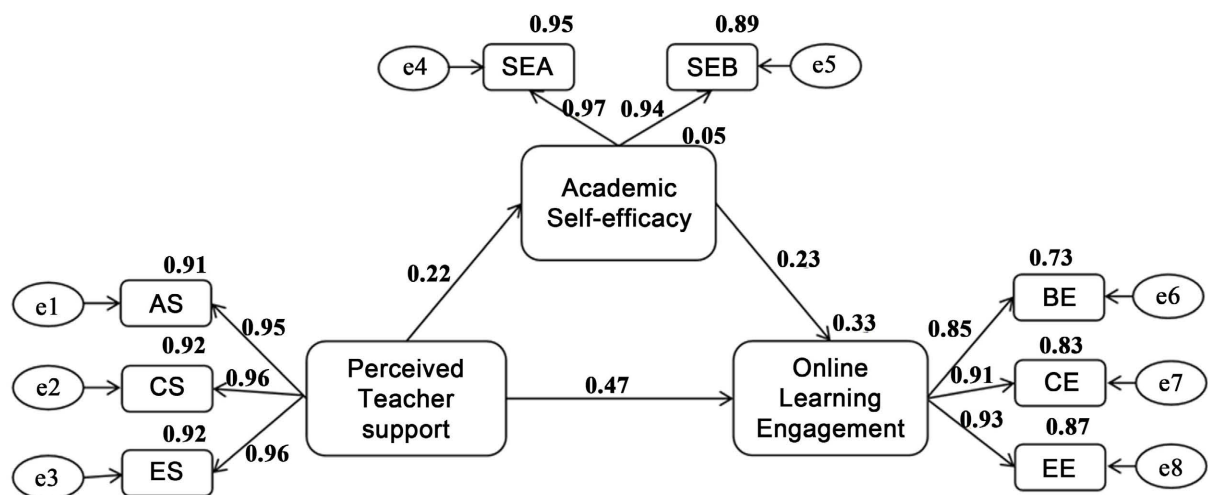
To gain an in-depth understanding of the data, this study utilized the advanced statistical software AMOS 23.0, employing the robust Maximum Likelihood Estimation method to precisely estimate model parameters. In the analytical framework, perceived teacher support (PTS) served as the predictor variable, while online learning engagement (OLE) was the outcome variable, with academic self-efficacy (ASE) occupying a central position as a mediating variable, thereby constituting a complex triad of interrelated factors.

The model refinement process was rigorous, involving iterative evaluations based on diagnostic indices such as modification indices and critical ratios. This

refinement aimed to enhance the model's explanatory power and goodness-of-fit, ensuring its coherence with empirical findings and theoretical considerations. Consequently, the refined Structural Equation Model, visually presented in **Figure 1**, exhibits a nuanced network of relationships through standardized path coefficients, providing a detailed understanding of the underlying dynamics. As indicated in **Table 7**, the model's fit indices significantly exceed the established thresholds, affirming its strong alignment with the data collected through the questionnaire.

**Table 7.** Model fit.

Model Fit Indices	Criterion	Actual Value	Fit Result
Absolute Fit Indices			
GFI	>0.9	0.964	Excellent
AGFI	>0.9	0.924	Excellent
RMSEA	<0.1	0.085	Acceptable
Incremental Fit Indices			
NFI	>0.9	0.982	Excellent
IFI	>0.9	0.986	Excellent
TLI	>0.9	0.977	Excellent
CFI	>0.9	0.986	Excellent
Parsimonious Fit Indices			
CMIN/DF	<5	4.321	Acceptable
PNFI	>0.5	0.596	Excellent



**Figure 1.** Structural model.

As depicted in **Figure 1**, the influence of perceived teacher support on EFL learners' online learning engagement was significant ( $\beta = 0.47$ ,  $p < 0.001$ ). Hence, H1 is upheld and confirmed. Furthermore, the significant impact of per-

ceived teacher support on academic self-efficacy, evidenced by a  $\beta$  coefficient of 0.22 ( $p < 0.001$ ), confirms the validity of Hypothesis H2. Notably, academic self-efficacy emerged as a positive predictor of online learning engagement ( $\beta = 0.23$ ,  $p < 0.001$ ), therefore, H3 was verified.

Finally, we employed a bias-corrected bootstrap method to examine whether the mediating effect of academic self-efficacy was significant. In the mediation path of “perceived teacher support  $\rightarrow$  academic self-efficacy  $\rightarrow$  online learning engagement”, the mediation effect value is 0.052, with a 95% confidence interval of [0.026, 0.089], which excludes zero, indicating that the indirect influence of perceived teacher support on students’ online learning engagement, mediated through academic self-efficacy, yielded a significant effect, therefore H4 was verified.

## 5. Discussion

### 5.1. The Current State of Perceived Teacher Support and EFL Learners’ Online Learning Engagement

The descriptive statistical analysis underscores that EFL learners perceive their teachers as providing significant emotional, autonomous, and cognitive support in online learning environments. This notable finding closely aligns with the conclusions drawn by Zhang & Lu (2023) in their research. The underlying reasons for this phenomenon are multifaceted. Firstly, the swift advancements in information technology, along with the formulation and implementation of national educational policies, have laid solid foundations for the integration of blended teaching practices into College English courses and have strengthened teachers’ digital literacy. Secondly, the pandemic has served as a transformative juncture in China’s educational landscape, prompting a systematic commitment from teachers to engage in educational technology training, leading to marked improvements in their proficiency in delivering information-based instruction. Furthermore, with the advent of the pandemic, information teaching platforms have undergone further refinement, enabling more college English teachers to innovate their teaching methodologies through digital enablement. This has been pivotal in elevating students’ online learning experiences, ultimately leading to a strengthened belief in the supportiveness of teachers throughout their English learning path.

As is also illustrated by the descriptive analysis, EFL students demonstrate a high level of behavioral, cognitive, and emotional engagement in online learning. This pronounced trend underscores the substantial advancements made in Chinese foreign language education, facilitating the transformation of students from passive knowledge recipients to proactive participants in the language acquisition process. Upon examining the data for each indicator, it is evident that students’ behavioral engagement slightly surpasses the other two dimensions, with emotional engagement registering as the lowest among the three. The observation suggests that, within the context of online learning, students indeed

engage in the necessary learning activities and complete tasks at a behavioral level. However, the passivity exhibited in their engagement is a notable concern. The superficial fulfillment of tasks and lack of profound involvement can hinder their cognitive and emotional growth. The fact that online learners exhibit a score-oriented tendency in their behavioral engagement (Liu et al., 2016) further compounds this issue.

### **5.2. The Correlation of EFL Learners' Perception of Teacher Support with Their Online Learning Engagement**

This study reveals a significant linkage between the perceived degree of teacher support and the depth of EFL learners' involvement in online learning, further establishing that perceived teacher support serves as a direct and positive predictor of online learning engagement. As depicted in **Figure 1**, all three aspects of students' perception of teacher support serve as significant predictors for their engagement in online learning. Autonomy support encapsulates the concept that teachers respect students' perspectives and emotions, granting them ample liberty and assistance in various aspects, including selecting learning content, fostering independent thinking, and problem-solving (Chai & Gong, 2013). In comparison to younger learners, college students exhibit a profoundly heightened need for autonomy, which necessitates the provision of ample opportunities to engage in independent decision-making and choice-making processes. Therefore, when teachers embody respect for students' autonomy, students are more inclined to perceive their actions as self-directed, thereby enhancing the likelihood of fulfilling their inherent need for autonomy. Consequently, students who recognize this autonomy exhibit a heightened sense of curiosity and eagerness to embrace challenges, ultimately leading to a deeper investment in their learning activities. This phenomenon aligns with the tenets of self-determination theory, as espoused by Deci and Ryan (2000), emphasizing the pivotal role of autonomy in fostering optimal learning outcomes. Furthermore, teachers' emotional and cognitive support has a profoundly beneficial effect on students' involvement in online English learning. Therefore, college English teachers are supposed to enhance students' learning experiences by cultivating mutually respectful teacher-student relationships, thoughtfully crafting engaging and demanding learning assignments, and imparting practical learning strategy guidance. These initiatives not only cultivate a sense of community among students but also bolster their English proficiency, sparking their enthusiasm for learning and motivating them to actively engage in the learning journey.

### **5.3. The Mediating Effect of Academic Self-Efficacy**

In this research, academic self-efficacy emerges as a pivotal mediator in the intersection between the perceived level of teacher support and the degree of involvement of EFL learners in online learning. Specifically, bolstering perceived teacher support fosters an enhancement in EFL learners' academic self-efficacy,

which, in turn, propels their participation in online learning. This aligns with Ferrell's (2012) research, which underscores the mediating role of academic self-efficacy in shaping the relationship between the social dynamics of the classroom and students' engagement in mathematics learning. Self-efficacy is recognized as a crucial motivational factor for students, significantly influencing their learning results (Bandura, 1997). When learners cultivate a sense of self-efficacy in their ability to accomplish academic tasks, they tend to invest greater effort, demonstrating a heightened level of commitment, unwavering dedication, and perseverance in their pursuits. Conforming to social cognitive theory, when college EFL learners perceive care, esteem, and warmth from their teachers, they gain confidence in surmounting linguistic challenges and display greater autonomy in their language learning quest. On the contrary, when students sense inadequate teacher support, their self-efficacy is compromised, leading to disruptions in their attention and information processing during online learning activities, ultimately hindering their engagement in the learning process.

## **6. Conclusion and Implications**

### **6.1. Conclusion**

The current study endeavors to illuminate the complex and intricate connections that exist between the level of teacher support perceived by EFL learners and their subsequent engagement in online learning, while concurrently exploring the intervening role played by academic self-efficacy. The principal findings are highly significant. Firstly, descriptive statistical analysis reveals that EFL learners exhibit significant degree of perceived teacher support and profound dedication in their online learning endeavors. Secondly, the outcomes derived from structural equation modeling validate that perceived teacher support and academic self-efficacy serve as direct and significant positive predictors of EFL learners' engagement in online learning environments. Moreover, academic self-efficacy emerges as a pivotal mediator, bridging the gap between perceived level of instructor support and students' active participation in online learning environment.

### **6.2. Implications**

The present investigation makes a valuable contribution to the existing scholarly body of knowledge by elucidating the intricate interplay among teacher support, academic self-confidence, and engagement in online learning environment in the realm of college English learning. The findings provide EFL teachers with concrete and implementable suggestions for refining and optimizing their online teaching methodologies.

First, the research underscores the paramount significance of cultivating a supportive learning environment, where teacher support serves as a key predictor of students' engagement in online learning. Teachers should prioritize au-

tonomy support, empowering students to self-regulate their learning pace and engage in stimulating, challenging tasks. Additionally, they should employ diverse teaching strategies to provide cognitive support, fostering the development of autonomous learning abilities. Moreover, emotional support is indispensable, with teachers offering prompt feedback, encouragement, and fostering high expectations, all while demonstrating genuine concern for students' emotional health. Moreover, to effectively guide students in recognizing support from teachers and peers, fostering their positive personality traits, such as thankfulness and a hopeful outlook, is vital. Grateful and optimistic individuals tend to see helpers as genuinely kind and valuable, believing their efforts are meaningful (Wood et al., 2008). This mindset enables them to view the world positively, increasing their likelihood of noticing and appreciating assistance from others.

Second, recognizing the intervening function of academic self-efficacy in shaping the connection between teacher support and engagement in online learning, teachers are advised to intentionally foster this aspect in their students. To elevate students' academic self-confidence, teachers can adopt strategic measures like providing consistent encouragement and recognition, coupled with prompt and insightful feedback throughout online learning sessions. Furthermore, tailored training programs focused on strengthening positive self-image are valuable tools to boost students' self-confidence. Importantly, teachers should prioritize attending to those students with reduced levels of academic self-confidence.

In conclusion, perceived teacher support, academic self-confidence and involvement in online learning are all modifiable factors that exhibit mutual influence. By bolstering teacher support and fostering students' academic self-efficacy, positive feedback loops can be established, propelling students' engagement in online learning. This heightened engagement, in turn, reinforces students' self-efficacy, ultimately contributing significantly to the enhancement of their academic achievement and enjoyment.

## 7. Limitations and Recommendations

First, the current research, which primarily relies on student self-reported data, may be influenced by social desirability biases and standard methodological challenges. To enrich the understanding, future endeavors should broaden the data pool to encompass perspectives from teachers, students, and parents. Additionally, qualitative methodologies, such as in-depth case studies and semi-structured interviews, could serve as valuable complements to the quantitative analyses, providing nuanced insights. Moreover, by exploring the mediating roles of variables like academic emotions, learning adaptability, subsequent investigations can further elucidate the complex and dynamic interaction between teacher support and students' learning engagement.

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### Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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