Teacher and peer support on L2 engagement: Mediation by Ideal and Ought-to L2 selves

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ABSTRACT: Learning English as a second language is crucial for Chinese college students. This study examines the impact of teacher support, peer support, and second language (L2) motivation on student engagement within a new teaching model. A total of 502 Chinese college students were engaged in the research, which utilized AMOS 24 to conduct a structural equation model (SEM) analysis. The quantitative findings indicated that both teacher and peer support had a direct and significant influence on student engagement in ESL flipped classrooms. The study also revealed that the Ideal L2 self and Ought-to L2 self mediated the relationship between teacher support, peer support, and student engagement. Additionally, teacher support indirectly influenced student engagement through the chain mediating effect of peer support and the Ought-to L2 self, while peer support indirectly influenced student engagement via the chain mediating effect of the Ought-to L2 self and the Ideal L2 self. Furthermore, the Ought-to L2 self was found to have played a more significant mediating role between teacher support, peer support, and engagement than the Ideal L2 self. The mediating effect of the Ideal L2 self between peer support and engagement was stronger than that between teacher support and engagement. These results underscore the importance of peer, teacher support and L2 motivation in fostering student engagement in ESL classrooms. Additionally, the creation of a classroom environment that fosters peer assistance, healthy competition, and L2 motivation is identified as crucial for enhancing student engagement.
Keywords: ESL Classroom Engagement, Teacher Support, Peer Support, Motivation, Structural Equation Modeling

El apoyo del profesor y de los compañeros en el compromiso con la L2: Mediación del yo ideal y del yo que debería ser en L2

RESUMEN: Aprender inglés como segunda lengua es crucial para los estudiantes universitarios chinos. Este estudio examina el impacto del apoyo de los profesores, el apoyo de los compañeros y la motivación por la segunda lengua (L2) en la participación de los estudiantes dentro de un nuevo modelo de enseñanza. En total, 502 estudiantes universitarios chinos participaron en la investigación, que utilizó AMOS 24 para realizar un análisis de modelo de ecuaciones estructurales (SEM). Los resultados cuantitativos indicaron que tanto el apoyo de los profesores como el de los compañeros tienen una influencia directa y significativa en la participación de los estudiantes en las aulas de inglés como segunda lengua (ESL) en el modelo de aula invertida. El estudio también reveló que el "Ideal L2 self" y el "Ought-to L2 self" mediaron la relación entre el apoyo de los profesores, el apoyo de los compañeros y la participación de los estudiantes. Además, el apoyo de los profesores influyó indirectamente en la participación de los estudiantes a través del efecto mediador en cadena del apoyo de los compañeros y el "Ought-to L2 self", mientras que el apoyo de

los compañeros influyó indirectamente en la participación de los estudiantes a través del efecto mediador en cadena del "Ought-to L2 self" y el "Ideal L2 self". Además, se encontró que el "Ought-to L2 self" tuvo un papel mediador más significativo entre el apoyo de los profesores, el apoyo de los compañeros y la participación que el "Ideal L2 self". El efecto mediador del "Ideal L2 self" entre el apoyo de los compañeros y la participación fue más fuerte que el efecto entre el apoyo de los profesores y la participación. Estos resultados subrayan la importancia del apoyo de los compañeros, el apoyo de los profesores y la motivación por la L2 en la promoción de la participación de los estudiantes en las aulas de ESL. Además, la creación de un entorno de aula que fomente la ayuda entre compañeros, la competencia saludable y la motivación por la L2 se identifica como esencial para aumentar la participación de los estudiantes.
Palabras clave: Compromiso en el aula de ESL, Apoyo de los profesores, Apoyo de los compañeros, Motivación, Modelado de Ecuaciones Estructurales

1. Introduction

Self-Determination Theory (SDT) is a widely used framework for studying human motivation and personality. SDT provides a macro theory to construct the study of motivation, a formal theory to define the sources of intrinsic and various extrinsic motivations, and describes the role of intrinsic and extrinsic motivations in cognitive and social development and individual differences(Richard M. Ryan & Edward L. Deci, 2000). This framework is widely used in the field of second language teaching, of which L2 Motivational System(Dörnyei, 2005), which is a complementary theory with SDT, focuses on second language learning motivation. This system includes future self-orientation (such as Ideal L2 self and should self), which may be different from integrity, but the two are not compatible. Meanwhile, L2 Motivational Self System emphasizes learners' identity construction and emotional experience, and how these factors affect their motivation and learning engagement.

Empirical studies have demonstrated that teacher support and peer support, integral components of the relatedness aspect within Self-Determination Theory (SDT), significantly enhance middle school students' classroom engagement (Liu et al., 2023; Majid & Hejazi, 2021; Solhi, 2024). Additionally, L2 Motivational System exerts a substantial influence on students' participation in second language learning contexts(Ushioda & Dörnyei, 2017; Zepke et al., 2010). In these contexts, motivation for second language learning is often posited as a mediator of learning engagement. The social support, characterized by teacher and peer support, the Ideal L2 self and the supposed self within the second language motivation system, and student participation align with the three fundamental constructs of the SDT framework. This theory underscores the interplay between autonomy, competence, and relatedness(Ryan & Deci, 2000). Drawing on SDT, this study posits a direct relationship between social support and both motivation and participation.

While numerous studies have examined the role of teacher and peer support in fostering student engagement, there is a growing body of research that delves into the nexus between second language (L2) motivation and learning engagement. However, the literature remains sparse regarding the interplay between teacher engagement and student engagement and motivation. English, as a mandatory subject for Chinese college students, holds significant sway over their academic performance in college English classes. Despite its importance, students often exhibit lukewarm enthusiasm and engagement in these classes (Shufang & William,

2021), which can inadvertently become courses where passing is the primary objective. Yet, proficiency in English is crucial for students' future job prospects and educational pursuits. Consequently, it is imperative to explore the relationship between students' perceptions of teacher support and peer support, their L2 motivation, and classroom participation.

Acknowledging the research gap and its profound implications for English language acquisition, this study examined the relationship between teacher support, peer support, the Ideal L2 self, the Ought-to L2 self, and engagement within the context of L2 learning. The study focused on college students in China, a demographic that had been largely overlooked in prior research. To explore the intricacies and dynamics of these variables, this research employed a structural equation model (SEM), a sophisticated analytical technique. By utilizing SEM, the study aimed to provide a comprehensive and nuanced understanding of L2 learning engagement among this specific cohort. Furthermore, it aimed to offer practical guidance and recommendations for college English educators to develop innovative teaching approaches, such as the flipped classroom model.

2. Literature review and hypotheses

2.1. Learning engagement in EFL flipped classroom

Student engagement is considered to have an important impact on learning achievement, and many scholars have conducted a lot of research on it, even in the classroom of second language teaching, it is also a widely discussed topic in higher education (Kahu, 2013). However, the conceptualizations of student engagement varies widely in the field of education (Loukomies et al., 2021). Some definitions view learning engagement as time, energy and resources invested in learning and management activities, while others view learning engagement as a strategy used by educators to engage students in classroom learning activities (Baron & Corbin, 2012; Bowden et al., 2019; Kuh, 2003). While as for the meta-construct, Student Engagement refers to individual's active participation in a multidimensional structure that includes behavioral, emotional, and cognitive participation in learning activities (Fredricks et al., 2004). The above three dimensions are interrelated. Behavioural engagement refers to the observable academic performance and participation actions and practice(Schaufeli et al., 2002). Emotional engagement includes students' interest, enthusiasm and enjoyment in learning activities, the sense of belonging to the school, the identification with the school, and the relationship with teachers and peers(Lawson & Lawson, 2013). Cognitive engagement refers to the mental state that is active in learning activities including enthusiasm for academic activities (Vivek et al., 2014; Zepke et al., 2010), and the cognitive process of academic activity includes comprehending the value and relevance of academic work and being aware of how to adapt academic skills to the content of academic activity (Kahu, 2013; Reschly & Christenson, 2012). An engagement model has been posited to illustrate the complex interrelationships between environment, engagement and outcomes (Reschly & Christenson, 2012). Much previous literature has shown that student engagement is influenced by external environment (such as teacher support) and internal individual factors (such as self-efficacy)(Derakhshan et al., 2023; Granziera et al., 2022; Liu et al., 2023). Nevertheless, there is a paucity of research that examines how engagement interacts with EFL students'

motivation (ideal-self, Ought-to L2 self) and social support (teacher support, peer support), which is the main aim of our study.

2.2. TeacherandPeer Support in EFL flipped classroom

As mentioned before, the view of self-determination theorists suggests that students' engagement in school is influenced by the extent to which they perceive the school environment to meet their psychological needs (Connell & Wellborn, 1991; Krapp, 2005). Teacher support and peer support play an indispensable role in satisfying students' psychological needs (Battistich et al., 1997; Patrick et al., 2007; Pekrun et al., 2002). Teacher support is considered as that students feel that their teachers care about them, consider their feelings, and are willing to help them when they are struggling academically(Fraser, 1998). As for those Chinese teachers in EFL learning, the teacher support can be divided in to two concepts including teacher's academic support and emotional support (Gengsheng, 2011; Ghaith, 2002; Jinfen & Yumei, 2019; Zhou & Wu, 2023). Academic support includes students' consideration that their teachers care about their English learning and will provide practical help when needed; Emotional support includes the teacher's care, trust, encouragement, respect and equality for the student. In the field of EFL learning in China, many previous researches showed that teacher support can enhance student's motivation and engagement (Federici & Skaalvik, 2013; Liu et al., 2021). Peer support is also important for school engagement, while previous studies mainly focused on the influence of peers support on adolescents' engagement and emotions in school (Wentzel, 2003), or on the another subject, mathematics(Liu et al., 2018). However, there are few studies on peer support in EFL university classroom, especially flipped classroom, and only some studies on the overall learning state(Reeve et al., 2004).

Therefore, we expect that feeling emotionally supported by teachers will increase students' behavioral, emotional, and cognitive engagement. While there is little evidence that peer emotional support is associated with cognitive engagement, we tend to believe that when college students feel peer validation for academic achievement, they develop confidence and competence in discussing ideas and criticizing each other's work. Therefore, we would expect peer emotional support to be positively correlated with behavioral emotional and cognitive engagement.

2.3. L2 Motivation system in EFL flipped classroom

As stated in the self-determination theory mentioned earlier in this article, students' engagement in learning is strongly related to students' motivation. Based on self-determination theory (Ryan & Deci, 2000) and self-discrepancy (Higgins, 1987), Dornyei developed a motivational theory for second language learning on the basis of educational psychology theories (Dörnyei, 2005). The theory is called the L2 Motivational Self System framework, which includes three systems, namely, the Ideal L2 Self, the Ought-to L2 Self, and the L2 Learning Experience. The Ideal L2 Self refers to the future vision learners want to prove, incorporating improvement and achievement. This system is considered as a strong and inclusive motivator that inspire language learners to pursue their ideals, which is also be seen as intrinsic motivation. The Ought-to L2 Self refers to a sense of responsibility that L2 learners have to

fulfill, including meeting the expectations and demands of others and keep up with peers. This system is believed as an extrinsic motivator. The Ideal L2 Self system, arising from inside, and the Ought-to L2 Self system, arising from outside, interact with each other to reduce discrepancy between learners' actual and ideal selves(Ushioda & Dörnyei, 2017), resulting to intentional effort, self-motivated engagement, and ultimately achievement (Hessel, 2015).

2.4. The Self-determination Theory as the framework

Self-determination theory was conceptualized by Deci &Ryan(R. M. Ryan & E. L. Deci, 2000), which has been widely applied not only in education but also in management and healthcare(Lamb, 2017). This theory lately has been used for researching and translating the complicated correlation between environment, students' motivation and learning behaviour in various context including second language teaching classroom (Azila-Gbettor & Abiemo, 2021). According to SDT, there are two main types of motivation, which are intrinsic motivation, where people learn because they enjoy the process of learning, and extrinsic motivation, where they are learning for some other motive. Ideally, students are intrinsically motivated to take a course in a more responsible and spontaneous way. However, the reality may not be as ideal as hoped (Chiu, 2022; Hsu et al., 2019; Lamb, 2017). In view of this reality, SDT theory puts forward a suggestion to second language teachers that all individuals possess three universal and psychological needs—autonomy (feeling self-governed and self-endorsed), competence (feeling competent and effective), and relatedness (feeling connected, loved, interacted)—that move them to act or not to act(Ryan & Deci, 2000; R. M. Ryan & E. L. Deci, 2000). As for autonomy, the degree of self-control of students will affect their motivational behaviour in learning, which means that Individual autonomy can lead to intrinsic motivation, thus promoting students' adaptation to learning and increasing their engagement in learning (Alamer & Lee, 2019). According to SDT theory, social support, motivation, and engagement are three interconnected constructs that form a feedback loop. This feedback loop provides the theoretical basis for our proposed model (see Figure 1).

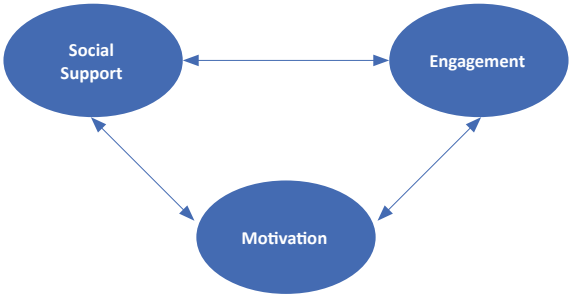

Figure 1. *The proposed model of Social Support, Motivation, and Engagement*

However, many previous studies supposed that motivation would mediation role in these models, so the author proposed another model (see figure 2), which is ideal L2 self and Ought-to L2 self as a Mediator Between Teacher Support, peer support and Engagement.

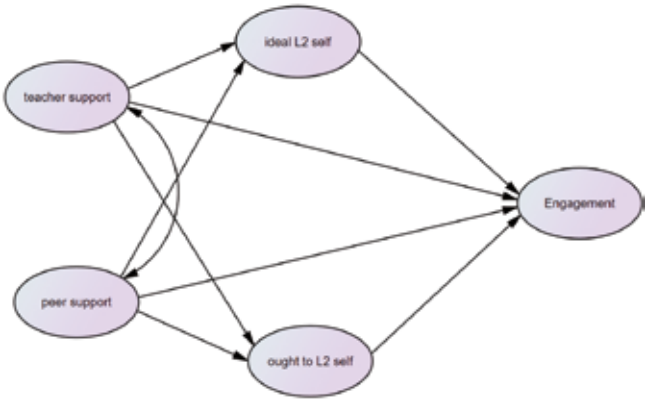

Figure 2. *The proposed model of Social Support, Motivation as a Mediator, and Engagement*

In conclusion, there is an interaction between Self-Determination Theory (SDT) and Motivation Theory. However, the internal influence warrant further investigation. Additionally, while both theories are known to impact classroom practice, the precise nature and magnitude of their effects require further empirical scrutiny.

3. Research Question

Despite the growing body of literature on second language (L2) learning, a gap remains in the research examining the interplay among L2 motivation, teacher and peer support, and engagement within the context of the English as a Foreign Language (EFL) flipped classroom in Chinese universities. Moreover, existing studies have suggested that these constructs are likely to have a reciprocal relationship.

Research question: What are the relationships among social support, motivation and engagement among Chinese university EFL learners?

4. Methodology

4.1. Research design

This study employed a quantitative research methodology. Initially, data were collected through a survey questionnaire administered to students, which was subsequently analyzed using AMOS structural equation modelling. To ensure translation quality and semantic equivalence, all scales underwent a two-step translation process by two independent bilingual scholars, translating from English to Chinese and then back from Chinese to English (Brislin, 1970). Additionally, it is worth noting that the research assistants involved in the study possess a thorough understanding of the research topic and have obtained relevant translation certifications. To ensure the validity and comprehensibility of the questionnaire, the author conducted a preliminary survey among her teaching classes to identify any poten-

tial misunderstandings. After addressing and eliminating these issues, the formal survey was administered. Responses were measured on a 5-point Likert scale, ranging from 1 = strongly disagree to 5 = strongly agree, and each item on the scales was assessed accordingly. The reliability and validity of the scales are presented as follows.

4.2. Participants

The study involved a random selection of 549 students from six schools located in Changsha, Hunan, China, all of whom completed the questionnaire. After the questionnaire collection, incomplete or invalid responses were removed. With a recovery rate of 91.44%, 502 questionnaires were deemed valid for analysis. The details of the students are shown in Table 1.

Table 1. *Basic information of students*

Characteristic	Frequency	Percentage
Gender		
Male	150	29.88%
Female	352	70.12%
Education Level		
Vocational high school	18	3.59%
Associate degree	280	55.78%
Bachelor's degree	204	40.64%
Major		
Non-language major	368	73.31%
Language major	134	26.69%

5. Measures

5.1. Engagement

The construct was measured using the Utrecht Work Engagement Scale for Students (Schaufeli et al., 2006), a nine-item self-report scale consisting of three subscales: vigor (VI), dedication (DE), and absorption (AB), each with three items. The items are rated on a seven-point scale ranging from 0 (never) to 6 (always) (Carmona-Halty et al., 2019). The reliability of the subscales was demonstrated by Cronbach's alpha values of 0.836 for vigor, 0.858 for dedication, and 0.880 for absorption.

5.2. Motivation

This study examined two dimensions of motivation: Ideal L2 self and Ought-to L2 self. These dimensions were measured using a Chinese version of the Motivation Questionnaire (MQ), which was adapted from the original questionnaire developed by Dörnyei and Taguchi

(2009) based on Dörnyei's L2 Motivational Self System theory. The original MQ included 13 constructs and 62 items. To tailor the questionnaire for Chinese EFL and ESL learners, it was translated into Chinese and subjected to pilot testing, factor analysis, and reliability analysis. The revised version retained 12 constructs and 51 items. Among these, the Ideal L2 self and Ought-to L2 self dimensions each comprised five items. All items were presented as statements and rated on a 6-point Likert scale ranging from 1 (strongly disagree) to 6 (strongly agree)(Li, 2014). The reliability of these dimensions was confirmed by Cronbach's alpha values of 0.900 for Ideal L2 self and 0.892 for Ought-to L2 self.

5.3. Social Support

The Teacher and Classmate Support Scale (TCMS) was employed to measure teacher support and peer support. This brief scale is designed to assess perceived social support in the school context. It comprises two subscales: teacher support and classmate support, each consisting of four items that focus on the help and emotional support received from teachers and classmates, respectively. The items were rated on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree)(Torsheim et al., 2012). The reliability of the subscales was confirmed by Cronbach's alpha coefficients of 0.884 for teacher support and 0.873 for peer support.

Results

6.1. Reliability and Validity of the Measures

As indicated in Table 2, the Cronbach's alpha coefficients corresponding to the dimensions designed in this paper are all greater than 0.7, indicating that the internal consistency of each dimension of the questionnaire is good. Therefore, the reliability of the results of this survey was excellent, and the reliability of the results of the questionnaire was strong, so further analysis can be carried out.

Table 2. *Reliability Statistics for Teacher Support, Peer Support, Motivation and Engagement*

dimension	N of Items	Cronbach's Alpha
teacher support	4	0.884
peer support	4	0.873
Ought-to L2 self	5	0.892
Ideal L2 self	5	0.900
vigor	3	0.836
dedication	3	0.858
absorption	3	0.880

The exploratory factor analysis and confirmatory factor analysis were implemented to investigate the structural validity of the questionnaire. As shown in Table 3, KMO and

Bartlett sphericity tests were carried out, and KMO was 0.887, which was greater than 0.6. At the same time, it was indicated that the P-value of Bartlett sphericity test was significant less than 0.05.

Table 3. *KMO and Bartlett's Test*

KMO		0.887
Bartlett's Test of Sphericity	Approx. Chi-Square	8408.075
	df	351
	Sig.	0.000

A total of 7 factors were extracted from factor analysis. The standard for extraction of factors was that the Eigenvalues was greater than 1 (the extraction standard was the factor with the corresponding number of dimensions of the questionnaire), and the Rotation Sums of Squared Loadings of these factors was 75.22% (see Table 4).

Table 4. *Total Variance Explained*

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	8.89	32.94	32.94	8.89	32.94	32.94	3.65	13.54	13.54
2	2.41	8.93	41.87	2.41	8.93	41.87	3.55	13.13	26.67
3	2.03	7.52	49.39	2.03	7.52	49.39	3.02	11.19	37.86
4	0	6.96	56.35	1.88	6.96	56.35	2.98	11.03	48.88
5	1.72	6.39	62.74	1.72	6.39	62.74	2.44	9.03	57.91
6	1.69	6.26	69.00	1.69	6.26	69.00	2.36	8.75	66.67
7	1.68	6.22	75.22	1.68	6.22	75.22	2.31	8.55	75.22
8	0.54	2.02	77.24						

The maximum variance rotation method was adopted in this study to verify whether each question corresponds to the correct factor. As the Rotated Component Matrix is shown in Table 5, the factor load number, which was higher than 0.4 in each dimension was effectively extracted, which means that the correlation between the question item and the extracted factor reached a certain standard, and the factor could effectively extract information. After analysis, the results showed that the correspondence between the items and factors was consistent with the theoretical expectation in this study, which indicated that the questionnaire has good structural validity.

Table 5. *Rotated Component Matrix*

Item	Component						
	1	2	3	4	5	6	7
TS1			0.907				
TS2			0.758				
TS3			0.784				
TS4			0.829				
PS1				0.908			
PS2				0.75			
PS3				0.778			
PS4				0.806			
OT1		0.91					
OT2		0.763					
OT3		0.765					
OT4		0.757					
OT5		0.708					
IS1	0.886						
IS2	0.767						
IS3	0.784						
IS4	0.761						
IS5	0.767						
vigor1							0.906
vigor2							0.754
vigor3							0.815
dedication1						0.903	
dedication2						0.797	
dedication3						0.817	
absorption1					0.916		
absorption2					0.793		
absorption3					0.834		

6.2. Correlations between Teacher Support, Peer Support, Ideal L2 self, Ought-to L2 self, and Engagement

Pearson correlations were adopted to initially probe the relationships among teacher support, peer support, two types of motivation, and three types of engagement (see Table 6). A positive correlation was found between teacher support, peer support, Ought-to L2 self, Ideal L2 self and engagement. Teacher support was positively correlated with other variables, especially peer support (r = 0.369), Ought-to L2 self (r = 0.357), Ideal L2 self (r = 0.318), accompanied by engagement (r = 0.391). There was a strong positive correlation between peer support with Ought-to L2 self (r = 0.334), Ideal L2 self (r = 0.325) and engagement

(r = 0.389), indicating that teacher and peer support plays an important role in students' motivation and learning engagement. The relationship between Ought-to L2 self and Ideal L2 self (r = 0.449) and engagement (r = 0.492) was significant, indicating that motivation has a great influence on participation. Overall, factors such as teacher support, peer support and motivation significantly affected students' learning engagement.

Table 6. *Basic Score and Correlation Test*

	Teacher support	Peer support	Ought-to L2 self	Ideal L2 self	Engagement
teacher support	1				
peer support	0.369**	1			
Ought-to L2 self	0.357**	0.334**	1		
Ideal L2 self	0.318**	0.325**	0.449**	1	
engagement	0.391**	0.389**	0.492**	0.512**	1
Mean	3.196	3.149	3.183	3.201	3.220
Std. Deviation	1.041	1.022	0.959	0.975	0.745
Skewness	-0.269	-0.180	-0.294	-0.269	0.323
Kurtosis	-0.862	-0.928	-0.758	-0.794	-0.144

6.3. Confirmatory factor analysis

The Confirmatory factor analysis (CFA) was performed to ensure the validity of the construction. Figure 3 illustrates the CFA model.

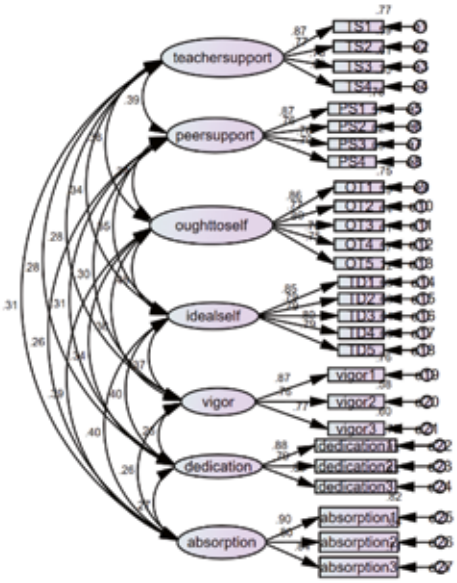

Figure 3. *The CFA model with standardized estimates*

Table 7. *Table of Factor Load Factors*

Explicit variables	Latent variables	Estimate	S.E.	C.R.	P	AVE	CR
TS1	Teacher support	0.875				0.666	0.889
TS2	Teacher support	0.771	0.034	20.191	***		
TS3	Teacher support	0.781	0.034	20.833	***		
TS4	Teacher support	0.834	0.034	23.156	***		
PS1	Peer support	0.871				0.644	0.878
PS2	Peer support	0.757	0.035	19.359	***		
PS3	Peer support	0.785	0.035	20.231	***		
PS4	Peer support	0.793	0.035	20.977	***		
OT1	Out to be self	0.865				0.631	0.895
OT2	Out to be self	0.769	0.036	20.476	***		
OT3	Out to be self	0.799	0.037	21.512	***		
OT4	Out to be self	0.780	0.035	20.782	***		
OT5	Out to be self	0.753	0.038	19.594	***		
IS1	Ideal L2 self	0.847				0.649	0.902
IS2	Ideal L2 self	0.794	0.036	21.09	***		
IS3	Ideal L2 self	0.794	0.037	20.944	***		
IS4	Ideal L2 self	0.800	0.037	20.907	***		
IS5	Ideal L2 self	0.793	0.035	20.843	***		
vigor1	vigor	0.870				0.646	0.845
vigor2	vigor	0.764	0.039	17.537	***		
vigor3	vigor	0.772	0.04	18.454	***		
dedication1	dedication	0.882				0.680	0.864
dedication2	dedication	0.794	0.038	19.851	***		
dedication3	dedication	0.795	0.037	20.093	***		
absorption1	absorption	0.905				0.722	0.886
absorption2	absorption	0.799	0.034	21.911	***		
absorption3	absorption	0.842	0.033	23.676	***		

The standardized Factor loadings of each question are calculated to obtain the AVE value and CR value of each dimension, as shown in Table 7, the AVE value of each dimension is greater than 0.5, and the CR value is greater than 0.7. The aggregate validity of each dimension reached the qualification standard, and the load coefficient between each item and the corresponding factor was greater than 0.6, indicating that the corresponding relationship between the item and the factor was strong, and this result indicated that the aggregate validity within the dimension was up to the standard.

As shown in Table 8 below, the AVE square root values of each dimension were greater than their relative values with other dimensions, indicating that the discrimination validity of each dimension meet the standard.

Table 8. *Discriminate the Results of the Validity Analysis*

	absorption	dedication	vigor	Ideal L2 self	Out to be self	Peer support	Teacher support
absorption	0.850						
dedication	0.273	0.825					
vigor	0.264	0.263	0.803				
Ideal L2 self	0.404	0.401	0.369	0.806			
Out to self	0.395	0.343	0.365	0.482	0.794		
Peer support	0.26	0.314	0.305	0.346	0.344	0.803	
Teacher support	0.307	0.285	0.283	0.338	0.379	0.385	0.816

In the application of structural model as the verification of theoretical model, a good model fit is a necessary condition for structural model analysis, and a good model fit means that the model matrix is closer to the sample matrix. This study constructed a structural model with teacher support and peer support as the antecedent variables, Ideal L2 self and Ought-to L2 self as the mediating variable, and student engagement as the outcome variable (as shown in Figure 2). The fit index of the model (see table 8) was good ($\chi2$ = 805.706, df = 303, $\chi2$ /df = 2.659, GFI = 0.0.897, CFI = 0.939, RMSEA = 0.058, NFI = 0.906).

Table 9. *Model Fit*

Commonly used indicators	$\chi2$	df	$\chi2$/df	GFI	RMSEA	CFI	NFI
Judgment standard value	-	-	<3	>0.9	<0.08	>0.9	>0.9
	805.706	303	2.659	0.897	0.058	0.939	0.906

6.4. Structural equations modelling analysis

This study applied Structural Equations Modelling (SEM) using AMOS 26.0 to investigate the fit of the hypothesized model. The model showed an acceptable goodness of ft to the date (GFI = 0.949 > 0.80, AGFI = 0.901 > 0.80, CFI = 0.949 > 0.80, RMSEA = 0.058 < 0.08, NFI=0.921>0.80, IFI=0.949>0.80, RFI=0.980>0.80, CMIN/df=2.677<3, PGFI=0.715>0.5), indicating the outcome model reasonably represented the structural relationship among the variables demonstrated in Fig.4 below.

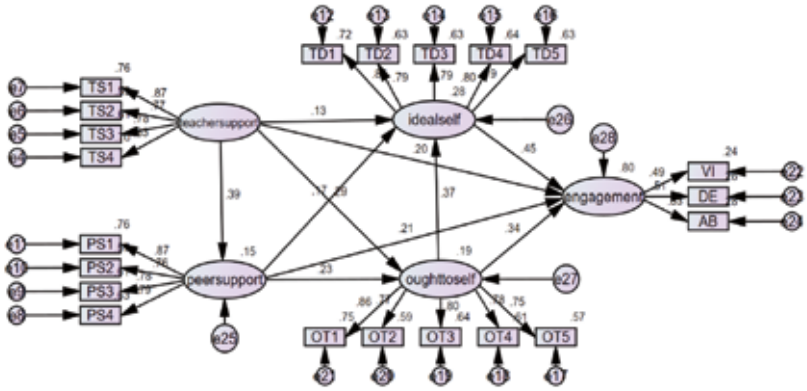

Figure 4. *Structural equation model diagram*

Table 10. *Model fit*

Indicator category	The name of the metric	Adaptation criteria	Test results	Is it acceptable?
Absolute fit parameters	GFI	>0.8	0.923	accept
	AGFI	>0.8	0.901	accept
	RMSEA	<0.08	0.058	accept
Value-added suitability parameters	NFI	>0.8	0.921	accept
	IFI	>0.8	0.949	accept
	CFI	>0.8	0.949	accept
	RFI	>0.8	0.908	accept
Simple fit parameters	CMIN/df	<3	2.677	accept
	PGFI	>0.5	0.715	accept

Table 11 showed the standardized path coefficients of the hypothetical model, indicating that most of the paths in Figure 3 were statistically significant. Among them, Teacher support positively predicted peer support ($\beta = 0.385$, $p < 0.001$), Ought-to L2 self ($\beta = 0.290$, $p < 0.001$), Ideal L2 self ($\beta = 0.132$, $p < 0.05$), and student engagement ($\beta = 0.200$, $P < 0.001$). In addition, the peer support positively predicted Ought-to L2 self ($\beta = 0.232$, $p < 0.001$), the Ideal L2 self ($\beta = 0.167$, $p < 0.001$) and the student engagement ($\beta = 0.208$, $p < 0.05$). Moreover, Ought-to L2 self and Ideal L2 self positively predicted student engagement ($\beta = 0.339$, $p < 0.001$; $\beta = 0.446$, $p < 0.001$), and the Ought-to L2 self could positively predict the Ideal L2 self ($\beta = 0.374$, $p = < 0.05$).

Table 11. *SEM Path Analysis Results*

Direct path			Estimate	S.E.	C.R.	P
Peer support	←	Teacher support	0.385	0.047	7.56	***
Ought-to L2 self	←	Peer support	0.232	0.05	4.387	***
Ought-to L2 self	←	Teacher support	0.290	0.046	5.503	***
Ideal L2 self	←	Teacher support	0.132	0.06	2.603	0.009
Ideal L2 self	←	Peer support	0.167	0.064	3.306	***
Ideal L2 self	←	Ought-to L2 self	0.374	0.071	7.202	***
engagement	←	Ideal L2 self	0.446	0.031	6.199	***
engagement	←	Ought-to L2 self	0.339	0.041	4.827	***
engagement	←	Teacher support	0.200	0.032	3.198	0.001
engagement	←	Peer support	0.208	0.035	3.274	0.001

6.5. Mediation effect of motivational variables

The present study investigated the mediation effects of motivational variables in the relationship between teacher support (TS), peer support (PS), and student engagement (E). The analysis was conducted using the bootstrap method with 5000 resamples, which is considered more robust for mediation analysis compared to traditional methods like the Sobel test (Mackinnon et al., 2004) .The significance of the mediation effects was determined by examining bias-corrected 95% confidence intervals that did not include zero.

Table 12 showed that Teacher Support could directly indirectly influence Engagement through seven pathways: Teacher Support → Ideal L2 self → Engagement (TS-IS-E) (β = 0.059, $p < 0.001$), Teacher Support → Ought-to L2 self → Engagement (TS-OT-E) (β = 0.098, $p < 0.001$), Teacher Support → Peer Support → Ought-to L2 self → Engagement (TS-PS-OT-E)(β =0.030, $p < 0.001$). Moreover, table 11 also indicated that Peer Support indirectly predicted Student Engagement through three ways: Peer Support → Ideal L2 self → Engagement (PS-IS-E) (β = 0.074, $p < 0.001$), Peer Support → Ought-to L2 self → Engagement (PS-OT-E) (β = 0.079, $p < 0.001$), Peer Support → Ought-to L2 self → Ideal L2 self →Engagement (PS-OT-IS-E) (β = 0.039, $p < 0.001$).

Additionally, these findings disclosed that teacher support and peer support not only directly predicted student engagement but also exerted their influence indirectly through the mediation of motivational variables. It was discovered that peer support and the 'Ought-to L2 self' serve as chain mediators between teacher support and learning engagement. Similarly, the 'Ought-to L2 self' and the Ideal L2 self were found to have a chain mediation effect within this relationship of peer support and engagement. Notably, the mediation effect via the path involving teacher support and the Ought-to L2 self was the strongest among the identified paths, underscoring the importance of this motivational variable in the influence of teacher support on student engagement. In conclusion, the data supports the significance of several mediation pathways through which teacher support and peer support influence student engagement, with the Ought-to L2 self and Ideal L2 self playing significant mediating roles. These findings underscored the importance of considering motivational variables in understanding how social support contributes to student engagement.

Table 12. *Summary of the Results of Mediation and Chain Mediation*

Path	Estimate	SE	Bootstrapping			
			Bias-corrected 95%Cl		Percentile 95%CI	
			Lower	Upper	Lower	Upper
TS-IS-E	0.059	0.025	0.014	0.109	0.015	0.111
TS-OT-E	0.098	0.026	0.055	0.159	0.053	0.153
TS-PS-OT-E	0.030	0.010	0.015	0.054	0.013	0.051
PS-IS-E	0.074	0.026	0.031	0.138	0.027	0.130
PS-OT-E	0.079	0.022	0.042	0.131	0.038	0.125
PS-OT-IS-E	0.039	0.011	0.021	0.069	0.019	0.064
TS-OT-IS-E	0.000	0.000	0.000	0.000	0.000	0.000
TS-PS-OT-ID-E	0.000	0.000	0.000	0.000	0.000	0.000

7. Discussion

Based on Self-Determination Theory, this study aimed to explore the relationships between two types of social support (teacher support and peer support) and the motivation of L2 learning of Chinese university students, as well as their associations with students' classroom engagement by utilizing a quantitative research approach. Specifically, the mediating roles of motivational variables, namely Ideal L2 self and Ought-to L2 self, between the two types of social support and learning engagement were examined. The findings indicated that: (a) both teacher support and peer support positively predicted the engagement of English learners; (b) teacher support predicted learning engagement through the separate mediating roles of Ideal L2 self and Ought-to L2 self; similarly, peer support also predicted learning engagement through the separate mediating roles of Ideal L2 self and Ought-to L2 self; (c) teacher support predicted learning engagement through the chain mediation of peer support and Ought-to L2 self, and peer support predicted learning engagement through the chain mediation of Ought-to L2 self and Ideal L2 self; whereas the mediating effect of teacher support through Ought-to L2 self and Ideal L2 self on student engagement was not significant.

The study findings indicated that teacher support and peer support had a positive predictive effect on the learning engagement of L2 learners. More specifically, teacher support and peer support were direct and indirect predictors of learner engagement (LE). This finding suggested that teacher support and peer support had a positive impact on the engagement of college students in English learning, which was consistent with previous research (Dincer et al., 2019; Majid & Hejazi, 2021).Teacher support was particularly important for student engagement in the implementation of university flipped classrooms (Rotellar & Cain, 2016). In recent years, college English classrooms in China had been striving to create student-centered classrooms(Chan et al., 2022). Compared to traditional classrooms, students may have felt helpless due to unfamiliarity with the teaching format. However, teacher support played a significant role in helping students adapt more quickly and participate actively in the classroom(Kong et al., 2024). Similarly, peer support was crucial in facing the unfamiliar teaching mode of English classrooms. This finding was consistent with previous studies

(Solhi, 2024). Peer support could create a conducive learning environment, and this positive competitive or supportive learning atmosphere could promote student participation in L2 learning classrooms. As highlighted in the aforementioned literature, from the perspective of Self-Determination Theory (Richard M. Ryan & Edward L. Deci, 2000), both teacher support and peer support were instrumental in enhancing students' motivation to learn(Liu et al., 2023). This, in turn, significantly fostered students' passion for classroom learning and subsequently increases their level of engagement in academic activities.

The Ideal L2 self and the Ought-to L2 self were posited to mediate the relationship between social support (teacher support and peer support) and engagement. Evidence suggested that teacher support was instrumental in bolstering students' motivation towards their Ideal L2 self and in strengthening the motivation related to their Ought-to L2 self through the conveyance of expectations, which in turn, augments student participation in classroom activities. Peer support, likewise, has been shown to facilitate the development of both ideal and Ought-to L2 self-motives, consequently elevating student engagement. In addition, the study also showed that the Ideal L2 self has a significant regulatory effect, which is consistent with previous studies (Cho, 2020). It is noteworthy that the Ought-to L2 self exerted a more pronounced mediating effect than previously acknowledged (Sadoughi et al., 2023). This suggested that within the context of Chinese second language classrooms, teacher and peer support may substantially contribute to the formation of the Ought-to L2 self among students. Consequently, students are likely to experience group-induced pressure or encouragement, fostering a sense of responsibility and obligation to engage in classroom learning, thereby prompting more active engagement in educational activities.

Furthermore, the significant contribution of this study was the discovery of two significant chain mediating effects. The first was that teacher support could enhance students' engagement in the L2 learning classroom by promoting peer support to improve their Ought-to L2 self. This means that in the flipped classroom, teacher support played a significant role in guiding students to support each other (Weyns et al., 2018). This study corroborates the findings of numerous prior investigations, demonstrating that both the ideal self and the ought self collectively facilitate the participation of Chinese second language learners via distinct mechanisms(Taguchi et al., 2009). Specifically, the ideal self enhances participation primarily by stimulating intrinsic motivation, reinforcing the sense of learning goals, and boosting self-efficacy. In contrast, the ought self promotes participation by strengthening extrinsic motivation, regulating learning behavior, and enhancing a sense of responsibility (Teng & Wang, 2021; Zhang, 2015).Under such a positive influence, students tend to take more responsibility to participate in the class, which greatly improves their participation. Similarly, Ought-to L2 self could have influence on the Ideal L2 self (Jian & Yabing, 2022), to strengthen the students engagement. This means that, in a friendly and competitive classroom environment, students are initially motivated by responsibility, but this sense of responsibility leads students to generate an Ideal L2 self, which greatly increases student engagement.

8. Conclusion

In summary, the structural equation modelling analysis reveals that teacher support, peer support, the Ideal L2 self and the Ought-to L2 self exert direct positive influences on

college students' engagement in L2 learning activities. Teacher support is found to indirectly affect student engagement through the mediating roles of the Ideal L2 self and the Ought-to L2 self. Furthermore, teacher support can also indirectly influence learning engagement by first impacting peer support, which subsequently affects the Ought-to L2 self. Peer support exerts an indirect influence on student engagement by two mediating factors: the Ideal L2 self and the Ought-to L2 self. Additionally, it can indirectly affect students' learning engagement by initially influencing the Ought-to L2 self and then the Ideal L2 self. The mediating effect of Ideal L2 self on the relationship between peer support and engagement is stronger than that between teacher support and engagement. While the Ought-to L2 self mediating effect between teacher support and peer support and student participation is comparatively stronger than the Ideal L2 self. Future intervention studies should consider the origins of teacher and peer support, underscore the pivotal role of peer support, and focus on fostering a cooperative and competitive classroom environment that perpetuates a virtuous cycle of teacher and peer support. This approach aims to enhance students' Ideal L2 self-conceptions and their perceived roles in the acquisition of second language.

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