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Article

Self-Sustained Learning in English Learning and Its Predictors

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Abstract: Self-sustained learning (SSL) is considered a crucial factor in promoting students' long-term learning and development in a sustainable society. To deepen the understanding of SSL, especially in the context of learning English as a second language, the current study examined the influence of intercultural communicative skills, language mindset, and positive L2 self on SSL in English learning among 1,238 college students in China. The results showed that students not only had a strong language mindset, positive L2 self, and intercultural communicative skills but also scored higher in long-term self-sustained English learning. Findings from the Structural Equation Modeling indicated that both language mindset and intercultural communicative skills positively predicted positive L2 self and self-sustained English learning. Furthermore, language mindset and intercultural communicative skills had an indirect impact on self-sustained English learning through positive L2 self. These findings suggest that to promote English learners' SSL, instructors should help facilitate students' intercultural communicative skills and foster a growth language mindset, as well as positive language learning beliefs.

Keywords: learning English as a second language; self-sustained learning; intercultural communicative skills; language mindset; positive L2 self; Structural Equation Modeling; indirect effects

1. Introduction

Over two decades ago, UNESCO (2002) called for education for sustainability by noting, "Improving the quality and coverage of education and reorienting its goals to recognize the importance of sustainable development must be among society's highest priorities" (p. 9) [1]. This not only raised the awareness of researchers and educators about keeping our world sustainable through education but also raised an important question to schools and teachers about how to make our education sustainable to support a sustainable society [2–4]. Researchers have argued that the current educational paradigm is not oriented toward training students who have the competencies to meet the challenges of a sustainable world that is becoming gradually complex and interdependent [3,4]; therefore, educators need to adopt a transformative learning paradigm that emphasizes deep and "critically reflective" learning, an ecological approach (p. 9) [3], and a sustainable education that is "sustaining, tenable, healthy and durable" (p. 2) [4]. Rather than focusing on testing and competition this new paradigm highlights the importance of community, engagement, real purpose, participation, ownership, democracy, openness, and environment, and the integration of all these aspects to ensure student success in education [4,5].

Under this new paradigm, one key concept that has attracted attention from researchers within the past decade is self-sustained learning (SSL) [6–9], which is defined as "the persistent, self-initiated pursuit of expertise development in one's subject area" (p. 2) [9]. SSL has been viewed as an important learning outcome in the literature and one important component of effective teaching, which can

transform passive student learning into active pursuit of knowledge in and outside of their usual classroom. It also has similarities with other concepts of learning, such as self-regulated learning and lifelong learning [9–11]. Previous studies have found that engaging students in courses that are carefully designed in the subject area, project-based learning, fluency-building, and communicative activities facilitates SSL [7]. Teaching strategies such as inquiry-based scaffolding tasks, classroom dialogues, and critical reflections can also foster students' SSL [9].

Despite the significance of SSL in education, none of the studies to date have examined it with college students who study English as a second language (ESL) in China. As one of the languages that are spoken the most around the world, English has been placed a high value in China, with 400 million English learners. Most students in China started to study English in school in the third grade. English is also a compulsory course for non-English major undergraduate students in the first two years at 3-year or 4-year colleges and for non-English major graduate students in the first year of their post-graduate studies. Many studies have examined Chinese students' motivation and attitudes toward learning English [12], beliefs about learning English [13], self-regulated learning strategies, self-efficacy beliefs [14], and identity construction [15]. However, it remains unknown how students engage in SSL or continue to study English outside of their classes when they are taking English classes and whether they maintain the intention to learn English when they do not enroll in English classes.

Additionally, none of the studies to date have investigated the predictors of SSL in the context of ESL. The literature has suggested that individual factors, such as intercultural communicative skills, language mindset, and positive L2 self, were significant predictors of L2 outcomes, including L2 proficiency, L2 self-efficacy, and intention to continue to learn English [16–21]. This study seeks to study the relationships between these variables and SSL through a Structural Equation Modeling (SEM) approach, aiming to gain an in-depth understanding of SSL and its predictors. The findings of this study will provide insights into college students' English learning not only in the Chinese context but also in the ESL or EFL context.

2. Literature Review

2.1. Self-Sustained Learning

The concept of self-sustained learning (SSL) was discussed by Barron in 2006 when she was studying adolescent's development of technological fluency in and outside of school contexts [6]. Grounded in sociocultural and activity theory [22,23], SSL focuses on utilizing physical or virtual environments to provide learning opportunities for learners. Compared with the attention paid to contextual factors in the framework, the concept of SSL focuses on the key role that individuals play in their development, for instance, their temperament and personality shape how people respond to them. It also aligns with theories about individuals' identity development [24] and interest development [25]. According to identity development theories, learning that transforms identity is different from everyday learning and makes people think they can become someone new. Interest is also developed from a self-initiated learning process that seeks opportunities for new activities, knowledge, and relationships. Under these theoretical perspectives, SSL describes a type of learning that is directly derived from the self-initiatives of the learners, which not only shows their intrinsic interest in a subject area but also motivates them to seek knowledge and expertise independently and persistently outside the spaces where they usually acquire knowledge [6,7,9].

Self-sustained learning was regarded as a type of effective learning that facilitates students' active learning and makes true learning happen. It enables students to acquire, understand, retain, and apply knowledge on their own, leading to mastery of the concepts and theories and development of core competencies, including problem solving, creativity, and critical thinking [26–28]. With the ability to learn in a self-sustained way, students who are often treated as passive learners in the classroom are empowered to take control of their learning, think independently, and actively interact with their classmates. They are also willing to extend the in-class learning time to the spaces outside the classroom and eventually use both formal and informal learning opportunities to acquire knowledge and skills [6,27,29].

Self-sustained learning shares similarities with other types of learning, such as self-regulated learning and lifelong learning. Both SSL and self-regulated learning emphasize the key role of “self”, or the active role of individuals, in the process of learning. By contrast, both SSL and lifelong learning highlight the importance of a long time in the learning process [9]. There are also differences among these types of learning. Compared with self-regulated learning which focuses on using strategies to regulate, monitor, and adjust individual cognition, motivation, and behavior to achieve learning goals [11], SSL focuses on using efforts and strategies to learn continuously within a long time to achieve the learning goals. On the other hand, lifelong learning emphasizes the importance of continuous learning throughout an individual’s life, especially after the individual completes formal education [10], while self-sustaining learning can refer to learning at any time in an individual’s life.

Compared with the research on self-regulated learning and lifelong learning, there has been much less research on SSL. Although SSL can be the antecedent of many learning outcomes, such as student academic achievement, it has often been considered a crucial high-level learning outcome in the current literature [9,30]. Barron (2007), for instance, designed a computer science curriculum based on a new school-university partnership as an intervention and concluded that the curriculum effectively enriched students’ learning ecologies and inspired their SSL [7]. Yang (2015) examined the existing literature on SSL, analyzed possible issues that teachers usually encounter in nurturing students’ SSL in the classroom, and suggested three strategies to address these issues, including inquiry-based scaffolding tasks, engaging classroom dialogues, and engaged critical reflections [9]. Checketts (2019) reflected on his teaching philosophy in teaching English as a second language and reviewed the literature on teaching communication strategies and the pragmatics of greetings in second language classes, aiming to foster students’ SSL [8]. Yet, none of these studies have paid attention to what variables predict SSL.

2.2. Intercultural Communicative Skills

Intercultural communicative skills are one aspect of intercultural competence (ICC), which has been viewed as an important skill in higher education [31] due to globalization and increasingly interconnected interactions in the world [32]. ICC can be defined as “the ability to communicate effectively in cross-cultural situations and to relate appropriately in a variety of cultural contexts” (p. 149) [33]. Individuals with high levels of ICC can conscientiously engage in self-reflection to deepen their understanding of cultural differences and similarities, adapt their attitudes and actions thoughtfully in diverse intercultural settings, and demonstrate a capacity for flexible and effective interactions across cultures [32].

In the context of language learning, intercultural competence highlights the importance of cultural understanding and intercultural awareness in language acquisition [34]. It can positively predict language learners’ language skills and proficiency [35–37]. For example, Young et al. (2013) found a strong association between ICC and language proficiency among 108 non-UK postgraduate students [37]. Fathi et al. (2023) investigated the effects of foreign language enjoyment (FLE), ideal L2 self, and ICC on L2 willingness to communicate (WTC) among EFL learners in Iran and found that all the variables of interest (i.e., FLE, ideal L2 self, and ICC) directly predicted L2 WTC [38].

The construct of ICC has been studied in different cultures [39–41], including China, where scholars have conceptualized, defined, and developed the measures of ICC in the Chinese context [42–45]. Wu et al. (2013), for instance, defined ICC from six aspects: knowledge of self, knowledge of others, attitudes, intercultural communicative skills, intercultural cognitive skills, and awareness [46]. Among these aspects, intercultural communicative skills that focus on skills individuals use in communications across different cultures are the most important aspect of ICC because the concept of ICC originated from the notion of communicative competence [41]. These skills are viewed as one of the ultimate goals of students’ English learning [47,48] and the key skills of students who learn English as a second or foreign language [49–51].

Past research has shown that the intercultural communicative skills of EFL learners had a positive impact on their language learning motivation, willingness to communicate, and language and intercultural competence [38,52,53]. For instance, Tran and Duong (2018) implemented a 13-week

intercultural language communicative teaching model with EFL learners in Vietnam and found significant improvement in the learners' language and intercultural competence [53]. Moreover, a few studies have found that intercultural competence is positively related to language learners' L2 self-concept [16,17,54]. Kanat-Mutluoglu (2016) examined the relationships among intercultural communicative competence, academic self-concept, and ideal L2 self in 173 college students in Turkey [17]. The findings revealed a strong relationship between ICC and academic self-concept and a moderate association between ICC and the ideal L2 self. However, few studies have explored whether intercultural competence, particularly intercultural communicative skills, could predict college students' sustained language learning. It is still unclear if the impact of intercultural competence on L2 self-concept will further influence language learners' long-term learning.

2.3. *Language Mindset*

Developing from implicit theories of intelligence, mindset theories account for resilient and destitute patterns of responses to challenges and setbacks [55,56]. Dweck (2006) outlined the two fundamental types of mindsets as either fixed or growth-oriented. Individuals with a growth mindset believe that skills can be acquired and enhanced through committed effort and perseverance [55]. Consequently, they focus on their capacity for change, fostering the pursuit of resilient and adaptive objectives. On the contrary, those with a fixed mindset perceive abilities as innate and unalterable, which drives individuals toward competitive and maladaptive goals [57,58].

When it comes to language learning, Lou and Noels (2016) proposed a concept called "language mindset", which focuses on investigating people's beliefs about language learning [19]. The language mindsets comprise three key components: general language intelligence beliefs that focus on the beliefs regarding whether language intelligence is fixed or malleable; second language aptitude that refers to whether the ability to learn a language is considered changeable through effort or deemed fixed; beliefs related to age sensitivity and language learning that addresses whether language learning ability could be cultivated up to a certain age and remained fixed thereafter. Consistent with Dweck's (2006) framework [55], language mindsets are also structured within two aspects: fixed language mindset and growth language mindset [19].

Studies have indicated that language mindset plays a crucial role in language learning. Specifically, a growth language mindset is positively related to language learners' learning goals, engagement, and achievement [19–21]. For example, Lou and Noels (2016) examined if language mindsets influenced language learners' goal orientation and, in turn, affected their intention to continue learning the language [19]. The results showed that learners who hold a growth language mindset endorsed learning goals more strongly regardless of their perceived language competence, which in turn reported a more persistent intention to keep learning the language.

In addition, although multiple studies have suggested that students with a growth mindset are more likely to have positive self-concepts in math [59,60], the findings have not reached a consensus in the language learning setting. Some studies indicate a positive connection between language learners' growth mindset and their self-concept [61]. In contrast, others argue that students' mindsets are not significantly correlated with self-concept [59]. Therefore, additional research is required to examine whether students' language mindsets can influence their self-concept, which further predicts their intention to keep learning the target language.

2.4. *Positive L2 Self*

Brown (2004) defines self-concept as a "process of thinking about one's own experiences and behaviors, then contemplating one's thought processes, and the need for self-acceptance and ego protection" (p. 123) [62]. In other words, the self-concept reflects the perception and beliefs that individuals hold about themselves [63]. When examining self-concept within educational contexts, scholars suggest that academic self-concept refers to individuals' understanding and views of their abilities in academic situations [64]. A considerable amount of research has shown that students' academic self-concept is associated with their learning behaviors and achievement [65–67]. For example, Chen et al. (2022) conducted an empirical study to explore the impact of self-concept and

self-efficacy on English language learning outcomes [66]. The findings indicated that self-concept can directly and indirectly influence English learners' learning outcomes through self-efficacy.

More recently, scholars have suggested that students' academic self-concept might vary in different subjects [68]. For example, a student may affirm having high capability in math but lower aptitude in languages. Accordingly, to further understand students' self-concept in language learning, Lake (2015) developed a construct of positive L2 self, which organizes various constructs that relate to positive self-constructs and motivation in the L2 field. Lake (2015) further proposed three relevant but distinct subdimensions of positive L2 self, which include interest in L2 self, harmonious passion for L2 learning, and mastery of L2 goal orientation. Interest in L2 self refers to the tendency to perceive the learning of a second language as fascinating and enjoyable; harmonious passion for L2 learning indicates a strong inclination toward activities related to language that are favored or loved; mastery of L2 goal orientation is characterized by an individual's purpose that focuses on achieving substantial progress in learning [18].

Multiple studies have found that positive L2 self is positively related to various aspects of English learning, including academic resilience in English learning, L2 self-efficacy, and L2 proficiency [18,69]. For example, Lake (2015) explored the relationship between positive L2 self, L2 self-efficacy, and L2 proficiency among 539 college students [18]. The results indicated that positive L2 self significantly predicted L2 self-efficacy, which in turn influenced L2 proficiency. However, the relationship between positive L2 self and students' self-sustained English learning is still under investigation.

3. The Current Study

Based on the above literature review, we created a statistical model (see Figure 1) about the relationships of the variables of interest. In the model, language mindset (LM) and intercultural competence (ICC) are two exogenous variables, positive L2 self is the mediator, and SSL is the endogenous variable. All student demographic variables, such as their sex and grade, were included in the model as control variables (see 4.2.5 section). We aimed to address the following research questions in the current study:

RQ1. Do Chinese ESL learners engage in strong self-sustained English learning and have language mindsets, positive L2 self, and intercultural communicative skills?

RQ2. Do language mindset and intercultural communicative skills of Chinese ESL learners significantly predict their positive L2 self?

RQ3. Do language mindset, intercultural communicative skills, and positive L2 self of Chinese ESL learners directly predict their self-sustained English learning?

RQ4. Does the language mindset and intercultural communicative skills of Chinese ESL learners indirectly predict their self-sustained English learning through positive L2 self?

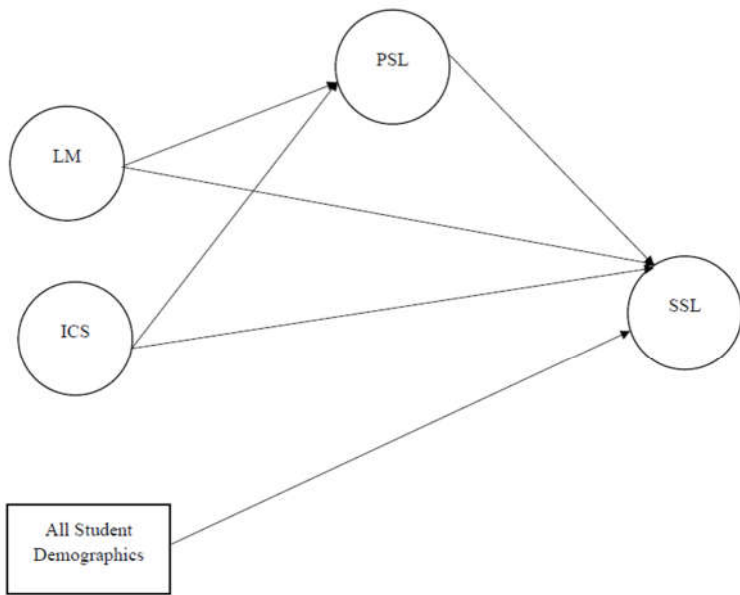


Figure 1. Structural Equation Model
LM = Language Mindset; ICS = Intercultural Communicative Skills; PSL = Positive L2 Self;
SSL = Self-Sustained Learning

4. Methods

4.1. Participants

Participants (N = 1,238) were mainly recruited through the assistance of their English teachers from four universities in Chongqing, China that represented different Chinese university types—a flagship comprehensive university, a normal university, a science and technology university, and a private university. Most of the participants (68.7%) were female, undergraduate students (65.3%), and non-English majors (75.9%). Over half of the participants (61.1%) have studied English as a second language for 5-10 years (see Table 1).

Table 1. Participant Demographics.

Variables	Categories	N	%
Gender	Female	850	68.7
	Male	388	31.3
Grade	Undergraduate	808	65.3
	Graduate	430	34.7
Major	English Major	940	75.9
	Non-English Major	298	24.1
Length of English Learning	Less than 5 years	89	7.2
	5-10 Years	757	61.1
	11-15 Year	314	25.4
	More than 15 Years	78	6.3
Self-Rated English Proficiency Level	Very Poor	43	3.5
	Poor	211	17.0
	Fair	815	65.8
	Good	37	3.0

	Very Good		
Going Abroad	No	1,149	92.8
	Yes	89	7.2
Contact with Native Speakers	No	704	56.9
	Once or more per year	286	23.1
	Once or more per month	66	5.3
	Once or more per week	149	12.0
	Once or more per day	33	2.7

Note. N = 1,238.

4.2. Measures

4.2.1. Language Mindset

Language mindset was measured by Wang et al.’s (2021) Chinese version of the Language Mindsets Inventory, which was originally developed by Lou and Noels (2017) and has been popularly adapted in studies focusing on English language learning. Previous studies have shown good reliability and validity of this instrument in different languages [21,71,72], including the Chinese version [70]. The instrument has 9 items, and 3 items are designed to measure each of the three dimensions— second language aptitude beliefs, age sensitivity beliefs about language learning, and general language intelligence beliefs. Example items include: “You can always change your foreign language ability”; “In learning a foreign language, if you work hard at it, you will always get better”. All items were based on a 5-point Likert scale (1—Strongly Disagree, 5—Strongly Agree). Cronbach’s alpha was .94 for all 9 items, and .83, .86, and .88 for items measuring three dimensions in this study.

4.2.2. Intercultural Communicative Skills

Intercultural communicative skills were measured by a section on the same construct in the Assessment of Intercultural Competence of Chinese College Students (AIC-CCS), which was developed by Wu et al. (2013) for Chinese college students in the Chinese context and has been widely used in China [73–75]. Previous studies have shown that the instrument has good reliability and validity. There are 9 items that measure intercultural communicative skills. Participants are asked to rate themselves about their skills based on a 5-point Likert scale (1—Very Low; 5—Very High). Example items include “the skill of consulting with foreigners when misunderstandings occur”; “the skill of treating foreigners politely”. Cronbach’s alpha of the 9 items in this study was .94.

4.2.3. Positive L2 Self

Positive L2 self was assessed by Wang’s (2023) Chinese version of Lake’s (2015) measure, which has 21 items. Seven items are designed to measure one of the three dimensions: interest in L2 self, harmonious passion for L2 learning, and mastery of L2 goal orientation [69]. Previous studies have shown good reliability and validity of this instrument. All items were based on a 5-point Likert scale (1—Definitely Not True Of Me; 5—Definitely True Of Me). Example items include “English lessons are enjoyable”; “I am passionate about learning English”. Cronbach’s alpha was .98 for all 21, .96, .95, and .95 for the items measuring three dimensions in this study.

4.2.4. Self-Sustained English Learning

The Self-sustained English learning scale was developed by authors in this study based on the literature review on SSL [6–9]. For instance, according to Barron (2006), SSL processes include searching for text-based informational sources, creating new interactive activities, seeking structured learning opportunities, and using media [6]. The scale consists of two components: short-term self-sustained English learning and long-term self-sustained English learning. The former component has

7 items that are related to students' SSL when they are taking English classes. All items were based on a 5-point Likert scale (1—Strongly Disagree, 5—Strongly Agree). Example items include "I keep learning English after class"; "I practice English with my peers in my after-class time". The latter component has 4 items that are related to students' self-sustained English learning after they complete English classes or after they graduate. Example items include "I will continue to learn English in my future jobs"; "I will continue to learn English after I graduate from college". This instrument went through a few procedures to ensure its reliability and validity before it was used in this study, such as expert reviews to provide validity evidence based on content, cognitive interviews to provide validity evidence based on response processes, and Exploratory Factor Analysis (EFA) to provide validity evidence based on internal structure. For instance, in the original development and validation study with 300 Chinese college students who learn English as a second language, EFA results confirmed the two factors in the original conceptualization of this measure, and Cronbach's alpha of the 11 items was .89. Cronbach's alpha was .94 for all 11 items and items measuring the two components in this study.

4.2.5. Demographic Background

Students' demographic background was measured by indicating their sex, grade, school, their self-evaluation of English proficiency level, the length of learning English, the frequency of being in contact with English native speakers, and whether they are undergraduate student, English major, or have been abroad.

4.3. Procedure

The study was approved by the Institutional Research Board at the first author's institution and complied with the Declaration of Helsinki. The survey that included all the measures and the demographic questions was administered at www.wjx.cn, the most widely used, secure online survey platform in China. Participants first read the information statement about the study, signed the informed consent, and agreed to participate in the study. They then completed all the measures and the demographic questions. No other identifying information was collected.

4.4. Data Analysis

Before any analysis was conducted, data was checked for normality and outliers, and the normality assumption was found not violated. The main analysis method we used was latent variable Structural Equation Modeling (SEM) which can examine both measurement and structural models simultaneously [76] and provide an unbiased estimate of direct and indirect effects [77]. Two steps were carried out based on SEM researchers' recommendations [78,79]: the first step was a Confirmatory Factor Analysis (CFA) of all the latent variables, which aimed to ensure sufficient construct validity of the measurement model (see Figure 2); the second step was SEM, which aimed to understand the structural relationships among the four latent variables (see Figure 1). In this SEM model, language mindset and intercultural communicative skills were treated as exogenous variables, positive L2 self was the mediator, and self-sustained English learning was the endogenous variable. Students' demographic information was used as control variables, which included sex, degree, major, self-rated English proficiency level, length of English learning, going abroad, or contact with foreigners.

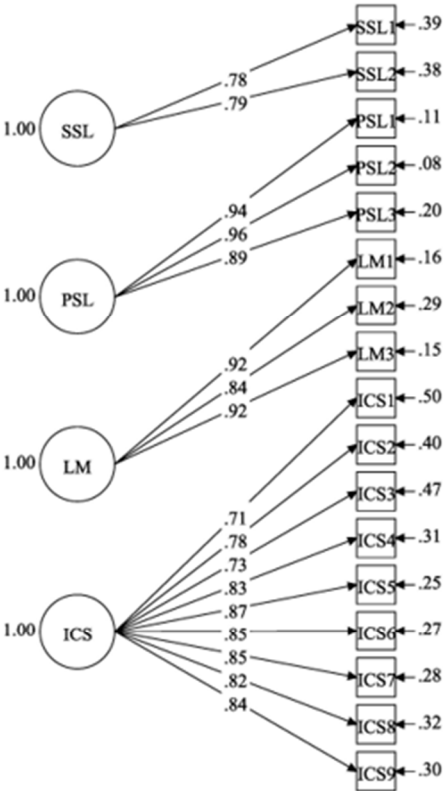


Figure 2. Measurement Model

SSL = Self-Sustained Learning; PSL = Positive L2 Self; LM = Language Mindset; ICS = Intercultural Communicative Skills.

The main analyses of CFA and SEM were performed in Mplus 8.10 [80]. Parceling was employed in the analyses to create parceled items as indicators of three latent constructs: language mindset, positive L2 self, and self-sustained English learning. More specifically, parcels were created as the average of items that measure each dimension of the construct. For instance, two parcels were formed for self-sustained English learning that corresponds to short-term and long-term self-sustained English learning. Despite a few weaknesses of parceling, this approach has many advantages, such as parceled items leading to simpler models and better fit [81,82]. In interpreting the results of CFA and SEM, we used model fit indices of Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), Root Mean Square Error of Approximation (RMSEA), and Standardized Root Mean Square Residual (SRMR). A model is often considered excellent if CFI and TLI are .95 or above, RMSEA is .06 or below, and SRMR is .08 or below [83,84]. The STDYX function was used to obtain all standardized coefficients. The bootstrap Confidence Interval method was used to test indirect effects, with 5,000 bootstraps because it can control Type I error while yielding an accurate value [85].

5. Results

5.1. Descriptive Statistics and Correlations

Descriptive statistics of the parceled items of language mindset, positive L2 self, and self-sustained English learning, and all 9 items of intercultural communicative skills were reported in Table 2. Overall, students had a strong language mindset, with a slightly higher level of beliefs related to age sensitivity when learning English than their beliefs related to second language and general language intelligence. Students' positive L2 self was also strong, and their scores in the three components were comparable. Additionally, students scored higher in long-term self-sustained English learning than in short-term self-sustained English learning. Among the 9 items that measure intercultural communicative skills, students rated the highest their ability to politely treat foreigners but rated the lowest their ability to negotiate with others. Correlations of the four latent variables

were also calculated (see Table 3). The results indicated that all variables were significantly correlated, and the correlations ranged from .34 to .50.

Table 2. Descriptive Statistics of All Variables.

Variables	Mean	SD
LM Parcel 1-Second Language Beliefs	3.75	0.79
LM Parcel 2-Age Sensitivity Beliefs	3.88	0.85
LM Parcel 3-General Language Beliefs	3.69	0.83
PLS Parcel 1-Interest	3.71	0.83
PLS Parcel 2-Harmonious Passion	3.66	0.83
PLS Parcel 3-Mastery L2 Goal	3.72	0.79
SSL-Short-Term	3.07	0.95
SSL-Long-Term	3.63	0.99
ICS 1	3.21	1.00
ICS2	3.55	0.88
ICS3	3.23	0.98
ICS4	3.79	0.91
ICS5	3.71	0.90
ICS6	3.71	0.89
ICS7	3.72	0.89
ICS8	3.48	0.90
ICS9	3.56	0.88

Notes. LM = Language Mindset; PLS = Positive L2 Self; SSL = Self-Sustained English Learning; ICS = Intercultural Communicative Skills.

Table 3. Correlations of Latent Variables.

Variables	LM	ICS	PLS	SSL
LM	-			
ICS	.34**	-		
PLS	.44**	.40**	-	
SSL	.43**	.39**	.50**	-

Notes. LM = Language Mindset; PLS = Positive L2 Self; SSL = Self-Sustained English Learning; ICS = Intercultural Communicative Skills. ** $p < .001$

5.2. CFA

The CFA model with four latent variables showed a good fit: CFI: .90, TLI: .88, RMSEA: .12, 95% CI [.118, .127], SRMR: .05. To account for the correlations of a few indicators in intercultural communicative skills measure, we added their correlated residuals in the model, such as ICC1 and ICC2, ICC1 and ICC3. This significantly increased the model fit: CFI: .95, TLI: .94, RMSEA: .087, 95% CI [.082, .092], SRMR: .05. All factor loadings were significant and strong, ranging from .71 to .96 (see Figure 2).

5.3. SEM

Language mindset and intercultural communicative skills were both significant and positive predictors of positive L2 self. The former variable ($\beta = .55$, $p < .001$) had a stronger effect than the latter one ($\beta = .35$, $p < .001$). These two variables explained a large portion (68.1%) of the variance in

positive L2 self. They and positive L2 self all had significant direct effects on self-sustained English learning. Among the three variables, positive L2 self had the strongest effect ($\beta = .52$, $p < .001$), followed by language mindset ($\beta = .28$, $p < .001$) and intercultural communication skills ($\beta = .15$, $p = .001$). Language mindset and intercultural communication skills also had significant indirect effects on self-sustained English learning through positive L2 self (see Figure 3). The indirect effect of language mindset was .29, $p < .001$, 95% CI [.21, .36], which was stronger than that of intercultural communication skills ($\beta = .19$, $p < .001$, 95% CI [.15, .25]). Only two control variables—students being an English major ($\beta = .12$, $p < .001$) and their self-rated English proficiency level ($\beta = .10$, $p = .001$)—were significant predictors of self-sustained English learning, and their effects were small and comparable. This model with direct and indirect effects and the effects of the two control variables explained a very large part (79.2%) of the variance in self-sustained English learning.

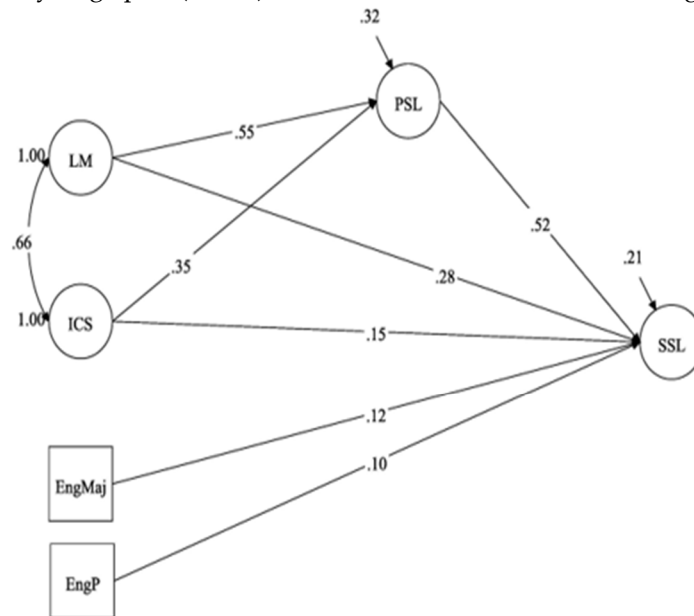


Figure 3. SEM Results

LM = Language Mindset; ICS = Intercultural Communicative Skills; PSL = Positive L2 Self; SSL = Self-Sustained Learning; EngMaj = English Major; EngP = English Proficiency Level.

6. Discussion

This study is the first empirical study to examine self-sustained learning and its predictors among Chinese college students who study English as a second language. The findings indicated that students scored higher in long-term self-sustained English learning than in short-term self-sustained English learning, suggesting a strong intention to continue to learn English after they complete their compulsory English courses and after they graduate from college. This may be because English is always considered an important language in Chinese society, and many companies or government units require their employees to be proficient in English. Furthermore, given that many college students in China consider English a tool that can be used in their work and other aspects of life, such as travel [12], it is not surprising to find that they still want to keep their English after they complete their English classes or even after they graduate from college.

Further, this study showed that Chinese students had an overall strong language mindset and positive L2 self, which is consistent with previous findings. For instance, Liu (2007) found that the majority of college students in China had moderately or strongly positive attitudes toward English learning [12]. The finding that students had a slightly higher level of beliefs related to age sensitivity than their beliefs related to second language and general language intelligence suggests that students prioritize the importance of effort in learning English rather than believing that their English learning is limited by age. This is in line with the Chinese culture, which espouses the significance of effort in

learning [86]. This study indicated that Chinese college students felt most confident in their ability to politely treat foreigners but felt least confident in their ability to negotiate with others. Politeness in China is a highly valued quality, and being polite in English may be easily achieved by using words like “Please” or “Thank you”. In contrast, negotiating with others, in its own right, is more challenging than simply talking with others or treating others politely because it involves not only language competencies but also strategies to convince others.

This study demonstrated that language mindset and intercultural communicative skills both significantly predicted positive L2 self, which also significantly predicted self-sustained English learning. These findings are consistent with previous ones that indicated language mindset, intercultural communicative skills, and positive L2 self were significant, positive predictors of many L2 learning outcomes, including the intention to continue to learn English and L2 proficiency [17–21]. In this study, long-term self-sustained learning was similar to the intention to continue to learn English. It is interesting to learn that language mindset was a stronger predictor of positive L2 self than intercultural communicative skills, while positive L2 self was a stronger predictor of self-sustained English learning than language mindset. These suggest that students’ beliefs about language play a more important role than their skills of communicating with others in forming students’ positive attitudes toward learning English as a second language. In contrast, students’ positive attitudes toward learning English and about themselves are more important than their beliefs about language in facilitating short-term and long-term self-sustained learning in English. In either case, teachers should pay attention to fostering students’ positive attitudes toward learning English and their beliefs about English besides training students’ intercultural communicative skills.

This study further found that students being an English major and their self-rated English proficiency level significantly predicted self-sustained English learning. Previous studies treated English proficiency level as a dependent variable and showed that language mindset, positive L2 self, and intercultural communicative skills were predictors of English proficiency level [18,37,53,69]. This study suggests that the relationship between English proficiency level and other L2 learning outcomes may be bidirectional. On the other hand, it is not surprising to find that being an English major was a significant predictor of self-sustained English learning because it not only means spending more time and effort studying English than a non-English major when students are taking English classes but also means using English more often after students graduate from college than non-English majors, mainly in their future jobs.

The most interesting finding of this study was that both language mindset and intercultural communicative skills had significant indirect effects on self-sustained English learning through positive L2 self. This suggests that teachers can improve students’ self-sustained English learning by improving students’ language mindset and intercultural communicative skills but cultivating students’ positive L2 self may be a more effective strategy for increasing students’ self-sustained English learning. The significant role that positive L2 self plays in L2 English learning has been consistently reported in many previous studies [18,69]. Because the positive L2 self has three components: interest in L2 self, harmonious passion for L2 learning, and mastery of L2 goal orientation, teachers can focus on these aspects in nurturing students’ positive L2 self in English classes. Nevertheless, all the direct and indirect effects in the model explained about 80% of the variance in self-sustained English learning, supporting a very strong SEM model.

6.1. Limitations

Despite the interesting findings, this study is still limited in the following aspects. First, the sample was a convenience sample, and most of the colleges sampled were from the same area. Although the type and size of these colleges and students’ characteristics in these colleges were considered in the sampling, the sample used in this study was not representative of college students in China, which limited the generalizability of the findings in this study to other contexts. Future studies can use a more representative sample in China and other countries where students learn English as a second language to see if the same results are replicated. Second, this study used a cross-sectional design. We intended not to make any causality claims about the relationships examined in

this study, therefore, any such claims should be cautioned or avoided. Future studies can use longitudinal study designs to examine the cause-and-effect relationships among all the examined variables. Third, although we collected data from both English and non-English majors, we did not analyze the data in separate samples. Future studies can use multiple-group SEM to examine the relationships among the same variables in English major and non-English major samples.

7. Conclusions

This study is the first one in the literature to examine self-sustained learning and its predictors among a group of Chinese college students within the context of learning English as a second language. The findings showed that students scored higher in long-term self-sustained English learning than in short-term self-sustained English learning and that they had a strong language mindset, positive L2 self, and intercultural communicative skills. The current study also demonstrated that language mindset and intercultural communicative skills were significant, positive predictors of positive L2 self and self-sustained English learning. Positive L2 self also significantly predicted self-sustained English learning. Additionally, language mindset and intercultural communicative skills had significant indirect effects on self-sustained English learning through the effect of positive L2 self. These findings have significant implications on how to nurture students' self-sustained English learning and provide insights for understanding language beliefs, positive attitudes, intercultural competence, and their relationships with SSL among students who learn English as a second language. This section may be divided by subheadings. It should provide a concise and precise description of the experimental results, their interpretation, as well as the experimental conclusions that can be drawn.

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