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Investigating Chinese University EFL Learners' Self-Efficacy in a Blended Learning Environment

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Abstract: This study examined the effect of a blended learning mode on students' English self-efficacy and self-regulation in a Chinese university, and further explored factors associated with their English listening self-efficacy. Results showed that after 16-week blended learning implementation, students' English listening self-efficacy, *Task Strategies* and *Self-Evaluation* have significantly improved. Students from more developed places reported higher level of English self-efficacy as well as the sources of English self-efficacy. Further OLS regression models identified *Social Persuasion* as a strong predictor of students' listening self-efficacy. The implications of the study are also discussed.

Keywords: Sources of self-efficacy, self-efficacy, self-regulation, EFL, blended learning

1. Introduction

Blended learning (BL), or the integration of face-to-face and online instruction, is widely adopted across higher education (Graham 2013). The "Guidelines on College English Teaching" issued in 2017 by the Ministry of Education of China urges College English to "integrate information technology with curriculum", and to "implement a blended teaching mode, in a way to foster students' active, autonomous and personalized learning".

In blended learning settings, autonomous learning is required as students have to complete learning tasks online before and after class, and set their own learning pace. Yet the lack of self-regulated competence and learning belief can lead to non-compliance issues, such as failure in watching online videos before class (He, Holton, Farkas, & Warschauer, 2016). Although much research has investigated learners' self-regulation and self-efficacy in blended learning settings (Barnard, Lan, To, Paton, & Lai, 2009; Shea & Bidjerano, 2010), few have focused on Chinese university-level EFL learners.

2. Literature Review

Self-efficacy refers to beliefs in one's capabilities to organize and execute the course of action required to produce given attainments (Bandura, 1997). Four principal sources of information constructed self-efficacy beliefs, namely, *mastery experiences, vicarious experiences, social persuasion and physiological states* (Bandura, 1997). Most researchers have used adapted versions of the Sources of Mathematics Self-Efficacy Scale developed by Lent, Lopez, and Bieschke (1991) to measure the sources of self-efficacy in academic settings (Usher & Pajares, 2008).

Self-regulation refers to the self-directive process through which learners transform their mental abilities into task-related academic skills (Zimmerman, 2001). Learners with stronger self-regulatory capacity are known to be more active and effective in academic task performance (Zimmerman & Schunk, 2011). And highly efficacious students are more likely to report the use of self-regulatory strategies (Kim, Wang, Ahn, & Bong, 2015).

As the construct of self-efficacy is domain specific and context specific (Zimmerman & Cleary, 2006), in order to better understand Chinese EFL learners' self-efficacy, Wang, Kim, Bai and Hu

(2014) have developed a self-efficacy questionnaire in an attempt of transferring the educational psychology constructs to the field of second language acquisition (SLA). Su, Liang and Tsai (2018) further validated the scale of the questionnaire and examined the positive relationship between EFL learners' online self-regulation and their English self-efficacy.

This study intends to further explore Chinese EFL learners' English self-efficacy and online self-regulation after a blended learning approach. Two research questions were proposed:

(1) What is the effect of blended College English approach on students' English self-efficacy and online self-regulation?

(2) What are the factors that may be associated with students' English listening self-efficacy?

3. Method

3.1 Participants

The study involved 135 sophomore (second year) students in a College English class at a Chinese comprehensive university in northern China. There are more male students (67%) in the class as all of the participants are engineering majors. Their ages ranged from 17 to 25 years, with an average age of 20.22 years (SD=0.77).

3.2 Instruments

The study employed three questionnaires. The first questionnaire is the Sources of EFL Learners' English Self-Efficacy (SESE) adapted from Zheng, Liang and Tsai (2017) with four dimensions included: *Mastery Experiences, Vicarious Experiences, Social Persuasion and Physiological States*. The second instrument is the Questionnaire of English Self-Efficacy (QESE) from Wang et al (2014). It is composed of four variables of *Listening Self-Efficacy, Speaking Self-Efficacy, Reading Self-Efficacy and Writing Self-Efficacy*. The third questionnaire is Online Self-regulated English Learning (OSEL) (Zheng, Liang, Yang, & Tsai, 2016). The variables are *Goal Setting, Environment Structuring, Task Strategies, Time Management, Help Seeking and Self-Evaluation.*

All the items in the three questionnaires were translated into Chinese and measured with a five-point scale, from 1 "I do not agree at all" to 5 "strongly agree", or from 1 "I cannot do it at all" to 5 "I can do it well". The Cronbach's alpha of the SESE, QESE and OSEL are 0.92, 0.93 and 0.88 separately. All the data analyses including *t*-test and OLS regression were processed in Stata 15.

3.3 Procedure

The research was conducted in the fall semester of 2017 in an integrated college English course aimed at improving students' listening, speaking, reading and writing. The course lasted for 16 weeks. The same lecturer was in charge of two parallel classes with 68 and 69 students.

Two identical sets of questionnaires were administered during class time at the second and the fifteenth week to guarantee completion rate. The lecturer designed a blended classroom approach with "iClass" (Blackboard) and an online learning platform "New Perspective" developed by Shanghai Foreign Language Education Press. The "iClass" platform was mainly used for curriculum notices and students' assignments. The "New Perspective" platform provides the digital version of the textbook, learning resources and online tests. In order to support students' online English learning self-regulation, the lecturer provided a variety of listening materials to foster students' learning interests, and also created a "WeChat class group" as an out-of-class communication platform.

The mid-term listening test is selected as it contains more listening questions compared with the final exam. It includes 25 multiple-choice questions testing students' listening comprehension of conversations, passages and news reports.

3.4 Data Analysis

To answer the first research question, paired-sample *t*-test of pre- and post- survey data was conducted. For the second research question, OLS regression of students' English listening self-efficacy on students' gender, high school location, sources of self-efficacy and online English learning self-regulation was reported.

Table 1 shows the descriptive statistics of students' age, gender, listening test and all the mean values of their post-survey variables by students' high school location. One-way ANOVA was conducted to compare the group differences and *F*-ratio (3, 131) is listed in the last column.

Table 1
Descriptive Statistics of All Analysis Variables by Students' High School Location

	Full Sample		Municipality		Provincial Capital		Other Cities		Town or Village		*F*
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
Listening Test (Standard Score)	0.00	1.00	0.69	1.02	0.27	1.06	-0.23	0.92	-0.27	0.84	6.43***
Age	20.22	0.77	20.14	0.36	20.31	0.47	20.22	1.05	20.22	0.67	0.18
Male	0.67		0.67		0.5		0.75		0.70		1.64
English Self-Efficacy											
Listening Self-efficacy	2.92	0.60	3.27	0.65	3.14	0.53	2.81	0.59	2.71	0.52	6.06***
Speaking Self-efficacy	3.46	0.63	3.77	0.74	3.58	0.49	3.50	0.56	3.16	0.64	5.27**
Reading Self-efficacy	3.28	0.64	3.62	0.84	3.29	0.45	3.38	0.55	2.93	0.62	6.95***
Writing Self-efficacy	3.60	0.56	3.59	0.77	3.74	0.53	3.66	0.47	3.43	0.54	1.91
Sources of English Self-Efficacy											
Mastery Experiences	2.58	0.74	2.93	0.66	2.72	0.88	2.52	0.76	2.39	0.56	3.00*
Vicarious Experience	3.77	0.68	3.86	0.77	3.85	0.71	3.77	0.67	3.67	0.64	0.49
Social Persuasion	2.98	0.87	3.55	0.82	3	0.98	2.86	0.87	2.80	0.71	4.07**
Physiological States	2.69	0.94	2.35	1.03	2.41	0.88	2.75	0.98	3.01	0.78	3.31*
Online English Learning Self-Regulation											
Goal Setting	3.02	0.69	3.25	0.78	3.15	0.71	3	0.65	2.83	0.64	2.09
Environment Structuring	3.68	0.63	3.45	0.68	3.78	0.59	3.86	0.62	3.49	0.56	3.89*
Task Strategies	2.85	0.81	2.79	0.85	2.71	0.84	3.04	0.77	2.73	0.81	1.50
Time Management	3.03	0.77	2.76	0.92	3.31	0.63	3.13	0.75	2.85	0.71	2.81*
Help Seeking	3.20	0.81	3.38	0.60	2.92	0.82	3.38	0.89	3.04	0.73	0.29
Self-Evaluation	3.08	0.82	3.06	0.93	3	0.65	3.16	0.90	3.04	0.77	3.09*
Observations	135		21		26		51		37		

Note. All the survey items are measured on a 5-point rating scale and all the data except the listening test are from the post-survey. In mainland China, four cities are identified as municipality—Beijing, Tianjing, Shanghai and Chongqing.
*p<0.05, ** p<0.01, *** p<0.001.

4. Results

4.1 Paired-Sample t-test

Table 2 shows the result of the paired-samples *t*-test of students' English self-efficacy and online English learning self-regulation. Only listening self-efficacy shows a significant improvement in post-survey (t=2.89, p<0.01). This result implies that after a semester of blended learning approach, students' listening self-efficacy has significantly improved, yet no significant change is found in their speaking, reading and writing self-efficacy.

As for their online English learning self-regulation, the result shows significant improvement in their *Task Strategies* (t=4.80, p<0.001) and their *Self-Evaluation* (t=2.12, p<0.05). The mean value of *Task Strategies* is the lowest among all the variables in the pre-survey (2.46, SD=0.84). After the treatment, the mean value of *Task Strategies* improved to 2.85 (SD=0.81).

Table 2
Paired Samples t-test between Pre-Survey and Post-Survey

Dimension		Mean	SD	*t*	*P*
English Self-efficacy					
Listening Self-efficacy	post-survey	2.92	0.60	2.89**	0.005
	pre-survey	2.79	0.61		
Online English Learning Self-Regulation					
Task Strategies	post-survey	2.85	0.81	4.80***	0.000
	pre-survey	2.46	0.84		
Self-Evaluation	post-survey	3.08	0.82	2.12*	0.036
	pre-survey	2.92	0.79		

Note. All the survey items are measured on a 5-point rating scale.
*p<0.05, ** p<0.01, *** p<0.001

4.2 OLS Regression Model

As only the listening self-efficacy shows a significant improvement after the blended learning mode, OLS regression models were used to further investigate factors associated with students' listening self-efficacy. In the first model of table 3, students' listening test score is a strong predictor of students' listening self-efficacy. In Model 2, comparing with students who are from municipality (the reference group), students from towns or villages on average show significantly lower listening self-efficacy, controlling for other variables.

In both Model 3 and Model 4, *Social Persuasion* is a strong predictor of students' listening self-efficacy (p<0.01). With one out of a five-point scale increase in students' *Social Persuasion* belief, their listening self-efficacy increases 0.18 point. In Model 4, students' *Goal Setting, Environment Structuring* and *Task Strategies* are significantly associated with students' listening self-efficacy (p<0.05), controlling for other variables. The *R*-squared value (0.43) in Model 4 indicates that the model explains 43.3% of the total variances in students' listening self-efficacy.

Table 3
English Listening Self-Efficacy Regressed on Students' Listening Test, Gender, High School Locations, Sources of English Self-Efficacy and Online English Self-Regulation

	Model 1	Model 2	Model 3	Model 4
Listening Test	0.08***(0.01)	0.06***(0.02)	0.03(0.02)	0.03(0.02)
Male	0.08(0.10)	0.10(0.10)	0.14(0.10)	0.20*(0.10)
Students' High School Locations				
Provincial Cities		-0.02(0.16)	0.05(0.15)	0.12(0.16)
Ordinary Prefectural Cities		-0.27(0.15)	-0.22(0.14)	-0.19(0.14)

Towns and Villages		-0.36*(0.16)	-0.29(0.15)	-0.26(0.15)
Sources of English Self-Efficacy				
Mastery Experiences			0.10(0.08)	-0.03(0.09)
Vicarious Experience			0.10(0.08)	0.09(0.08)
Social Persuasion			0.18**(0.07)	0.20**(0.07)
Physiological States			0.04(0.05)	0.03(0.05)
Online English Learning Self-regulation				
Goal Setting				0.21*(0.09)
Environment Structuring				-0.21*(0.08)
Task Strategies				0.13*(0.06)
Time Management				0.04(0.07)
Help Seeking				-0.02(0.07)
Self-evaluation				0.04(0.07)
Constant	1.64***(0.26)	2.05***(0.32)	1.20**(0.43)	1.14*(0.44)
R-squared	0.18	0.23	0.34	0.43
Observations	135	135	135	135

Note. All the survey items are measured on a 5-point rating scale and all the data except the listening test are from the post-survey. Standard errors are in parentheses. Municipality is the reference group in high school location. *p<0.05, ** p<0.01, *** p<0.001.

5. Discussion

5.1 The Blended Approach

The results from the paired samples *t*-test showed that only students' listening self-efficacy had improved over the 16-week implementation of the blended approach. During the semester, students spent more time doing listening activities and tests online, as blended learning mode provides more high-quality multimedia resources to train their listening comprehension than traditional classrooms.

In terms of students' online English learning self-regulation, only *Task Strategies* and *Self-Evaluation* showed significant improvement. Students on average were more likely to read aloud the English instructional materials online to fight against distractions, and took more thorough notes when learning online. They have also reported improvement in finding how they were doing in online learning by communicating with teachers and classmates. Generally speaking, more targeted and specific treatment is needed to improve EFL students' speaking, reading and writing self-efficacy as well as their online English self-regulation.

5.2 Factors Associated with Students' English Listening Self-Efficacy

As shown in Table 1, students from more developed cities on the whole reported higher level of English self-efficacy as well as the sources of English self-efficacy. The difference in mean values between "municipality" and "provincial capital" is not as sharp as the others because most provincial capitals are also well-developed big cities. In China, students in bigger cities have better English learning resources and enjoy more communicative-driven teaching pedagogies in high school. On the contrary, high school English teaching is more test-driven in small cities or towns.

However, the effect of students' high school location disappears with more controlling variables added to the OLS regression model. Table 3 shows that *Social Persuasion* is a strong predictor of students' listening self-efficacy, which corresponds with the finding in Zheng et al (2017). Encouragement and praise from parents, teachers and peers whom the students trust can boost their confidence in their English ability, and this is more prominent in China given the collective cultural and social context.

6. Conclusion

This study has further validated the instrument for measuring Chinese EFL learners' self-efficacy and provides some preliminary findings in a blended learning approach carried out in a Chinese university. It provides a clearer picture of the relations among students English listening proficiency, English self-efficacy and their online English learning self-regulation.

However, this study has many limitations. Further research with more sophisticated design is needed to get a better understanding of the effect of blended learning approach on learners' self-efficacy and self-regulation.

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