

A preliminary investigation into English as a foreign language (EFL) learners' speaking self-efficacy, satisfaction and speaking performance in the blended teaching environment in a Chinese university: a quantitative study

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Abstract. With the acceleration of educational informatization, the blended teaching mode has developed rapidly. In this context, grounded in Bandura's self-efficacy theory, this study investigated the relationship among students' satisfaction with blended teaching mode of EFL class, speaking self-efficacy and speaking achievement by means of factor analysis, correlation analysis and regression analysis. The results showed that, first there was a significant positive correlation between the three variables of satisfaction with blended teaching mode, speaking self-efficacy and final speaking performance. Speaking self-efficacy was highly correlated with final speaking achievement while students' satisfaction with blended teaching mode of EFL class was low correlated with speaking self-efficacy and final speaking achievement. Second, speaking self-efficacy and students' satisfaction with blended teaching mode of EFL class can explain 56.4% of the variation of final speaking performance, with the former being stronger. Based on this, this study provided suggestions for future studies so as to improve students' English-speaking proficiency.

1 Introduction

The rapid development of educational informatization promotes the deep integration of foreign language education and information technology. The blended teaching mode combining online and offline is accelerating the reform of foreign language teaching system and triggering the ecological reconstruction of College English Teaching [1], becoming the trend of classroom revolution in basic education due to its value demands such as reducing the cognitive load of students' learning, liberating students' learning freedom, and promoting the occurrence of high-level learning [2]. The teaching ecosystem is a unified body with information transmission function in which teachers, students and teaching environment interact with each other in a certain teaching time and space. Under this background, relevant theoretical research and practical exploration have been vigorously developed, and research on satisfaction with blended teaching mode has been carried out. Learners' recognition of

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blended teaching is an important factor affecting the effect of blended teaching while their satisfaction is a significant psychological feature characterizing their recognition [3]. Therefore, this study seeks to bring these affective variables into consideration and investigates the relationship between EFL learners' speaking self-efficacy, satisfaction and speaking performance.

2 Literature review

2.1 English speaking self-efficacy

The self-efficacy theory is an important part of Bandura's social learning theory system. It is defined as an individual's judgment on whether he can organize and carry out a certain activity to achieve the expected goal [4]. Bandura believes that self-efficacy realizes its main mechanism through the intermediary process of choice, cognition, motivation and emotion, and each type of motivation is affected by efficacy belief. Learners' self-efficacy is an important variable to explain learning behaviour [5], which also provides a reliable theoretical basis for learners' classroom participation behavior. A large body of research provided evidence that the self-efficacy of EFL learners can strongly predict their EFL achievement [6-7]. Students' language learning self-efficacy is not only related to the overall level of language learning, but also related to specific language skills such as listening, speaking, reading and writing. Studies conducted outside China on self-efficacy and foreign language learning involve all aspects of language learning while domestic studies mainly focus on writing ability [7], though carried out in the past decade but with few studies done on English speaking self-efficacy.

Most studies have demonstrated that speaking self-efficacy is significantly related to speaking performance [8-12]. Therefore, it is an important emotional variable worth exploring. Through analysis of studies conducted outside China on speaking self-efficacy, we found most studies took English public speaking performance as the main construction and examined the source of public English-speaking self-efficacy and the relationship between public English-speaking self-efficacy and speaking performance [13-14]. Meanwhile, the general English-speaking ability has been conducted to examine the impact of students' speaking self-efficacy on speaking performance [10]. The relationship between speaking self-efficacy and other emotional factors, such as the relationship between speaking self-efficacy and oral communication intention and communication frequency, and the relationship between speaking self-efficacy and achievement goals have been examined [12]. It is not difficult to find that studies outside China not only involve self-efficacy of English public speaking ability but also self-efficacy of general speaking communicative competence. And it takes EFL learners in other countries as well as EFL learners in China as the research object. However, for the general English-speaking ability, the current research has not developed a generally agreed upon self-efficacy scale, and the existing research has either borrowed or adapted others' scales. At the same time, studies conducted outside China mainly focus on the relationship between speaking self-efficacy and other affective factors, and do not take the variable of teaching mode itself into consideration.

2.2 Satisfaction with blended teaching mode

Blended teaching is a professional term with Chinese characteristics, emphasizing teaching practice design [1]. Correspondingly, the commonly used expressions in international academic journals are blended language learning, which emphasizes the mixing of online and

offline activities. It has attracted the attention of college teachers due to its combination of online and offline activities. Meanwhile, Chinese government and universities have launched a series of policies and documents to encourage blended teaching mode. Empirical studies focused on the exploration of suitable blended teaching mode according to the course characteristics while in recent years satisfaction with blended teaching mode has become a hot point. So (2008) proposed the influencing factors of blended teaching satisfaction through empirical investigation and meta-analysis [14]. Wu and DIEP carried out relevant research through structural equation model [15-16]. Based on the full perspective learning theory of the Danish scholar Illeris, Liu (2019) proposed a hypothetical model of influencing factors of satisfaction with blended teaching mode, including five factors, individual characteristics, learning environment, interaction degree, learning achievement and satisfaction. He further analysed and tested the influence of various factors, which provides a new perspective for the study of College English speaking self-efficacy under the blended teaching mode [17]. In view of these, this study placed the investigation of speaking self-efficacy in the context of blended teaching mode, explored the relationship between satisfaction with blended teaching mode, speaking self-efficacy and speaking performance, and then put forward the following two research questions: (1) What is the relationship between satisfaction with blended teaching mode, speaking self-efficacy and students' final speaking performance? (2) Which of the two variables, satisfaction and speaking self-efficacy, can better predict students' final speaking performance?

3 Research Method

3.1 Participants

In this study, convenience sampling was employed. 110 participants were from four intact reform classes enrolled in College English Audiovisual and Oral Course. The course was offered during the first year in China to improve students speaking proficiency. It lasted half an academic year from the beginning of March to the end of August with 16 weeks. Students took part in the course on Saturday morning about four hours. They also do a lot of extra work before class and after class. All of them were freshmen and were recruited with help from the English teaching program in a Chinese university in the southeast region of China. Their majors covered civil engineering, electrical engineering, water conservancy, hydropower, automation, etc. The course taken was *College English Audiovisual and Oral Course*. It was the first time for this course to adopt the blended teaching mode of online and offline teaching, aiming at cultivating students' oral communication ability.

Three stages were conducted during this course. Before class, teachers sent students watching materials, speaking topic, related vocabulary and speaking tips for group discussion and preparation. In class, student volunteers showed their work and feedback from both teachers and peers were provided. After class, students revised their work and made a summary about the whole class. Finally, 81 valid questionnaires were recovered, with a rate of 74%.

3.2 Research tools and reliability and validity test

3.2.1 College English speaking self-efficacy scale

According to the outline of the speaking self-efficacy scale developed by Ahmad [18], combined with the author's many years of College English teaching experience and interviews with speaking English teachers who have been teaching for a long time, a 28 topic

College English speaking self-efficacy scale was compiled. The scale includes two parts. The first part is personal information, including name, gender and major. The second part measures speaking self-efficacy, which is divided into five grades: I can do well (5 points), I can do it (4 points), maybe I can do it (3 points), I can't do it (2 points) and I can't do it at all (1 point). The overall reliability of the questionnaire was tested by spss22.0 software, and the reliability Cronbach's value is 0.889, (n = 104) indicating that the scale was relatively reliable.

3.2.2 Questionnaire survey on the satisfaction with blended teaching mode of College English Audiovisual and Oral Course

Referring to the existing blended curriculum satisfaction questionnaire at home and abroad [18] and combining the characteristics of College English Audio-visual and Oral course, the author has compiled questionnaire for satisfaction with blended teaching mode. The first part investigated personal information, including name, gender and major. There are 18 questions in the second part of the satisfaction survey. All questions were scored by the Likert six-point scale, which was divided into six levels: very agree (6 points), agree (5 points), a little agree (4 points), a little disagree (3 points), disagree (2 points) and very disagree (1 point). After testing, the internal consistency coefficient of the questionnaire was 0.923, indicating that the questionnaire has a high consistency reliability. Through exploratory factor analysis, the results suggested that the kmo value is 0.810, the approximate chi square value of Bartlett's sphericity test was 999.437, the degree of freedom (DF) is 171, and the significance probability value was $0.000 < 0.05$, indicating that the data validity is good and suitable for factor analysis. After determining that factor analysis can be carried out, this study used principal component analysis and maximum variance rotation method to extract factors. After two exploratory factor analysis, item 12 was finally deleted, and there were 17 questions in the final questionnaire. Three factors were extracted: satisfaction, interaction degree and learning achievement. The eigenvalues of the three factors were all above 2, far greater than the acceptable value of 1.0. The cumulative variance explained by the three factors was 66%, which better explained the variance of the whole scale. The project load of each factor was between 0.5 and 0.8, much higher than the acceptable value of 0.30. Therefore, it can be concluded that the Questionnaire survey on the satisfaction with blended teaching mode of College English Audiovisual and Oral Course had good structural validity.

3.2.3 Speaking performance indicators

The speaking performance indicators were taken from the students' final speaking test results at the end of the course evaluated by formative assessment. The final speaking scores accounted for 50%, so to some extent it can partly reflect the students' final speaking performance. The final speaking tests were administered in groups of two students, with them given two topics. One is to make a conversation for 5 mins without any use of their first language. The other is to answer questions after watching excerpts from the TED Talk.

3.2.4 Research procedure

The participants signed the informed consent form and agreed to participate in the present study. Before the first class, the participants were collectively pre-tested to understand the students' oral self-efficacy before entering the school, and they were required to make a real assessment of their current oral ability. The questionnaire is registered and records the names and student numbers of participants so as to match with the subsequent questionnaires and scores. The second questionnaire in the last class at the end of the term includes speaking self-efficacy questionnaire and questionnaire survey on the satisfaction with blended teaching

mode of College English Audiovisual and Oral Course. In order to ensure the authenticity of the results of the questionnaire, it is specially emphasized to the students by both teachers and researchers before the questionnaire that the questionnaire is only for internal research and has nothing to do with the course evaluation and results. And it is was not disclosed to their instructors or anyone else in order to safeguard their information. At the end of the course, interviews with students were also carried out to help the researcher have a deep understanding of their satisfaction with this new teaching mode. Finally, spss22.0 software was used to analyze the data.

4 Results and analysis

The data of students' satisfaction with blended learning mode, College English speaking self-efficacy and students' final speaking test scores collected in the last class at the end of the term were introduced into spss22.0 for statistical analysis. First, Pearson correlation analysis was carried out on the three variables to test whether there was a significant correlation between the two to answer the first research question. Then, by using multiple regression analysis, this paper examined which of the two variables can better predict students' final speaking performance, so as to answer the second research question. The specific data results are presented in the following table.

4.1 A correlation analysis of satisfaction with blended teaching mode, speaking self-efficacy and students' final speaking performance

Table 1. Pearson correlation coefficient between blended teaching satisfaction and final speaking performance.

| | | Teaching satisfaction | Speaking self-efficacy | Final speaking score |
|---|---------------------|-----------------------|------------------------|----------------------|
| Satisfaction with blended teaching mode | Pearson correlation | 1 | .324** | .277* |
| | Sig (2-tailed) | | .003 | .012 |
| | N | 81 | 81 | 81 |
| Speaking self-efficacy | Pearson correlation | .324** | 1 | .751** |
| | Sig (2-tailed) | .003 | | .000 |
| | N | 81 | 81 | 81 |
| Final speaking score | Pearson correlation | .277* | .751** | 1 |
| | Sig (2-tailed) | .012 | .000 | |
| | N | 81 | 81 | 81 |

The results of Pearson correlation analysis (see Table 1) indicated that there is a significant correlation between satisfaction with blended teaching and speaking self-efficacy, but the correlation coefficient was not large, belonging to low correlation ($r = 0.324$, $P < 0.05$). There was a significant correlation between satisfaction with blended teaching and final speaking performance, and the correlation coefficient was also low, belonging to low correlation ($r = 0.277$, $P < 0.05$). However, there was a significant correlation between speaking self-efficacy and final speaking performance, and the correlation coefficient was high ($r = 0.751$, $P < 0.05$).

These coefficients demonstrated that there was a significant positive correlation between the satisfaction with blended teaching mode, speaking self-efficacy and final speaking performance ($P < 0.05$). Among them, students with high speaking self-efficacy also had high speaking performance. Therefore, each variable has a correlation with the final speaking performance, indicating that regression analysis can be carried out.

4.2 Multiple regression analysis of satisfaction with blended teaching mode, speaking self-efficacy and students' final speaking performance

Table 2. Variable descriptives and correlation matrix (n = 81).

| variable | Descriptives | | Correlation coefficients | | | | |
|--|--------------|------------|--------------------------|-------------|-------------|-------------|-------------|
| | M | SD | 1 | 2 | 3 | 4 | 5 |
| DV final speaking score | 84.25 9 | 9.08 4 | 0.751 ** | 0.277 * | 0.301 ** | 0.118 | 0.337 |
| IV 1. speaking self-efficacy | 114.5 19 | 18.0 88 | | 0.324 ** | 0.273 * | 0.201 | 0.434 ** |
| 2. satisfaction with blended teaching mode | 82.28 4 | 10.5 73 | | | 0.905 ** | 0.877 ** | 0.809 ** |
| 3. satisfaction (factor 1) | 33.77 8 | 5.03 7 | | | | 0.647 ** | 0.635 ** |
| 4. interactive degree (factor 2) | 29.62 9 | 4.38 0 | | | | | 0.611 ** |
| 5. learning achievement (factor 3) | 18.87 7 | 2.68 0 | | | | | |

* $P < 0.05$

Table 3. Multiple Linear Regression: Important Statistics (n=81).

| Variables | R | R2 | Adjusted R2 | F(1,79) | Beta | t(79) | Tolerance | VIF |
|--|-------|-------|-------------|----------|--------|--------|-----------|-------|
| DV final speaking score | 0.751 | 0.564 | 0.558 | 102.046* | | | | |
| IV1. speaking self-efficacy | | | | | 0.360 | 10.102 | 1.000 | 1.000 |
| 2. satisfaction with blended teaching mode | | | | | 0.039 | 0.489 | 0.895 | 1.117 |
| 3. satisfaction (factor 1) | | | | | 0.104 | 1.351 | 0.925 | 1.081 |
| 4. interactive degree (factor 2) | | | | | -0.035 | -0.459 | 0.960 | 1.042 |
| 5. learning achievement (factor 3) | | | | | 0.013 | 0.154 | 0.811 | 1.233 |

* $P < 0.05$

Regression analysis is a statistical analysis method that uses one or more independent variables to explain and predict the dependent variables. Based on a certain covariance relationship, the ability of independent variables to explain and predict the dependent variables is discussed. In this study, speaking self-efficacy and satisfaction with blended

teaching mode were used as predictors, and final speaking performance was used as dependent variable for linear regression analysis (as shown in Table 2). Pearson's correlation coefficient indicated that, except for the final speaking performance and interaction degree, the final speaking performance and learning achievement, the speaking self-efficacy and interaction degree have not reached a significant level, the rest demonstrated a positive correlation at the level of 0.01 or 0.05, which further indicated that regression analysis can be carried out.

The linear regression data (as shown in Table 3) suggested that $f(1,79) = 102.046$, $P < 0.05$, indicating that R^2 was significantly non-zero, and the predictive variable and dependent variable were significantly correlated. This is also consistent with the conclusion of the relevant analysis. The forced regression results indicated that the standardized regression coefficients of the predictive variables, speaking self-efficacy and satisfaction with blended teaching mode were 0.360 and 0.039, respectively, which meant that these two predictive variables will have a significant positive impact on the dependent variable, final speaking performance. Compared with satisfaction with blended teaching mode, speaking self-efficacy can better predict the final oral performance ($0.360 > 0.039$). At the same time, it also indicated that the students with higher speaking self-efficacy have higher speaking performance at the end of the term. The standardized regression coefficients of the three influencing factors in satisfaction with blended teaching mode are satisfaction (0.104), learning achievement (0.013) and interaction degree (- 0.035) in order from large to small. Data also suggested that satisfaction and learning achievement can predict the final speaking performance. However, the standardized regression coefficient of interaction degree was negative, which can not predict the final speaking performance. R^2 is 0.564, that is, the combination of speaking self-efficacy and satisfaction with blended teaching mode can explain 56.4% of the variation of final speaking performance. Finally, the standardized regression equation was as follows: final speaking score = $0.360 \times$ speaking self-efficacy + $0.039 \times$ Satisfaction with blended teaching mode.

5 Discussions

The author has made the research on College English speaking self-efficacy and learner satisfaction under the blended teaching mode. The research conclusion was discussed from two aspects:

Firstly, there were significant positive correlations among the three variables, including satisfaction with blended teaching mode, speaking self-efficacy and final speaking performance. Among them, the correlation coefficient between speaking self-efficacy and final speaking performance was the highest, indicating that students with higher speaking self-efficacy are more likely to receive higher scores in speaking skills. This is consistent with previous studies [10-14] and can be explained by the statement that self-belief in general can help students to participate in tasks, and students with high self-efficacy set higher goals and engage themselves in tasks which require considerable effort, persistence and interest [4].

Satisfaction with blended teaching mode and speaking self-efficacy, satisfaction with blended teaching mode and final speaking performance were significantly related, but the correlation coefficient was low, indicating a low correlation. However, previous studies have pointed out that learners' self-awareness has an impact on satisfaction, and students with high self-efficacy have higher satisfaction [17-18]. Many influencing factors can contribute to students' satisfaction in blended learning just as Liu (2019) proposed the five elements of personal feature, learning environment, interaction degree, learning achievement and satisfaction from the perspective of learners. Through students' interview at the end of semester, the author analysed that the main reason may be that the blended teaching mode based on the College English audio-visual and oral course was conducted for the first time in

the university, and it was still in the stage of experimental exploration. The teachers lacked some experience and the students needed a long process to adapt to the mode. In the follow-up, it was necessary to further explore a more efficient blended teaching mode in combination with the course characteristics and the school-based situation. Therefore, as for the first research question, satisfaction with blended teaching mode and speaking self-efficacy had a positive impact on students' final speaking performance, and speaking self-efficacy was the main factor affecting final speaking performance.

Secondly, the two predictors of speaking self-efficacy and satisfaction with blended teaching mode can explain 56.4% of the variation in the final speaking performance. This also showed that in addition to the motivational and emotional factors involved in this study, there may be other factors such as self-regulation ability, oral motivation, and the use of oral strategies that affect the complex language output activity of speaking English. Compared with the satisfaction of blended teaching, speaking self-efficacy can better and significantly predict students' final speaking performance, and learners with a sense of high efficiency also have higher language output ability, which also confirmed the existing research results: self-efficacy is an important factor affecting learners' academic performance and can significantly predict learners' foreign language level [18]. Therefore, under the background of the current blended teaching mode, how to cultivate and improve learners' speaking self-efficacy has become the focus of future research.

6 Conclusions

Two main findings with important implications for the EFL learners' speaking self-efficacy and future research emerged: first, learners' speaking self-efficacy was highly correlated with final speaking achievement while their satisfaction with blended teaching mode of EFL class was low correlated with speaking self-efficacy and final speaking achievement. Possible reasons can be further explored in future research from the perspectives of the design of blended teaching, learning support environment as well as learners themselves. Second, speaking self-efficacy and students' satisfaction with blended teaching mode of EFL class can explain 56.4% of the variation of final speaking performance, with the former being stronger. Self-efficacy is not only an important factor affecting learners' language proficiency, but also an important internal trait that can significantly predict learners' academic performance. Therefore, it is very important to cultivate and improve students' oral self-efficacy. In the current boom of blended teaching mode, as the guide and supervisor of teaching, teachers need to seriously reflect on the effective ways to cultivate learners' self-efficacy, such as through systematic oral communication strategy training, or through the teaching platform to design reasonable and effective classroom activities and targeted intervention strategies. Teachers can use resource intervention, strategy intervention and tool intervention strategies to implement intervention guidance.

Future research can start from the study of learners' satisfaction needs by comprehensively applying a variety of tools to mine data as well as learners' factors at multiple levels, such as learners' internal motivation factors, learning styles, learning engagement, etc. besides increasing the number and diversity of samples on the basis of this study. Moreover, a longitudinal investigation into Chinese college students' speaking self-efficacy can also be further done to explore the dynamic changing process of their speaking self-efficacy for the course in this study only lasted half an academic year.

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