Application of Scenario-Based Teaching Model Optimized by Krashen's Hypothesis to China's ESP Class—Illustrated by the Case from Model Class of Kumming ESP Institution

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Abstract. This study tentatively designed a scenario-based teaching model which was optimized by Krashen's Hypothesis, and critically evaluated the application of the model designed in the ESP course by conducting experimental classes in Kunming Inspire ESP institution and analyzing data collected from the pre-test and post-test of the experiment with the support of SPSS. In this study, the teaching model designed by the author combined the dialogue scenes in film clips and students' group dialogue interaction. The author aims to improve students' L2 acquisition efficiency in ESP class by leading them to imitate and design their own role-plays through group work, then share performances in class. As for the theoretical basis, many detailed designs of this model are optimized by Krashen's "learning and acquisition hypothesis", "input hypothesis" and "affective filter" hypothesis. Through the statistical analysis and comparison of the quantified results of the pre-test and post-test, the classroom with the scenario-based teaching model designed by the author can effectively improve the accuracy of students' pragmatic and syntactic expressions ($P \leq 0.05$). In addition, according to the questionnaire survey after class, by comparison with the traditional lecture-oriented ESP class, students show greater interest and recognition for the new ESP class inserted with the teaching model designed. In general, this scenario-based teaching model optimized by Krashen's hypothesis in this study could be helpful to improve students' pragmatic and syntactic accuracy of L2 expression in ESP learning.

Keywords: ESP class · Krashen' Hypothesis · Scenario-based Learning

1 Introduction

1.1 Research Background

Significance of pragmatics in ESP (English for Specific Purpose) Class
It is generally acknowledged that ESP classes could be one of the vital components of Chinese higher education, as college students need to be equipped with qualified English

competence to engage in academic activities [1]. According to one of the core values of ESP proposed by Dudley-Evans and St. John, universal language features and linguistic skills might exist among diverse subjects and careers [2]. Thus, students' pragmatic competence improvement could be one of the main purposes of ESP class.

Problems found in traditional ESP Classes
This study aims to solve the following problems found in traditional ESP classes:

Rote-learning
In recent years, China's L2 classes of English have been generally blamed for their "rote-learning" strategy [3]. Based on the authors' relevant teaching experiences and random interviews with some students, a great number of ESP classes, in many cases, are lecture-based and test-oriented. Under this circumstance, many students are required to learn ESP by mechanically memorizing keywords, grammatical features, and sentence patterns which might be tested in the final examinations. Meanwhile, students barely have the opportunity to use English for practical conversations. Moreover, it could be hard for many students to use accurate pragmatic language in diverse contexts. What's instead, many of them could only indiscriminately copy and use the sentence patterns they have learned by rote memorization.

Tedious Lecture-based Class May Limit L2 Acquisition Affectively
According to the author's observation and random interviews with college students, a great number of ESP classes are lecture-based which may relatively lack communication and interaction between L2 learners. Under this circumstance, the overall atmosphere of classes, in most cases, could be tedious. In terms of the hypothesis of the affective filter from Krashen, L2 learners' affection like motivation, self-confidence, and anxiety could significantly affect the efficiency of L2 acquisition [4]. However, in these lecture-based ESP classes, L2 learners barely have the motivation to communicate using English. Meanwhile, they can hardly gain self-confidence from simply listening to the lecture [5]. Moreover, learning targets based on written examinations would also bring anxiety to learners.

Paying Scant Attention to Students in "Silent Period"
According to the hypothesis provided by Krashen, every L2 learner might experience an L2 acquisition stage in which the learner can barely speak L2 in communication with others [6]. What's instead, listening could be the main comprehensive input of L2 for the learner. However, due to a great number of lecture-led ESP classes, many students within the "silent period" could hardly find the opportunities to speak English during classes, let alone the improvement in the use of pragmatic language in specific contexts. In most cases, teachers mainly focus on those students who are equipped with comparatively high English competence.

Lack of Comprehensible Input from Teaching Materials
Traditional ESP classes apply unified textbooks as the teaching materials, which may lack the distinctive investigation and consideration of the current English competence of students in specific study groups. In fact, there might be a large gap between students in different English learning stages comprehending knowledge from unified textbooks.

Thus, the knowledge input in traditional ESP classes may lack comprehensibility for all students.

1.2   Research Design

In order to solve the problems above, the author designed a scenario-based teaching model according to Krashen's hypothesis to conduct a series of experimental classes for the students who are taught by the author in the Kumming Inspire ESP institution.

The whole experiment is divided into five stages: pre-test, experimental class inserted with the designed teaching model, post-test, questionnaire, and data analysis. Firstly, the pre-test aims to inter the students' current English-expression competence in a specific context. Secondly, after the intervention of the experimental class, the post-test would be taken by students, which aims to reflect the students' learning outcomes after adopting the new class model designed. Results of both pre-test and post-test will be quantified. The purpose of the questionnaire is to reflect students' feelings about the new class model designed. Additionally, SPSS was used for data analysis in this study.

2   Experimental Procedure

2.1   Experimental Objects

The students as subjects selected are all freshmen taught by the author in Kunming Inspire ESP institution, with an average age of 19. The students were all enrolled in the same level of classes, which were assigned based on their college-entrance-examination scores. That is to say, there is not a significant gap in their English competence.

2.2   Pre-test

In order to authentically and naturally reflect the current average L2 competence of students towards the topic of this class, the author designed a pre-test based on natural English dialogue. The theme of this class is diverse Self-introduction on different occasions (including the introduction of my major, career planning, etc.), so the pre-test requires students to have authentic dialogues freely according to different scenarios provided by the author. The whole process would be recorded by the author, and the number of sentences with accurate or inaccurate pragmatics and syntax that students used will be quantified and analyzed by the author, and the result would serve as the basis for further design of the comprehensible input in the coming class.

2.3   Procedures of the Experiment Class

Before the class (after the pre-test)
Step 1: The author will choose five movie clips in accordance with the class. (Self-introduction on different occasions).

Step2: Fifteen students will be divided into five groups by the author.

Step3: The author will send each group one movie clip with subtitles as the reference template, students will be required to design a role-play according to the clip given.

During the class
Step 1: The author will have a brief lead-in introduction to the topic of this class.

Step2: Each group will come to the platform to perform their designed role-play.

Step3: After each performance, the author will organize all of the students to summarize the appropriate use of pragmatics and syntax by group discussion. Then, each group will choose one member as the representative to briefly summarize what they have learned from the process of designing the role-play.

Step4: The author will evaluate each performance from each group.

Post-test
In order to make relatively authentic inferences about students' learning outcomes in the simulated class inserted with the teaching model designed, the author sets up a post-test which is also based on natural English dialogue for students to take one week after the class. The dialogue context chosen for the post-test is similar to the classroom theme, aiming to explore to what extent students can internalize and practically use the idiomatic expressions acquired from the model class to conduct the dialogue. The whole process would also be recorded by the author and quantified based on the four variables which have been used in the pre-test. Finally, the author will compare the quantified results of both the pre-test and post-test.

Data Analysis with SPSS
As mentioned above, student's performance in the pre-test and post-test would be evaluated through four quantified variables: the number of sentences used with accurate pragmatics, the number of sentences used with inaccurate pragmatics, the number of sentences used with accurate syntax, and the number of sentences used with inaccurate syntax. Then, SPSS25.0 would be used to analyze the effectiveness of the teaching model inserted in the ESP which promotes students' L2 acquisition efficiency.

Questionnaire
In order to explore students' subjective feelings towards the new ESP class (compared with the traditional ESP class), the author designed an anonymous questionnaire survey after the experiment class, which consisted of 7 questions, aiming to investigate students' learning motivation, L2 acquisition efficiency, class participation, oral-English improvement, grammar learning efficiency, vocabulary memorization, and the degree of comprehension to the knowledge by comparison with the traditional lecture-based class. (The content is shown in Table 7).

3   Literature Review

3.1   The Application of Krashen's Acquisition-Learning Hypothesis in This Study

The essence of acquisition is that students unconsciously and naturally master the use of the L2 language, just as they master the use of their mother tongue at a young age. While

the learning lies in students' purposeful and conscious study of the forms and rules of the L2 language. Acquisition and learning, in most cases, occur at the same time in the process of study [7].

Therefore, in this study, the ESP experimental class designed by the author is student-centered and based on English situational dialogue. Students in each group were asked to design their own role-play (situational dialogues) by imitating the authentic English dialogues in the movie clips which are provided by the author before the class, and then performing them in class. In this way, the students can not only unconsciously acquire the second language in the role-play, but also learn the rules of the L2 expression in the process of imitating the authentic dialogue.

3.2 The Application of Krashen's Input Hypothesis in This Study

The input hypothesis is generally assumed as the attempt of Krashen to explain how the L2 acquisition happens to learners [1]. According to the input hypothesis, learners should be exposed to the L2 input which could be slightly above their current L2 competence. As Krashen indicates, if one learner's current L2 competence is at a stage "i", the acquisition would happen when the learner is exposed to "Comprehensible Input" which could be the stage called "i + 1" [8]. Besides, Krashen also emphasized that natural communicative input might be the key to syllabus design.

Therefore, before the experimental class, the author designed a pre-test for students, which is based on the natural dialogue in a context that is similar to the class topic, aiming to investigate the current L2 competence of students by analyzing their performance in the dialogue and to use it as a basis to find the suitable movie clips with authentic dialogues, and to design the class based on comprehensible input.

3.3 The Application of Krashen's Affective Filter Hypothesis in This Study

The Affective Filter hypothesis embodies the viewpoint of Krashen that psychological factors play an important role in learners' L2 acquisition [9]. These factors, which include motivation, anxiety, personality, and self-confidence, are affective variables influencing L2 acquisition efficiency.

Thus, the scenario-based class designed by the author is student-centered, aiming to mobilize students' learning enthusiasm and motivation through role-play and group performances. Meanwhile, the style of video clips chosen by the author as the teaching materials could be light and brisk, aiming to create a relatively enjoyable classroom atmosphere. In addition, the presentation of scenario role-playing carefully prepared by students through group cooperation could also, to some extent, improve students' confidence in English expression.

4   Methodology and Methods

4.1   Methodology

Mixed-method is applied as the methodology to conduct this design-based study. Though the mixed-method may have constantly changing typologies, it has been widely accepted

as the research methodology which brings a combination of qualitative and quantitative research [10]. Thus, the inference, and research methods of this study are following the disciplines of both qualitative and quantitative research. Moreover, this design-based study is conducted following a series of experiments, which has to respect specific experimental circumstances.

4.2   Research Methods

The experiment, role-play, questionnaire, and statistical analysis are applied as the main research methods in this study:

Experiment
This study is conducted on the basis of the experimental model classes designed by the author at Kunming Inspire ESP institution. Firstly, the author recruited freshmen who have been taught by the author in the institution as experimental subjects. Then, the author designed a pre-test for these subjects to infer their current English competence about the specific teaching topic. After the experimental classes based on the designed teaching model, the subjects would have a post-test reflecting the subjects' learning outcomes. The results from both pre-test and post-test would be quantified and analyzed as evidence to discuss the effectiveness and deficiencies of this teaching model.

Role-play
Students' current English competence related to the learning topic should be revealed in natural unscripted dialogue. Thus, the pre-test and post-test for experimental subjects are both conducted on the basis of the role-play English conversation. The whole process of role-play conversation would be recorded, and the subjects' performance would be quantified and analyzed by the author.

Questionnaire
To further analyze the effectiveness of the teaching model designed through students' subjective feelings, the author designed a questionnaire to collect feedback from students about comparing traditional lecture-based ESP classes and the new one.

Statistical analysis
To improve the reliability and credibility of the experimental result, students' performance in the pre-test and post-test would be quantified. The author would record the numbers of students' accurate and inaccurate usage of pragmatics and syntax, and statistically analyze these variables with the support of SPSS.

5   Discussion

5.1   Data Collection

Tables 1 and 2 show the results of the pre-test and the post-test for the subject students, their performances have been quantified according to four variables.

Table 1. Students' performances in the pre-test [Table credit: Original] (Before the insertion of the scenario-based teaching model in the class)

	Number of accurate pragmatics (sentences)	Number of inaccurate pragmatics (sentences)	Number of accurate syntax (sentences)	Number of inaccurate syntax (sentences)
Student A	6	9	8	7
Student B	9	8	12	5
Student C	7	8	5	10
Student D	11	5	13	3
Student E	10	11	8	13
Student F	6	4	5	5
Student G	8	9	10	7
Student H	6	5	4	7
Student I	9	6	8	7
Student J	9	12	13	8
Student K	5	8	4	9
Student L	12	8	11	9
Student M	17	4	14	7
Student N	13	6	12	7
Student O	7	5	6	6

5.2 Data Analysis

The transcript records of the pre-test and post-test for the 15 students were used as data-analysis samples. Four variables (the number of sentences with accurate pragmatics, inaccurate pragmatics, accurate syntax, and inaccurate syntax.) were used to quantify the samples. Given the quantitative results, the author used SPSS25.0 to test the significance of the data and evaluated the effectiveness of the experimental classroom with the test results. Table 3 shows the data analysis based on SPSS25.0.

As shown in Table 3, in the pre-test, the mean of the number of accurate pragmatics used by students was 55.11%, and the standard deviation of it was 11.85%. In the post-test, the mean of the number of accurate pragmatics used by students was 81.42%, and the standard deviation of it was 6.88%.

Thus, it could be clear that after the experiment class inserted the new teaching model, the students' accuracy rate of pragmatic expression has been generally improved. Moreover, individual gaps between students have also been narrowed.

As shown in Table 4, a Paired-samples t-test was conducted to compare the accuracy of pragmatics used by students between the pre-test and post-test. As the result, the t value was 12.211, and the P value was smaller than 0.001. This means the accuracy of

Table 2. Students' performances in the post-test [Table credit: Original] (After the insertion of the scenario-based teaching model in the class)

	Number of accurate pragmatics (sentences)	Number of inaccurate pragmatics (sentences)	Number of accurate syntax (sentences)	Number of inaccurate syntax (sentences)
Student A	14	5	15	4
Student B	15	3	16	2
Student C	12	4	14	2
Student D	17	1	15	3
Student E	15	4	13	6
Student F	10	2	9	3
Student G	12	2	10	4
Student H	10	3	11	2
Student I	14	2	12	4
Student J	16	6	15	7
Student K	11	3	9	5
Student L	16	4	15	5
Student M	20	1	19	2
Student N	15	4	16	3
Student O	10	3	9	4

Table 3. Paired Samples Statistics of Accuracy of Pragmatics in the pre-test and post-test [Table credit: Original]

Pair	Variables	Mean	n	Standard Deviation	Standard Error
Pair 1	Accuracy of Pragmatics in the post-test (%)	81.42	15	6.88	1.78
	Accuracy of Pragmatics in the pre-test (%)	55.11	15	11.85	3.06

pragmatics used by students in the post-test was higher than that in the pre-test, and the difference was statistically significant.

The significant difference in students' accurate use of pragmatics can, to some extent, prove the effectiveness of the new ESP class inserted with the teaching model designed by the author, in the aspect of improving students' well-syntactic expression.

As shown in Table 5, in the pre-test, the mean of the number of accurate syntax used by students was 53.51%, and the standard deviation of the accurate syntax used was

Table 4. Paired-Samples t-Test of Accuracy of Pragmatics between the pre-test and post-test [Table credit: Original]

Pair	Variable	Paired Differences					t value	df	Sig. (2-tailed)
		Mean	Standard Deviation	Standard Error	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Accuracy of Pragmatics in the post-test - Accuracy of Pragmatics in the pre-test (%)	26.31	8.35	2.15	21.69	30.93	12.211	14	< 0.001

Table 5. Paired Samples Statistics of Accuracy of Syntax in the pre-test and post-test [Table credit: Original]

Pair	Variables	Mean	n	Standard Deviation	Standard Error
Pair 1	Accuracy of Syntax in the post-test (%)	77.63	15	8.44	2.18
	Accuracy of Syntax in the pre-test (%)	53.51	15	14.41	3.72

14.41%. In the post-test, the mean of the number of accurate syntax used by students was 77.63%, and the standard deviation of the accurate syntax used was 8.44%.

Like the data analysis of students' use of accurate pragmatics, it could be also clear that after the experiment class inserted the new teaching model designed, the students' accuracy rate of syntax expression has also been generally improved. Meanwhile, the individual gaps between students have also been narrowed.

A Paired-samples t-test was also conducted to compare the accuracy of the syntax used by students between the pre-test and post-test. As shown in Table 6, the t value was 6.802, and the P value was smaller than 0.001. This means that the accuracy of the syntax used by students in the post-test was clearly higher than that in the pre-test, and the difference was statistically significant.

Table 6. Paired-Samples t-Test of Accuracy of Syntax between the pre-test and post-test [Table credit: Original]

Pair	Variable	Paired Differences					t value	df	Sig. (2-tailed)
		Mean	Standard Deviation	Standard Error	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Accuracy of Syntax in the post-test - Accuracy of Syntax in the pre-test (%)	24.13	13.74	3.55	16.52	31.73	6.802	14	<0.001

The significant difference in students' syntax accuracy between the pre-test and the post-test can also prove the effectiveness of the new ESP class inserted with the new teaching model, in the aspect of improving students' well-syntactic expression.

5.3 Analysis of Questionnaire Survey Results

According to the results of the questionnaire, after taking the experimental scenario-based ESP class, 100% of the students subjectively agreed that the new teaching model could improve their learning motivation and classroom participation better than the traditional lecture-based ESP classroom. Additionally, judging from students' subjective feelings, the new ESP teaching model also significantly improves the efficiency of students' L2 acquisition because 86.7% of the students agreed with this point. Moreover, based on the "I + 1 input" theory from Krashen's input hypothesis, the author inferred the current L2 competence of students from the pre-test results and designed the teaching content according to the current average level of students. This "comprehensible input" also clearly improved students' understanding of the knowledge learned in the class, because 80% of the students agreed with this point.

However, the new teaching model didn't significantly improve students' grammar learning, and it also failed to efficiently help students to remember vocabulary. These problems could be directions for this teaching model to be further improved.

Table 7. Questionnaire survey results [Table credit: Original]

Questions	Numbers of Students' Answers		Proportion
Q1: Compared with the traditional ESP class, can the new ESP class better stimulate your learning motivation?	Better improved	15	100%
	Same effect	0	0%
	Not improved	0	0%
Q2: Compared with the traditional ESP class, can the new scenario-based learning model better improve your L2 acquisition efficiency?	Better improved	13	86.7%
	Same effect	2	13.3%
	Not improved	0	0%
Q3: Compared with the traditional lecture-based class, can the role-play activities in the new ESP class better improve your class participation?	Better improved	15	100%
	Same effect	0	0%
	Not improved	0	0%
Q4: Compared with the traditional ESP class, can the new teaching method applied in the ESP class better improve your oral English?	Better improved	10	66.7%
	Same effect	5	33.3%
	Not improved	0	0%
Q5: Compared with the traditional ESP class, can the new teaching method applied in the ESP class better improve your grammar learning?	Better improved	6	40%
	Same effect	7	46.7%
	Not improved	2	13.3%
Q6: Compared with the traditional ESP class, can the new teaching method applied in the ESP class better improve your efficiency of vocabulary memorization?	Better improved	8	53.3%
	Same effect	3	20%
	Not improved	4	26.7%
Q7: Compared with the traditional ESP class, can the content designed based on the average level shown in the pre-test better improve your understanding of knowledge?	Better improved	12	80%
	Same effect	3	20%
	Not improved	0	0%

6 Conclusion

6.1 Research Significance

One of the main purposes of ESP classes is to maximize students' L2 communicative efficiency [1]. Thus, it could be necessary to improve the students' L2 acquisition efficiency and the accuracy of L2 expression in terms of syntax and pragmatics. However, problems existing in some traditional lecture-based ESP classes like the rote-learning

strategy, tedious class atmosphere, lack of concern for students in the "Silent Period", and lack of comprehensible input may, to some extent, hinder the achievement of this teaching goal.

Based on the facts above, the scenario-based teaching model designed by the author aims to build a student-centered ESP classroom with authentic context as the teaching medium based on Krashen's hypothesis, to solve the above problems existing in the traditional ESP classroom with a series of interactive teaching activities, and to help students improve the efficiency of L2 acquisition.

According to the data analysis of experimental results and the questionnaire survey filled in by students after class, this teaching model can clearly improve the accuracy of students' pragmatics and syntax in their L2 expression ($p < 0.001$). Additionally, 87% of the students also clearly indicated that the teaching model significantly improved the efficiency of their L2 acquisition, 100% of the students subjectively believed that the new teaching model improved their learning motivation and classroom participation, and 80% of the students believed that the authentic context provided by the experimental class improved the comprehensibility of knowledge. Thus, it could be seen that this scenario-based teaching model optimized by Krashen's hypothesis could be applied as one of the valuable and effective teaching methods in future ESP classes.

6.2 Limitations and Further Study

In this study, the scenario-based teaching model designed was mainly applied in the small-scale ESP class. However, for ESP classes with a large number of students, the effectiveness of this teaching model still needs to be further discussed.

In general small classes, every student would have the opportunity to participate in the scenario role-play, so this teaching model may effectively promote every student in the L2 acquisition. However, for classes with a large number of students, the author's initial idea could be, firstly, to divide students into more study groups (like the "learning circle" teaching method), and reasonably distribute the role of each member in each group, so that each student would have the corresponding cooperative-learning task to participate in the class activities (like the design of the group scenario role play).

The experience could be the best teacher, specific ways to apply the scenario-based teaching method still need to be improved in further authentic teaching practices.

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