

Cultivating Critical Thinking Skills Through Inquiry-Based Learning Approach in College Oral English Class

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Abstract

In the 21 century, Mastering English, especially spoken English, has become a necessary skill for college students after graduation. However, after many years learning, Chinese students still exhibit weak proficiency in English speaking. Some scholars believe that the Critical Thinking can help students effectively learn English. There is a lack of research conducted on cultivating students' critical thinking skills in the teaching of college oral English in China. This study adopted quantitative research method to investigate the effectiveness of inquiry-based learning approach on students' critical thinking skills in oral English class in Chinese college. 60 Business English undergraduates were selected and enrolled in the control group (n = 30) and the experimental group (n = 30). The experimental group received the 9-week inquiry-based learning intervention. Pre-test and Post-test of critical thinking skills were conducted in the two groups and was assessed by California Critical Thinking Skills Test. The ANCOVA analysis was applied to compare the differences of the data from the two groups. The result showed that the students' overall critical thinking skills especially the Analysis skills were significantly improved after receiving inquiry-based learning approach. However, there were no significant differences in Evaluation and Inference skills after the treatment. For future researchers, they can design a longer research programme for critical thinking training, spanning at least a semester or even a year, which may yield better results.

Keywords: Critical Thinking Skills, Inquiry-Based Learning, Oral English, Chinese college, CCTST

Introduction

Nowadays, critical thinking is considered one of the most important topics in education (Zahroh, 2020). Fostering students' critical thinking, reasoning, and decision-making abilities (McMillan, 1987, p. 3) has become a primary goal of higher education, empowering students to effectively adapt to a rapid changing world (Ruff, 2005) and enabling them to become

lifelong learners and problem solvers(Lai, 2009). In fact, acquiring critical thinking skills is also crucial for EFL learners as it enables them to clearly articulate their ideas, attitudes and feelings in the target language(Ordem, 2017).

In the 21st century, globalization and networking have reached unprecedented levels in the fields of politics, economy, trade, education, technology and culture. Mastering English, especially spoken English, has become a necessary skill for college students' career and social communication after graduation (Chen, 2018). The sad truth is that despite reaching a higher education level, Chinese students still have a weak proficiency in English speaking(Luan, 2014). Huang Yuanshen(1998, 2010) proposes that "speculative absence" exists among college English learners in China. Wen Qiufang (1999) also points out the current situation of college students' oral expression shows that their thinking is lack of depth and breadth, and the answers is short of relevance and strong reasons. Therefore, many researchers propose that schools, especially institutions of higher education, should adopt a variety of methods to train students' critical thinking skills in order to enhance their cognitive level, learn to analyze and evaluate in the era of information explosion, and make a correct judgment (Huang, 2013).

In recent years, higher education in China has also emphasized the cultivation of critical thinking skills. However, a gap exists in the cultivation of students' critical thinking in college English teaching, since English is still treated as an exam-oriented lesson which focuses on linguistic skills and knowledge(Tian, 2012). The teacher-centered teaching method is still adopted by many Chinese EFL teachers. Therefore, this study aimed to investigate the effects of inquired-based learning approach on college students' critical thinking skills in oral English class.

Literature Review

Critical Thinking Skills

There are a vast number of definitions of critical thinking in the literature (e.g., Paul, 1992; Ennis, 1996). One of the most widely accepted definition is provided by Facione who commissioned by the American Philosophical Association (APA), gathered 45 experts in humanities, social science, and education to participate in a study using the Delphi method to explore the aspects of critical thinking in 1987. Facione's (1990) definition and model of critical thinking were also adopted in the study. According to Facione, critical thinking included two dimensions: critical thinking cognitive skills and critical thinking disposition. Critical thinking skills are comprised of interpretation, analysis, inference, evaluation, explanation, and self-regulation. Among them, the core skills are analysis, evaluation and inference, and each cognitive skill includes several sub-skills.

Inquiry-based Learning

IBL is based on inquiry theory, a philosophy of John Dewey, who believed that learning begins with curiosity of the learners. The definition of inquiry is "seeking knowledge, information, or truth through questioning" (Akdeniz, 2016, P67). Based on the work of John Dewey, the American National Science Foundation(2005: 2) defined the inquiry-based learning as "an approach to learning that involves a process of exploring the natural or material world, and that leads to asking questions, making discoveries, and rigorously testing those discoveries in the search for new understanding." Therefore, students can construct knowledge and information by engaging in inquiry, as well as learning from experiencing and reflecting on the world around them(Tikruni2019).

IBL is a method of promoting active learning in the classroom (Prince & Felder, 2006). Passive learning can not promote the development critical thinking, therefore it is necessary to implement active learning method to support, encourage, and facilitate the acquisition of critical thinking skills (Halpern, 1998). During the process of IBL, Students are not only asked to solve a problem or complete a project, but also develop critical thinking skills and promote deep understanding of a topic by becoming involved in real-life situations, asking questions, researching, creating solutions, and participating in group discussions (Khasawneh, 2016). In addition, in the IBL environment, teachers foster self-reflection and evaluation (Scruggs & Mastropieri, 2007), which are the main characteristics of critical thinking. According to Arauz(2013) and Tikruni(2019), the approach consists of five main elements: ask, investigate, discuss, report, and reflect, which is called an inquiry circle(See Figure 1). This circle was adopted in the study.

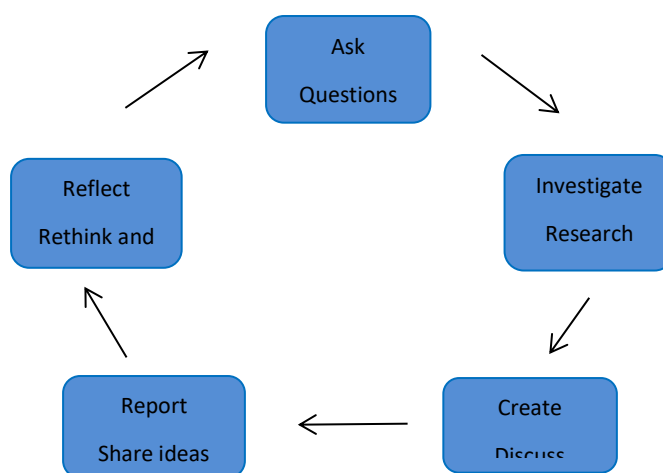


Figure 1 Inquiry-based Learning Process (Araus, 2013; Tikruni, 2019)

IBL in English Teaching

The use of inquiry-based learning strategy for teaching English has been investigated in many ways, including the development of listening skill, reading comprehension, and writing ability(Irawan, Syahrial, & Sofyan, 2018). According to Arauz(2013), IBL encourages students to pay more attention in class and show interests in using the target language since they feel a sense of control over the language. Dudeney (2000) argues that adopting a cognitive approach rather than solely focusing on memorization brings about significant benefits in English teaching. Brown (2000) pointed out that educators can encourage their students to become active learners by offering activities that motivate them to explore, and creatively use the language rather than simply being passive recipients. Experts and scholars affirm the role of inquiry-based learning approaches in English language teaching. However, there is little research on improving students' oral proficiency through inquiry based learning approach, and almost none in China. Therefore, this study aimed to investigate the effectiveness of inquiry-based learning approach on students' critical thinking skills in oral English class in Chinese college.

Methods

Design

By adopting quantitative research method, this study aims to answer the following questions

1. What effects does inquiry-based learning intervention have on the overall critical thinking skills of students in the oral English class in Chinese college?
2. What effects does inquiry-based learning intervention have on the critical thinking skills of analysis, inference and evaluation of students in the oral English class in Chinese college?

The IBL class was delivered to the experimental group once a week, 90 minutes per week, lasting for 9 weeks. Each class focused on training one critical thinking skill. In the view of Huang Fang(2013), interpretation, analysis, evaluation, inference and self-regulation present a gradient development state. It means that the process moves from easy to difficult, from simple to complex. Therefore, this study set up a gradient teaching task chain to gradually cultivate students' critical thinking skills.

The five main stages of IBL treatment in the oral English class are as follows

Step 1: The instructor proposed a question or topic. The topic was closely related to the real-life situations and was useful for students to think critically about the reality. Specifically, the instructor chose current social hot topics or topics of interest to students to organize activities.

Step 2: The students tried to investigate the question through surfing tons of materials in the library or online and write down the outline. In this section, students could enlarge their reading ranges and broaden their horizons, and would combine their own knowledge and experience to analyze and summarize, and formed their own unique opinions. Furthermore, students gained more professional vocabularies and idiomatic expressions by reading.

Step 3: The students carried out the discussion in the small group. Firstly, each group member presented his view in the group, detailing their reasons and eliciting evidence. Then the group members analyzed and discussed the perceptions and views of others, evaluated and summarized them, and formed the opinions of the whole group and made an outline.

Step 4: Each group chose a representative to report the group's point of view and answered questions from the other groups.

Step 5: Self-evaluation, group mutual evaluation and instructor's evaluation.

Sample

This study was conducted at a university in the South of China. Purposive sampling was used. The study sample was composed of 60 first-year business English undergraduates in the Jiangxi Institute of Fashion Technology. Students who taught by the communicative language teaching (CLT) method were enrolled in the control group ($n = 30$), while those who got inquiry-based learning (IBL) intervention were recruited into the experimental group ($n = 30$).

The mean age was 18.25 for the experimental group and 19.25 for the control group. There were 4 (13.33%) males and 26 (86.67%) females in the experimental group and 3 (10.00%) males and 27 (90.00%) females in the control group. The average NMET (National Matriculation English Test) was 117.90 for the experimental group and 118.30 for the control group.

The experimental group was divided into six small groups in which they got the IBL instruction. Each group was made up of five students. They were required to prepare for the discussion before class; each member of the group were expected to take a leadership role, sharing ideas, doing the presentation, providing feedback and reflecting on the process.

Instrument

The California Critical Thinking Skills Test (CCTST) was used to assess the students' critical thinking skills. It was developed based on the Delphi panel's definition of critical thinking. The latest version is CCTST Form 2000. According to Kuder Richardson-20 (KR-20) statistics, CCTST reliability ranged from 0.65 to 0.75 which was valid and reliable (Facione, 1990). In addition, the newest version of CCTST had alpha coefficient ranging from .78 to approximately .84 (Facione, Facione, Blohm, & Giancarlo, 2007).

The test was conducted online. The CCTST contains 34 multiple choice items and is administered in 45 minutes. It provides an overall score on CT skills as well as five subscales: analysis, evaluation, inference, deductive reasoning, and inductive reasoning (Khasawneh, 2016). According to the research question of this study, the researcher only analyzed the data of overall critical thinking skills and sub-scales of analysis, evaluation and inference. The CCTST was ordered from Insight Assessment. The experimental group and control group all participated in the test online. The scoring of CCTST was done by the publisher electronically. The results were emailed to the researcher by email.

Data Analysis

In this study, quantitative method was employed to analyze the data. The quantitative data was analyzed by using SPSS 26.0. A descriptive analysis was performed for both the experimental and control groups. An analysis of covariance (ANCOVA) was carried out to address the research questions.

Results

60 students participated in CCTST pretest. According to the 2021 CCTST User Manual, Critical thinking skills tests need complete the assessment in 45 minutes. The individual completed in less than 15 minutes or response rates of less than 0.60 (60% of items completed) are considered false scores. In the CCTST pretest, one student in the IBL group finished her test in 14 minutes, and two students in the CLT group finished their tests in 3 minutes and 11 minutes respectively. Therefore, there were 3 false scores in the CCTST pretest that could not be analyzed by America Insight Assessment (IA). Finally, a sample of 29 students in the IBL group and a sample of 28 students in the CLT group was retained for data analysis. ANCOVA was used to analyze the data of CCTST survey to determine the effect of inquiry-based learning intervention on students overall critical thinking skills and sub-scales (analysis, inference, evaluation). A p-value less than 0.05 was considered as significant.

What effects does inquiry-based learning intervention have on the overall critical thinking skills of students in the oral English class in Chinese college?

In the analysis of covariance (ANCOVA), the post-intervention overall critical thinking skill is the dependent variable. Additionally, the potential influence of the covariate, the students' pre-intervention critical thinking skills, was considered. The homogeneity of variance assumption was tested using Levene's Test, which revealed that the error variances across groups were not significantly different ($F = 0.065$, $p = 0.800$) (See Table 1). This supports the assumption of homogeneity of variance, indicating that the groups have comparable variability in their critical thinking scores.

Table 1 also shows the descriptive statistics for the dependent variable (overall critical thinking post-test) in the study. The mean score of the IBL group was 18.59 ($SD = 3.581$), while the CLT group had a mean score of 16.29 ($SD = 3.750$). These findings suggest that, on average,

students in the experimental group had higher overall critical thinking skills compared to the control group in the post-test.

Table 1

Descriptive Statistics for Overall Critical Thinking Post-Test Scores and Equality of Error Variances^a

Dependent Variable: Post-Overall				Equality of Error Variances ^a			
Descriptive Statistics							
Group	Mean	Std. Deviation	N	F	df1	df2	Sig.
IBL	18.59	3.581	29	.065	1	55	.800
CLT	16.29	3.750	28				
Total	17.46	3.813	57				

The ANCOVA analysis provided insights into the effect of the inquiry-based learning approach on overall critical thinking skills. Table 2 is the Corrected Model which revealed a significant effect ($F = 3.718$, $p = 0.031$), indicating that the combination of factors in the model (Group and overall critical thinking pre-test) had a statistically significant impact on the post-intervention critical thinking scores.

Specifically, Table 2 shows the group factor (instructional Pedagogy) demonstrated a significant effect ($F = 4.905$, $p = 0.031$), suggesting that the inquiry-based learning approach led to higher overall critical thinking scores in comparison to the control group. According to the data of the adjusted mean, The IBL group had a mean score of 18.513 ($SE = 0.678$), while the CLT group had a mean score of 16.362 ($SE = 0.690$)(See Table 4). However, the pre-intervention overall critical thinking score did not show a significant effect ($F = 1.747$, $p = 0.192$), indicating that the initial critical thinking skills of the students did not play a significant role in the post-intervention scores.

Table 2

ANCOVA Showing Effects of Instructional Pedagogy on Post-test Overall Critical Thinking Skills

Tests of Between-Subjects Effects

Dependent Variable: Post-Overall

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Group	65.004	1	65.004	4.905	.031
Pre-Overall	23.150	1	23.150	1.747	.192
Error	715.599	54	13.252		
Total	18183.000	57			
Corrected Total	814.140	56			

Table 3

Adjusted Means for Overall Critical Thinking Skills Post-test Scores

Dependent Variable: Post-Overall

Group	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
IBL	18.513 ^a	.678	17.153	19.873
CLT	16.362 ^a	.690	14.978	17.746

The pairwise comparisons further supported the findings, revealing a significant mean difference between the IBL group and the CLT group ($p = 0.031$). The mean difference of 2.151 indicated that students in the inquiry-based learning group had significantly higher overall critical thinking scores compared to the control group (See Table 4).

Table 4

Pairwise Comparisons Between the Experimental Group and the Control Group

Dependent Variable: Post-Overall

		Mean Difference (I-J)	Std. Error	Sig. ^b	95% Confidence Interval for Difference ^b	
(I) Group	(J) Group				Lower Bound	Upper Bound
IBL	CLT	2.151 [*]	.971	.031	.204	4.098
CLT	IBL	-2.151 [*]	.971	.031	-4.098	-.204

In conclusion, the findings of this study highlight the positive impact of the inquiry-based learning approach on enhancing overall critical thinking skills in the context of oral English classes. The inquiry-based learning group demonstrated significantly higher post-intervention critical thinking scores compared to the comparison group, even when controlling for the students' pre-intervention critical thinking skills.

What effects does inquiry-based learning intervention have on the critical thinking skills of analysis, inference and evaluation of students in the oral English class in Chinese college?

The ANCOVA data also provide information on the effects of the inquiry-based learning approach on the post-intervention scores for analysis, inference, and evaluation, while controlling for the pre-intervention scores which were considered as covariates.

At first, When the researcher did the analysis of covariance, It is worth noting that the Levene's test of equality of error variances did not detect any significant differences between the experimental group and the control group for all three critical thinking skills, indicating that the assumption of homogeneity of variances was met (Analysis: $F=0.379$, $p=0.541$; Inference: $F=0.557$, $p=0.459$, Evaluation: $F=0.181$, $p=0.672$)(See Table 5).

Table 5

Levene's Test of Equality of Error Variances^a

Dependent Variable	F	df1	df2	Sig.
Post-Analysis	.379	1	55	.541
Post-Inference	.557	1	55	.459
Post-Evaluation	.181	1	55	.672

Table 6 shows the descriptive statistics for the sub-scale scores of the two groups in the post-test. The mean scores of Analysis, Inference and Evaluation in the IBL group and CLT group were 4.72, 8.41, 5.45 (SD=0.996, SD=2.666, SD=1.594) and 4.04, 7.54, and 4.71 (SD=4.04, SD=7.54, SD=4.71) respectively. In the three sub-scales, the scores of the IBL group were all higher than those of the CLT group in the post-test. But we could not find out the significant differences between the IBL group and the CLT group from this table. Therefore, the ANCOVA analysis that follows will provide a detailed explanation of it.

Table 6

Descriptive Statistics for Sub-scale Scores of Critical Thinking Skills in Post-Test

	Id	N	Mean	Std. Deviation	Std. Error Mean
Analysis	IBL	29	4.72	.996	.185
	CLT	28	4.04	1.105	.209
Inference	IBL	29	8.41	2.666	.495
	CLT	28	7.54	2.603	.492
Evaluation	IBL	29	5.45	1.594	.296
	CLT	28	4.71	1.675	.316

For the Analysis skills, Table 7 shows that the main effect of the group (instructional Pedagogy) was statistically significant ($F = 6.266$, $p = 0.015$), indicating that there was a significant difference between the two groups' post-analysis scores after controlling for the pre-analysis scores. The covariate (pre-analysis) did not have a significant effect on the post-analysis scores ($F = 0.651$, $p = 0.423$).

The adjusted mean score of Analysis in the IBL group and the CTL group were 4.730, and 4.030 respectively (See Table 8). The pairwise comparisons revealed that the mean difference between the IBL and CLT groups' post-analysis scores was 0.700, which was statistically significant ($p = 0.015$) (See Table 9). This suggests that the IBL intervention had a positive impact on analysis skills compared to the CLT approach.

Table 7

ANCOVA Showing Effects of Instructional Pedagogy on Post-test Sub-scale Scores

Tests of Between-Subjects Effects						
Dependent Variable	Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Post-Analysis	Group	6.966	1	6.966	6.266	.015
	Pre-Analysis	.724	1	.724	.651	.423
	Error	60.034	54	1.112		
	Total	1164.000	57			
Post-Inference	Group	6.151	1	6.151	1.027	.315
	Pre-Inference	58.496	1	58.496	9.764	.003
	Error	323.503	54	5.991		
	Total	4025.000	57			
Post-Evaluation	Group	7.461	1	7.461	2.743	.103
	Pre-Evaluation	.016	1	.016	.006	.940
	Error	146.871	54	2.720		
	Total	1630.000	57			

For the Inference skills, Table 7 shows the main effect of the group was not statistically significant ($F = 1.027$, $p = 0.315$), indicating that there was no significant difference between the IBL and CLT groups' post-inference scores after controlling for the pre-inference scores. According to the table, the covariate (pre-inference) had a significant effect on the post-inference scores ($F = 9.764$, $p = 0.003$).

The adjusted mean scores of Inference in the IBL group and the CTL group were 8.307, and 7.646 respectively (See Table 8). The pairwise comparisons did not reveal a significant difference between the IBL and CLT groups' post-inference scores ($p = 0.315$) (See Table 9). This suggests that the IBL intervention did not have a significant impact on inference skills compared to the CLT approach.

Table 8

Adjusted Means for Post-test Scores of Analysis, Inference and Evaluation

Estimates					
Dependent Variable	Group	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Post-Analysis	IBL	4.730 ^a	.196	4.337	5.123
	CLT	4.030 ^a	.199	3.630	4.429
Post-Inference	IBL	8.307 ^a	.456	7.393	9.221
	CLT	7.646 ^a	.464	6.716	8.576
Post-Evaluation	IBL	5.446 ^a	.307	4.830	6.063
	CLT	4.716 ^a	.313	4.089	5.344

For the Evaluation skills, Table 7 shows the main effect of the group was not statistically significant ($F = 2.743$, $p = 0.103$), indicating that there was no significant difference between the IBL and CLT groups' post-evaluation scores after controlling for the pre-evaluation scores. The covariate (pre-evaluation) did not have a significant effect on the post-evaluation scores ($F = 0.006$, $p = 0.940$).

The adjusted mean scores of Evaluation in the IBL group and the CTL group were 5.446, and 4.716 respectively (See Table 8). The pairwise comparisons did not reveal a significant difference between the IBL and CLT groups' post-evaluation scores ($p = 0.103$) (See Table 9). This suggests that the IBL intervention did not have a significant impact on evaluation skills compared to the CLT approach.

Table 9

Pairwise Comparisons Between the Experimental Group and the Control Group

Dependent Variable	(I) Group	(J) Group	Mean Difference (I-J)	Std. Error	Sig. ^b	95% Confidence Interval for Difference ^b	
						Lower Bound	Upper Bound
Post-Analysis	IBL	CLT	.700*	.280	.015	.139	1.261
	CLT	IBL	-.700*	.280	.015	-1.261	-.139
Post-Inference	IBL	CLT	.661	.652	.315	-.647	1.968
	CLT	IBL	-.661	.652	.315	-1.968	.647
Post-Evaluation	IBL	CLT	.730	.441	.103	-.154	1.613
	CLT	IBL	-.730	.441	.103	-1.613	.154

In summary, the ANCOVA results indicated that the inquiry-based learning intervention had a significant positive effect on analysis skills compared to the Communicative Learning Teaching (CLT) approach. However, the intervention did not show significant effects on inference and evaluation skills when compared to the CLT approach. It's important to note that controlling for the pre-intervention scores (covariates) was necessary to assess the specific impact of the IBL intervention.

Discussion

The significantly higher score of CCTST in the Inquiry-based learning group implied this teaching method may improve students' critical thinking skills, which is consistent with the findings of previous studies (e.g., Tikruni, 2019; Wale, & Bishaw, 2020). The results showed that inquiry-based learning approach is a useful strategy in developing students' overall critical thinking skills, especially analysis skills in the oral English class. However, the students did not make significant progress in their Inference and Evaluation skills, but there was still a slight improvement over the pre-intervention period. According to Facione (1991), Evaluation skills are defined to assess the credibility of various descriptions, statements, and representations made by people, and to determine the logical strength of the inferential relationships among them. Carr (1990) argued that the aim of evaluation is to judge. This requires a high level of discernment and a deep understanding of the context in which the information is presented. So, it requires not only knowledge of the material, but also an understanding of how it relates to the broader context. This skill is not easy to get in short time. Inference skills refer to the ability to identify and verify the elements required to draw logical conclusions (Facione, 1991). This requires not only a deep understanding of the material, but also the ability to think critically. It often requires extensive practice and exposure to a variety of scenarios. Analysis skills, on the other hand, involve breaking down complex information into smaller parts to gain a deeper understanding of it. It is often considered more straightforward than inference and evaluation skills. Therefore, we can find

that students made significant progress in their analysis skills in a short period of time while their inference and evaluation skills showed slower improvement in the study.

In addition, the significantly higher score of the critical thinking skills was because through IBL, a traditional English class became an active learning environment where students weren't passive learners, instead they actively participated in their learning which could improve their critical thinking skills. Firstly, by investigating of a question, they were given space to extensively think, identify, and analyze problems, which involved critical thinking (Geist et al., 2015). Additionally, group work provided every student with a chance to participate in the discussion, which means inquiry-based learning has obvious advantages in stimulating students' enthusiasm for learning, training their ability to organize language, encouraging them actively engage in learning and thus contribute to the development of critical thinking. Moreover, learners' cognition was also expanded by exploring and interacting between peers and students and teachers during the learning process, This enabled them to effectively capture more knowledge and ideas, which in turn contributes to the promotion of critical thinking(Cai, et.2022).

According to the current study, IBL positively impacts students' critical thinking levels, which is in agreement with previous research. For example, Wale and Bishaw (2020) conducted a study to examine the effects of using inquiry-based learning on students' critical thinking skills in the English writing instruction. They found that students improved their abilities to interpret, analyze, infer, evaluate, explain, and self-regulate by using inquiry-based learning in an EFL classroom. A study by Ghaemi and Mirsaeed (2017) indicated that students had increased capacity to analyze, evaluate, and explain after participating in inquiry-based activities in EFL classrooms. Tikruni (2019) conducted a study to investigate the influence of an inquiry-based learning intervention on the critical thinking skills of Saudi women undergraduates in an EFL reading and writing course, and found that the IBL process had influenced the students' ability to make inferences, connect reading with other resources and share personal experiences by working in groups.

In short , while the results of this study align with previous research, it is worth noting that the majority of existing studies have focused on investigating the improvement of critical thinking skills through the implementation of inquiry-based learning in writing and reading classes. However, there is limited research specifically addressing the impact of this method in oral English classes. Thus, the present study exclusively revealed the effects of using inquiry-based learning approach on students' critical thinking skills in oral English class of Chinese college. In other terms, it contributed to the existing literature.

Conclusion and Implication

According to the study, inquiry-based learning is an effective strategy to develop students' critical thinking skills in the oral English class in Chinese college. It can be seen from students' CCTST scores. In the experimental group, students' overall critical thinking skills and Analysis skills had improved significantly. Inference skills and Evaluation skills didn't show noticeable improvements due to the limited study period, but minor improvements still existed. However, in the control group, we could not find significant progress in any skills of critical thinking. In the process of inquiry-based learning, students were active learners who controlled their learning process through exploration, discovery, knowledge construction, discussion and reflection. Therefore, the IBL approach increased students' engagement in the learning process and promoted their cognitive, linguistic, and critical thinking skills. Previously, the students were afraid to speak English in front of the class due to some reasons,

such as fearing making mistakes, lacking vocabulary or difficulty to pronounce English correctly. Inquiry-based learning approach enabled them to logically and boldly express their opinions in English. In addition, the instructor became facilitators and mediators through monitoring, scaffolding, and intervening when necessary.

In light of the findings of the study, some recommendations are offered for improving the quality of future teaching and learning. The IBL method is probably going to be new to EFL teachers and students. Thus, for instructors, they should acquire reliable knowledge about IBL and conduct a training session for the students at the beginning of the class to explain the aim of IBL, how to participate, and why it is beneficial for English learning. Before the class, instructors should determine topics that students are interested in to motivate them to learn. For future researchers, this strategy can be applied to classroom research at other levels and grades of education. But they could design a longer research programme for critical thinking training, spanning at least a semester or even a year, which may yield better results.

In summary, this study may positively impact students' oral English learning, the development of critical thinking, and the innovation of English teaching. The implementation of inquiry-based learning approach can greatly enhance students' communication skills and boost their confidence in expressing themselves in spoken English. Furthermore, the cultivation of critical thinking skills equips students with the necessary tools to actively engage in lifelong learning and effectively solve problems (Tosuncuoglu, 2018). This research also has the potential to drive innovation in college-level oral English instruction in China by introducing a dynamic and effective inquiry-based learning approach to the classroom setting.

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