



# The Empirical Evaluation of Integrating Cross-Cultural Communicative Competence into College English Based on Information Technology

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**Abstract.** The cultivation of cross-cultural communication competence is an essential part of university education, especially in the College English class. Along with the development of information technology, the establishment of network-based learning can help cultivate foreign language learners' cultural understanding and cross-cultural communication skills with the help of educational information technology. In terms of its curricular objective, content, subject and evaluation, this paper discusses the application of cross-cultural communication competence in the teaching of College English based on information technology. To evaluate online teaching quality, student rating results of teaching effectiveness were collected for nearly one year. A comprehensive statistical analysis was conducted. A sample of 276 students were taken from one university in Dalian, using the methods of exploratory factor analysis, Cronbach's Alpha, correlation test of SPSS 22.0. The results indicate that most items in the instrument are internally reliable. The formative evaluation and the terminal evaluation are significantly correlated and significantly influenced each other. Thus, in the network-based College English, the learning behaviors and learning resources should be fully focused on, in order to optimize students' ways and enhance the cross-cultural communication competence, improve the learning effects and learning satisfaction.

**Keywords:** Cross-culture Communicative Competence · Network-based Teaching · Information Technology · Teaching Evaluation · Statistical Analysis

## 1 Introduction

In the information age, the rapid development of multimedia and artificial intelligence technology has an important impact on the improvement of foreign language education and teaching quality. The "College English Teaching Guide" (2020 Edition) pointed out that colleges and universities should make full use of information technology to implement a blended teaching model for online and offline courses, in order to cultivate students self-learning ability to meet the individual learning needs of students. New

technologies should be made full use of such as artificial intelligence, cloud computing, and virtual reality etc., which could promote the construction and application of information-based teaching service platforms, and push forward the reform of teaching methods characterized by autonomy, cooperation, and inquiry.

English, as a medium of economic globalization, plays an increasingly prominent role in cultural exchanges. “College English Teaching Guide” clarified that intercultural communicative competence is used in college English teaching and English major teaching. Under the current new situation, the cultivation of students’ cross-cultural language ability is required to meet the needs of talent cultivation, aiming at the effective combination of the teaching of English courses and the purpose of personnel training. In the process of global economic integration and cultural diversity, the cultivation of college students’ cross-cultural competence has become a topic of widespread concern in foreign language education circles at home and abroad.

Contemporarily, cultural self-confidence is a major social and cultural issue. Language is the carrier of culture, and the process of foreign language teaching is, to some extent, the process of cultivating cross-cultural competence. However, at the level of teaching operations, the combination of language skills and cross-cultural competence is still fragmented. As the transnational communication has become more frequent, the lack of cross-cultural awareness and competence will cause communication barriers [1]. Therefore, the College English classroom is an important place for cultivating cross-cultural competence. An effective way to implement the cross-cultural training goals of the “College English Teaching Guide” is to integrate cross-cultural organically into college English teaching, through design, implementation, and testing. Targeted teaching goals and tasks realize the simultaneous development of students’ language ability and cross-cultural ability.

## **2 College English Based on Information Technology**

Online and offline hybrid teaching fully tap the network resources, and with its new teaching organization form has been recognized by the majority of teachers and students. The approach of network-based teaching creates ubiquitous learning that is not limited by time and space, providing learners with convenient learning methods and rich learning resources [2]. At present, online education has become normalization and a helpful addition to the classroom instruction. Network-based college English teaching mode is a high-quality platform to improve the quality of talent training.

With the help of information technology, the network-based “online + offline” teaching mode has fundamentally changed the relationship between teachers and students, and the focus of teaching has shifted from “teachers center” to “students center”. In this teaching mode, teachers need to use the “Internet + Education” technology to build a diversified learning resource platform. The students are guided to selectively receive knowledge and information from the Internet, and then reprocess and reorganize them, to form an in-depth, complete and systematic knowledge system. Under the blended teaching mode, students use fragmented time to accomplish corresponding learning tasks according to their own schedule.

In addition, with the help of information technology, the push of personalized teaching resources can also be realized. The integration, development, design, application,

management and evaluation of information technology and foreign language teaching courses will usher in a new revolution in language technology and foreign language teaching.

In the selection of research objects, a sample of 276 students and 4 teachers in a curriculum group for non-English majors in a college in Dalian was selected. In the sample, boys accounted for 71% and girls accounted for 29%. The class teachers involve 1 titles of associate professor, 2 lecturers and 1 teaching assistant, and their working years range from 1 to 10 years.

The network-based blended College English learning in this university has been implemented for nearly five years, and the teachers are very familiar with the objectives, teaching methods, and effective evaluation. The study uses two research methods, qualitative analysis and quantitative analysis, to evaluate the research results.

Two research tools are used: questionnaire survey and interview. First, the designed questionnaire “Assessment Scale for Cross-cultural Communicative Competence in Network-based College English” refers to the typical factors of Cross-cultural Communicative Competence assessment at home and abroad, and adds the characteristic factors of Network-based learning.

In the questionnaire these questions include the learners’ behavior, learning resources assessment, learning environment assessment, and the outcome. The results of the questionnaire were analyzed using SPSS, and Cronbach’s coefficient alpha was used to test the internal consistency to achieve better reliability of the questionnaire. There are 14 factors and 46 items. The evaluation adopts Likert scale (Table 1).

**Table 1.** Type, dimension, factors of Assessment Scale for Cross-cultural Communicative Competence in Network-based College English

Type	Dimension	Factor	Number
Formative Assessment	Learning behavior	motivation	3
		depth	2
		innovation	2
		discipline	3
	Online learning resources	textbook-based	3
		textbook Auxiliary	3
		Exam Auxiliary	3
	Learning environment	Network-based	5
		Online & offline interaction	3
		teacher’s support	4
peers’ support		3	
Summative assessment	Learning outcome	content outcome	4
		skill outcome	4
		self-efficacy	4

The above factors cover four evaluation dimensions, and understand the views and attitudes of implementers and learners on network-based learning, language application ability, cooperative learning ability and intercultural communicative competence cultivation. Before filling out the questionnaire, students had a comprehensive understanding of the basic concepts, teaching objectives and teaching mode of network-based learning, and completed one year of network-based learning practice to ensure the authenticity and objectivity of the quantitative research data.

Secondly, classroom observation was conducted according to the designed scale, and teachers and students were interviewed. Based on data analysis, 30 students and 4 teachers were interviewed, and 8 classrooms were observed. The above research methods are to gain a more objective and in-depth understanding of the classroom, to understand the evaluation objects, to comprehensively monitor online self-learning as well as the classroom teaching process from practice, to collect evaluation information, select evaluation content, and drive students to participate in the evaluation results.

## 2.1 Designing of College English Teaching Model

The teaching method of online and offline teaching in College English teaching, organically integrates online resources and offline classroom through certain learning platform, defining online and offline teaching modules, and then discussing the assessment and evaluation methods under this teaching mode. Language, culture and communication are closely related [3]. The cultivation of cross-cultural communicative competence is essentially the result of transformation after the input of language and culture [7]. The network-based teaching mode adopts online and offline teaching, combining the self-learning platform and some learning and testing apps for multi-platform linkage. The process is instructed as followed: online learning before class → deepening output during class → consolidating and examining the learning outcomes after class. In the offline classroom, the teacher will check the performance of students' self-learning, broaden the case analysis, and deepen the understanding, by using discussion methods, case teaching methods, TBL teaching methods etc. [4].

Based on the internet and information technology, foreign language learners could learn, apply and discuss these multi-media materials inside and outside the classroom [5]. It can instruct the foreign language learners to establish and maintain social networks with native speakers or non-native speakers in different cultural target languages, carrying out various forms of inside and outside learning activities. Combining the needs of students, society and practical teaching, colleges and universities need to use an independently developed blended learning platform to design the overall course and create a "student-centered" online course guided by teachers throughout the process. First, according to the total hours of the course, the curriculum group design and arrange the learning content and learning time of each chapter, and then arrange the supporting materials including original teaching micro-course videos, discussion topics, reading and expansion materials and test questions. According to the learning progress of the chapter, all these materials are uploaded to the platform and build a question bank for the course, which is convenient for random self-testing. In addition, a learning achievement sharing area is set up, so that students can enhance the ability to apply vocabulary and enhance the expression of the subject content through sharing and communication.

The construction and application of online courses requires long-term accumulation and continuous improvement and optimization in teaching practice. With the advent of the era of artificial intelligence, teaching content must keep up with the development of new technologies, and with the help of online platform, these cutting-edge teaching contents are offered to students effectively and efficiently.

Furthermore, the Internet environment helps language learners communicate more equally. Participants who are introverted, have low second language ability, and are relatively weak in race, gender, age, accent, identity, and social status, communicate more actively in the online environment [8]. This is mainly because the participants' social background prompt information and non-verbal information that may cause their anxiety are reduced in the network environment. In addition, the utterances produced by learners in the network environment show more functions. The language quality, such as the complexity of vocabulary and syntax, produced by learners in the network environment is higher [6].

## 2.2 Designing of Online Self-learning

The proportion of cross-cultural training content will be increased and the continuity, when opting the pre-class learning materials for college English, integrity and unity of cross-cultural knowledge will draw attention. More humanistic or value-oriented materials are added consciously, and more works that can reflect the differences between Chinese and Western cultures are introduced to students.

For instance, when teaching New Vision College English Unit 2 Food for thought, a series of multi-dimensional materials are provided, such as the comparison between the street food in China and the fast food in US & Britain, the dining habit about animal organs, and the sharing of food between eastern and western countries etc. Some quotation, concerning the feeling of westerners to the real Chinese food, has been displayed through the interview clips. By learning these before, the students could understand easily and clearly why the foreigner is so nervous when eating hotpot. Furthermore, the students could acquire Chinese cultural confidence and wisdom.

Thus, when coordinating the self-learning resources, the curriculum group has considered the combination of text and video materials, and strive to create suitable mixed teaching and training applicable self-study materials for cross-cultural communicative competence.

Taking advantage of the artificial intelligence technology and other video-sharing website, the curriculum group are encouraged to explore and educational environment, teaching mode, teaching content, The integration paths and methods of teaching methods, educational management, educational evaluation, educational scientific research, etc., and actively develop an intelligent education cloud platform to comprehensively promote the modernization of education.

## 2.3 Effect Evaluation Based on Information Technology

Online and offline integrated platforms can be used to create network-based classrooms in an all-round and three-dimensional manner. Classroom design should reflect the characteristics of diversity. Network-based teaching centers on “student learning” and

emphasizes students' active learning and autonomous learning. Therefore, the curriculum design should focus on developing students' learning interests, promoting the learning process through tasks, combining the respective advantages of online and offline, and multi-dimensional create real communication scenes and guide students to complete self-learning and breakthroughs in inquiry.

The offline teaching process is mainly based on online courses. Flipped classroom teaching is carried out to explain the difficulties encountered by students in online learning. Teachers will organize students to carry out cultural-related classroom display, appreciation, analysis and evaluation and other speculative activities, and use part of the time in class to provide students with opportunities for cross-cultural thinking output and improve students' classroom participation.

For some units, students will prepare different cultural topics and share their insights with other students in the form of group class presentations. For example, when teaching Unit 2 "Food for thought", a group mainly coming from Inner Mongolia Autonomous Region has shared their introduction for the cuisine culture of Inner Mongolia. Another group has introduced Russian cuisine culture, displayed the Russian bread and vodka, and shared their own understanding of the Russian cuisine culture, which aroused the thoughts and discussions of other students. Before the classroom presentation, each group of students independently choose the cultural topics of interest, through independent exploration, group cooperative learning, and display in different forms in the class, in various forms and rich in content. In this process, teacher-student and student-student interaction has also been achieved well, and the participation of students in the classroom has been improved.

When formulating exercises, the curriculum group has chosen some platforms and apps to approve the learning process and check students' outcomes timely and efficiently, considering cultivating students' cross-cultural knowledge and enhancing students' ability to thinking creatively.

In order to examine the overall performance of students' learning, the Itest Intelligent Evaluation Cloud Platform has been applied for nearly 10 years. Using this platform, the teacher input the exercise and organize the assignment paper for students according to the exact unit they have learned. Therefore, the unit assignment is targeted with strong sustainability. According to the outcomes of students' learning, the teacher could make timely adjustments according to students' different levels and feedback during learning.

In addition to this, the intelligent composition scoring system and FIF speaking-test system are also applied to check the writing and speaking performance of students. Pigai system is an on-line system for automatic correction of English composition by computer. And FIF is a platform which we use its speaking-test system to train and assess the students' speaking abilities. The courses in the system include four learning modes: practice, challenge, question, and explanation, as well as a variety of training question types.

Both platforms are equipped with the system to automatically correct questions and record learning activities. At the end of the term, relevant data can be exported with one click. Therefore, the evaluation can be automated, immediacy and scientific, which is very helpful to strengthen the course effect in time.

**Table 2.** Factor analysis, Eigenvalue Analysis, Explained Variance and Cumulative Variance of Assessment Scale for Cross-cultural Communicative Competence in Network-based College English

Factor	Eigenvalue	Explained Variance	Cumulative Variance
motivation	2.252	10.285	10.285
depth	2.264	8.165	28.84
innovation	1.816	6.243	42.935
discipline	2.406	6.442	55.917
textbook-based	2.033	7.860	36.42
textbook Auxiliary	1.983	6.568	49.491
Exam Auxiliary	2.133	10.226	20.53
Network-based	1.883	7.184	36.791
Online and offline interaction	1.835	23.68	42.725
teacher's support	2.224	22.719	21.713
peers' support	1.807	25.268	46.978
content outcome	2.437	19.648	19.648
skill outcome	2.216	18.421	38.096
self-efficacy	2.218	16.171	54.23

## 2.4 Evaluation and Feedback

In this study, questionnaires were set up, and data were distributed and collected. SPSS 22.0 was used to test the reliability and validity; statistical analysis of the survey data was conducted to navigate the significance of the teaching (Table 3).

For the four observation dimensions of formative evaluation and the learning effect of summative evaluation, the KMO sampling appropriateness test measure is close to 1, indicating that the sample size is suitable for factor analysis. At the same time, Table 2 shows that the cumulative explanatory variances indicating that the selected factors can explain the variance of the variable well, and reflect the content of each dimension and each factor of the summative evaluation fully.

The internal consistency was tested by using the Cronbach  $\alpha$  coefficient test so as to test the reliability of the scale, and the results are shown in Table 2. The multi-dimensional reliability coefficients are all statistically significant ( $P = 0.000 < 0.001$ ), and the coefficient of the factor is also relatively good, indicating that the internal consistency of the scale and the subscales is good, and the reliability is high.

Furthermore, the correlation analysis of the items was carried out by using the two-tailed detection in SPSS22.0. The correlation between the internal items of the factors in the scale was between 0.404 and 0.648, which means the correlation between the items within each factor can effectively support Factor evaluation.

Based on the measurement data and interview results of the evaluation, the cross-culture competence cultivation in the network-based College English class is highly

**Table 3.** Factor Analysis, Reliability Analysis and Correlation Analysis of Assessment Scale for Cross-cultural Communicative Competence in Network-based College English

Factor	KMO Test	Alpha Coefficients	Correlation
motivation	0.918	0.718	0.416 ~ 0.642
depth		0.817	0.432 ~ 0.596
innovation		0.812	0.404 ~ 0.646
discipline		0.857	0.532 ~ 0.597
textbook-based	0.915	0.847	0.434 ~ 0.648
textbook Auxiliary		0.859	0.412 ~ 0.625
Exam Auxiliary		0.817	0.404 ~ 0.641
Network-based	0.851	0.797	0.406 ~ 0.647
Online & offline interaction		0.819	0.416 ~ 0.639
teacher's support		0.768	0.504 ~ 0.648
peers' support		0.825	0.434 ~ 0.647
content outcome	0.863	0.832	0.412 ~ 0.626
skill outcome		0.817	0.432 ~ 0.596
self-efficacy		0.815	0.524 ~ 0.618

recognized by implementers and learners, and the effect is good, but there are some weaknesses.

Regarding the deficiencies of online platforms and apps: More than half of the students surveyed reported that platforms or apps often need to be updated and downloaded, wasting traffic. 38% of the students thought that the test app was scattered and easy to forget one of the assignments. 25% of the students believe that the learning platform or app often has technical failures such as jams, flashbacks, and incomplete recording of the learning time, which is a waste of time. 9% of the students believe that platform or APP learning is often attracted by pop-up advertisements or other computer projects, resulting in distraction. The existing English learning apps are mostly single product type. Some Information pollution of App resources will lead to ecological imbalance of college English learning environment. Consequently, in order to improve the performance of online study and enlighten the outcome of the self-assessment, the quality management and content and functions should be integrated and enhanced.

### 3 Conclusions

To conclude, the value and nature of cultural self-confidence indicate the internal relations and the possibilities between cultural self-confidence and foreign language curriculum. College English teachers can connect foreign language learners and native speakers to communicate with the help of computers and online communication tools, and they can also connect non-native speakers of different native languages to use a common

international language—English. Application software, teachers and the universities are important factors in college English teaching under the background of the information age, and constitute the three major elements of foreign language learning based on information technology. This kind of cooperation mode is telecommunications cooperation, which refers to the establishment of a network-based cooperative teaching mode by connecting two or more classrooms with the help of the Internet.

In the teaching process of College English, the application of cultural self-confidence consists of the output of Chinese culture, the development of Chinese discourse and the identification of Chinese values. Participating in online communication helps to stimulate the real and natural language learning motivation of foreign language learners, which exercise not only the language skills but also the cross-cultural communication skills. To some extent, it could make up for the shortcomings of foreign language teaching in the classroom.

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