Combining SPSSAU and WJX.CN Analysis to Study the Status Quo of Online and Offline Blended Teaching Model
in Advanced English Reading Course

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Abstract
Being multi-dimensional, the online and offline blended teaching model can expand and improve the traditional classroom teaching quality and promote the teaching reform which advocates student-centered learning. In order to understand the status quo of the online and offline blended teaching model (BTM) adopted in Advanced English Reading course, the author conducted two questionnaires on 128 college students from English majors who have experienced two semesters of teaching reform. The first questionnaire aims to investigate the respondents' individual learning attitude and behavior, their online-offline blended learning tendency, their proficiency in utilizing online learning tools, and their satisfaction with the blended teaching model. As a necessary supplement to the first questionnaire, the second one aims to investigate the respondents' application of corpus retrieval and analysis tools(CRA) tools which are useful for language online-learning. After applying this teaching method for two semesters the method has proven itself to be both positive and effective on students' English reading ability and interdisciplinary learning ability. The model's effectiveness can be demonstrated from data collected and analyzed by SPSSAU and WJX. CN, which are reasonable and convincing.

Keywords: *SPSSAU; WJX.CN; Status Quo; Online and Offline Blended Teaching Model (BTM); Advanced English Reading Course;*

1.INTRODUCTION

Being multi-dimensional, the online and offline blended teaching model (BTM) can expand and improve the traditional classroom teaching quality and promote the teaching reform which advocates student-centered learning.In the era of "Internet +", the development of platforms and multimedia provides support for the application and implementation of the online and offline BTM [10]. As an organic integration of online and offline teaching methods and technologies, blended teaching can enrich learning forms, optimize teaching processes, increase students' engagement, and improve their learning experience [1][3][5][7]. At present, blended teaching has become a widely adopted foreign language teaching measure in colleges and universities in China. The construction of a large number of MOOCs and micro-courses teaching English and the application of foreign language learning platforms have accelerated the popularization of blended teaching. However, there are few researches on the teaching effect of BTM combining data analysis to provide empirical evidence. This study conducts an empirical research on the online and offline BTM adopted in Advanced English Reading course, by using variance, t-Test, data visualization based on SPSSAU, and average and percentage provided by WJX.CN to conduct data analysis on students' learning effects, summarizes the advantages and disadvantages of this teaching model, and thus puts forward suggestions.

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2.ONLINE AND OFFLINE BTM ADOPTED IN ADVANCED ENGLISH READING COURSE

Blended teaching model has many definitions in academia. It usually refers to multiple teaching modes, theories, methods and teaching environments. The most representative of them is defined by the Sloan Alliance (2018), who believes that blended teaching combines two independent teaching methods, face-to-face teaching and online teaching. First of all, in terms of functions, the simple superposition of online and offline teaching may not achieve the best teaching effect.A joint force for education should be formed by combining the respective advantages of online and offline teaching. Online teaching should be responsible for stimulating students' exploring ability and active spirit, while offline teaching for designing more challenging and high-reward teaching activities; online teaching should accelerate information exchange, while offline teaching should help establish consensus among teachers and students [4]. Secondly, in terms of teaching elements, Tong et al. (2020: 34) [8] believes that blended teaching should become an organic combination of teaching content, resources, strategies, activities, support, evaluation and other elements. Finally, in terms of time allocation, the ratio of online to offline is one of the key factors affecting students' learning effect [2][9] .The Online Learning Consortium states that it can be only called blended courses when online learning time accounts for 30% to 79% of offline learning time [6].

In order to better apply online and offline BTM to front-line reading teaching, the author (the lecturer) has designed an online and offline BTM based on the Chaoxing auxiliary teaching platform. In the three stages of pre-class, in-class and post-class, different kinds of educational technology are integrated, such as corpus retrieval and analysis tools (CRA), computer-aided translation software(CAT), and artificial intelligence picture and text recognition technology software(OCR), etc., and corresponding teaching activities are carried out online and offline. During class, the author refines it into three steps, which are pre-reading, during-reading and post-reading, requiring students to use different kinds of educational technology tools to observe and analyze class reading texts and extracurricular ones, so as to truly achieve autonomic-inquiring learning. (see Figure 1)

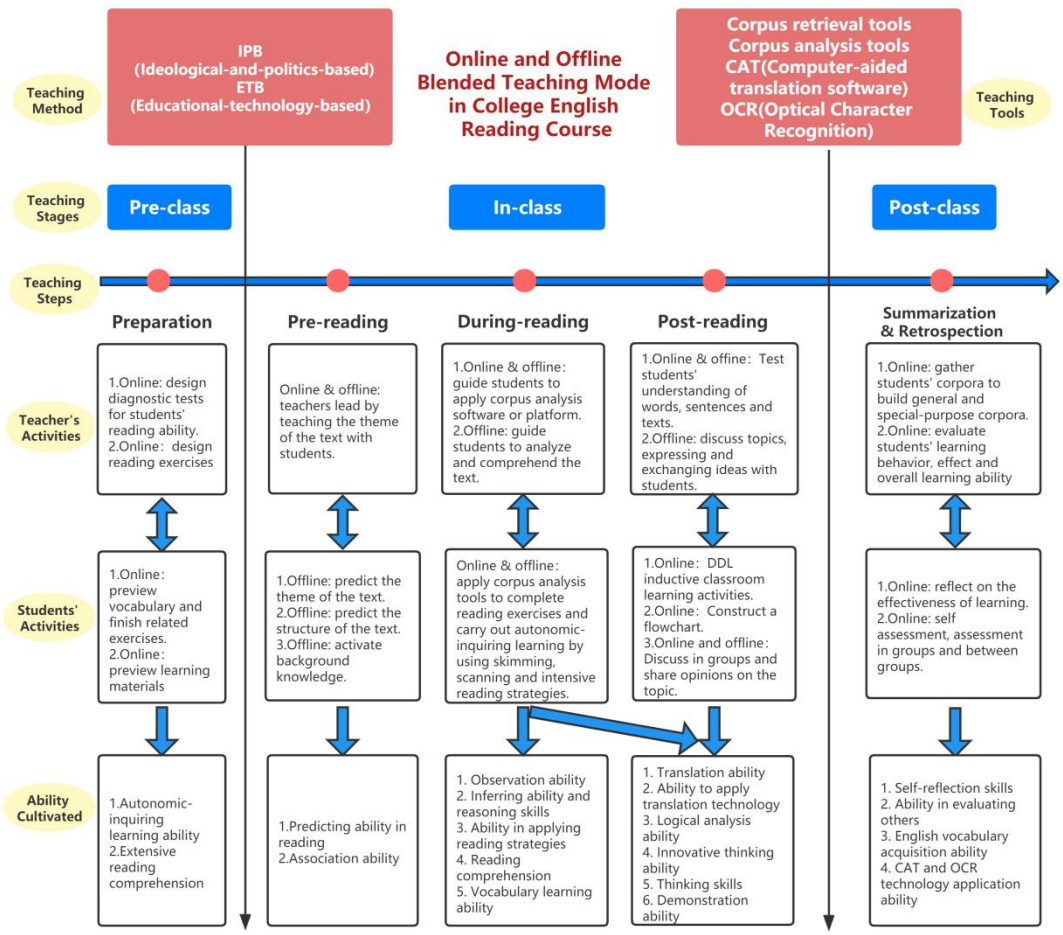

Figure 1: Online and Offline Blended Teaching Model in Advanced English Reading Course

This paper that studies online and offline BTM mainly relies on Chaoxing teaching platform, which aims to provide courses learning, knowledge dissemination and management designed by micro-service architecture. Teachers and learners can find pictures, audios, videos, forums and lectures and other multimedia on it. During the pre-class stage, teachers deconstruct the overall narrative structure of the original course content, design modular teaching content, and build a multi-dimensional evaluation system; students form project teams for online learning. During the in-class stage, teachers design teaching activities on Chaoxing, such as attendance, video exercises, quiz, discussion, group task, poll, questionnaire, etc,. while offline students interacting with teachers, learning thematic cultural knowledge, language knowledge and reading skills, having team discussion and learning, carrying out projects, reporting project work, and teachers giving comments on the above-mentioned exercises and activities. During the post-class stage, according to the project evaluation criteria and weights, students do self-evaluation, in-groups and between-groups evaluations. Students raise questions and promote project works online and teachers give feedback both online and offline.

The tools used under online and offline BTM in Advanced English Reading course are CRA (corpus retrieval and analysis) tools, such as Ant Word Profiler, AntConc, Sketch Engine, CAT (Computer Aided Translation) tools, such as Tmxmall, MemoQ or SDL Trados, and OCR (Optical Character Recognition) tools, such as Fengyun APP, iFLY TEK. The first type of technology is equipped with its own reference corpus, with which can be compared so as to automatically analyze the natural language usage of the observation corpus, and provide information on various aspects of vocabulary use, such as word difficulty, index, collocation, word meaning, synonyms and other information. The second type is to improve the efficiency and quality of translation by mainly using translation memory, term base and fuzzy matching and other technologies, ensuring the fast speed and consistency of bilingual translation. The third type can identify and extract texts from single or batch images, PDF, or scanned documents, and output the texts accurately. This type of software can support Simplified Chinese, Traditional Chinese, Japanese, Korean, English, French, Russian, German and more languages, with the output in PDF, Word and Txt. formats.

3.DATA ANALYSIS ON THE STATUS QUO OF BTM

3.1. Research Purpose, Object and Tool

- Research Purpose and content: In order to understand the status quo of the online and offline BTM adopted in Advanced English Reading course, the author conducts two questionnaires on 128 college students from English majors who have experienced two semesters of teaching reform. The first questionnaire aims to investigate the respondents' personal learning attitude and behavior, their online-offline blended learning tendency, their proficiency in utilizing online learning tools, and their satisfaction with BTM. As a necessary supplement to the first questionnaire, the second one aims to investigate the respondents' application of CRA tools which are useful for language online-learning.

- Research object: Two questionnaires and follow-up interviews are conducted among 128 junior students of English Majors from five classes, with 114 female samples and 14 male samples who have participated in online and offline BTM practice adopted in Advanced English Reading course for two semesters. 45.8% of them had passed TEM 4 (Intermediate Level Test for English Majors). Regarding individual learning habits, 65.62% of students have the habit of previewing the text before class, and 66.41% of students have the habit of reviewing the text after class. Therefore, the existing study habits of most students have a positive impact on this teaching practice.

- Research tool: First, the author and several colleagues of the research group jointly designed "The survey on the status quo of online and offline BTM adopted in Advanced English Reading course" and "The survey on the status quo of the application of English corpus technology supplemented to the online and offline BTM practice". After investigating statistics, 128 valid questionnaires were collected for the first time, that is, the reliability is 100%, while that of the second questionnaire is 96.9%, with 124 valid questionnaires. The author uses SPSSAU and WJX.CN statistical analysis method to analyze the percentage, average, variance, t-Test and visual data of the collected data. Second, SPSSAU is a web-based data science algorithm platform tool that provides intelligent analysis results. It has six algorithm functions, including conventional statistical functions, variance analysis functions, multivariate statistical functions, retrospective analysis and prediction functions, non-parametric functions, and other algorithm functions. In addition, SPSSAU can provide visual research algorithms, statistical graph functions, data functions, etc. Functions like variance, t-Test, frequency and word cloud visualization provided by SPSSAU have been adopted to analyze the data of this study. Third, the questionnaires used in this study were designed by WJX.CN, which is a professional online platform that provides users with a series of services such as online questionnaire design, data collection, custom reports design, and survey result analysis. WJX.CN supports a variety of question types, and users can set questions in jumping, associating and citation logic. It can also support WeChat, email and

SMS to collect data. After collecting data, it performs the functions of statistics classification and cross analysis, and export the data to Word, Excel, SPSSAU, etc.

3.2. Research Analysis and Results

3.2.1. Respondents' Individual Learning Attitude and Behavior

By using WJX.CN, the data are analyzed by percentage. The results are as follows. 88.3% of the students are adaptable to the online and offline BTM practice, among whom 2.34% of students find it very easy to learn the teaching content; 39.8% of students can master most of the content in a relatively easy way as long as they arrange schedule properly; 46% of students need to spend more time and effort on keeping up with most of the course content but they are willing to challenge it.

The proportion of students using computers or mobile phones for online learning of the course is as followed: 62.5% of the students spend an average of 2-3 hours a week; 21.88% of the students spend an average of less than one hour a week; 10.94% of the students pend an average of 4-5 hours a week; 3.91% of students spend an average of 6-7 hours a week; 0.78% (1 respondent) of the students spend an average of 8-9 hours a week. Moreover, in general, the proportion of students who spend time on watching Small Private Online Course(SPOC) every week is as follows: 39.06% of the students do not have a set schedule and only watch SPOC when they are free; 29.69% of the students arranged time to watch SPOC once the videos are uploaded every week; 21.88% of the students watch SPOC randomly every week; 7.81% of the students only watch SPOC hours before class; 1.56% of the students prefer to watch them on weekends. It can be summarized that most students are able to set a proper schedule on online-learning.

Among them, 47.66% of the students watched SPOC at doubled speed; 32.03% of the students take notes while watching it; 13.28% of students watch and review a SPOC video for several times; 6.25% of the students watched it at 1.5 or 2 times the original speed; 0.78% (1 respondent) of the students do irrelevant things while watching it. It can be seen that the vast majority of students are holding a positive learning attitude towards SPOC videos and about one third of students prefer to take notes accordingly and review them patiently.

With regard to the deadline of the online tasks, 40.63% of the students hope that they are required to finish them within one week and review all the tasks one week before the end of a semester; 37.5% of the students prefer to finish tasks in two weeks and review all the tasks one week before the end of a semester; 15.63% of the students prefer no deadline for all tasks. It can be seen that 78.13% of the students have higher self-discipline when it comes to completing learning tasks. It is no wonder that 84.38% of the students think that their self-control is not strong enough; 44.53% of the students find videos boring, which might affect their interest in learning; 35.16% of the students think that learning SPOC is lack of interactivity between teachers and students. In other words, 32.81% of the students attribute their learning problems to personal subjective initiative. It should be noted that the main reasons why students are easy to be absent-minded during online-learning can be divided into two categories, lack of internal driving force and lack of external and objective motivations, and the former is considered as the main reason.

3.2.2. Respondents' Online and Offline Blended Learning Tendency

By using WJX.CN, the data are analyzed by percentage and average. The results are as follows. 20.31% of students prefer “mainly by online teaching and supplemented by offline teaching, while mainly by online learning and supplemented by offline learning”; 21.09% of students prefer “mainly by offline teaching and supplemented by online teaching, while mainly by online learning and supplemented by offline learning”; 10.94% of students prefer “mainly by online teaching and supplemented by offline teaching, while mainly by offline learning and supplemented by online learning”; 37.5% of students prefer “mainly by offline teaching and supplemented by online teaching, while mainly by offline learning and supplemented by online learning”; 5.47% of students prefer “offline teaching and learning”; 4.69% of students don’t care which teaching or learning method. It can be seen that 31.25% of students prefer online teaching to be main teaching method instead of offline teaching, while 58.64% of students prefer the latter way. 89.84% of the students believe that online and offline BTM meets their needs.

In offline classroom teaching, there are ten reasons that students believe have affected their learning, which are lack of autonomy and inability to adjust learning methods and strategies (58.59%); less interaction between teachers and students, and distraction in class (24.22%); lack of various of classroom activities (34.38%); less opportunities to express their opinions (9.38%); insufficient learning resources (21.88%); difficult to review the learning content (38.28%); difficult to receive timely feedback from teachers (16.41%); unwilling to review their own learning data records for reflection (31.25%); unwilling to conduct peer evaluation and mutual promotion (10.94%); other drawbacks (such as lack of time, etc.) (2.34%). Based on the analysis, we can conclude that, first, students have the greatest demand for flexible arrangements for

autonomous learning, including learning content, activities and self-reflection. Second, students need more teacher-student interaction and learning resources. Third, teachers' regular feedback and effective peer learning are also valued by students.

In online teaching and learning, there are also ten reasons that students believe have affected their learning, which are lack of autonomy and inability to adjust learning methods and strategies (54.69%); lack of platform interactivity (24.22%); too much online homework (54.69%); unwillingness to express their opinions (21.88%); insufficient learning resources (7.81%); difficulty in reviewing the learning content (15.63%); difficulty in receiving timely feedback from teachers (11.72%); unwillingness to review their own learning data records for reflection because of the increase of pressure in learning (10.16%); unwillingness to conduct peer evaluation because of waste of time (14.06%). Thus it is lack of learning initiative that makes it difficult for students to learn better. Hence it is vital for teachers to regularly record students' learning data and provide them valuable suggestions.

As to the existing online practice assigned in Advanced English Reading course, students think that the following eight tasks should be set priority: text language points (68.57%); text PPT or SPOC videos (65.71%); translation exercises of TEM 8 (High Level Test for English Majors) and its analysis (52.86 %); background information of the topic and related ideological and political education (50%); text exercises (44.29%); reading exercises of TEM 8 and its analysis (32.86%); English-to-Chinese translation of the text (25.71%); online alignment and extraction of the text terminology (21.43%). It can be seen that students pay more attention to the acquisition of language knowledge taught in the text, the preparation training for TEM 8, but less attention to the application of educational technologies to improve their English reading ability.

On the one hand, as to the existing teaching activities designed in Advanced English Reading course, students think that the following activities are suitable for offline learning: text explanation (81.25%); language points explanation (76.56%); final exam (40.63%); TEM 8 training (37.5%) %); mid-term report and presentation (26.56%); classroom practice (21.22%); unit tests (18.75%). On the other hand, almost all students believe that attendance, assignments, group tasks, self-assessment and assessment in groups and between groups, voting, questionnaires, and notifications are suitably set online.

In order to understand students' enthusiasm in participating in the above practice, based on the five-level scale, the questionnaire gives options of "very active", "more active", "generally active", "not very active", "very inactive", and assigned 5.4.3.2.1 points respectively. The overall average is 4.05 points and the average score comparison is shown in the Table 1.

Table 1: Comparison of students' motivation to participate in different tasks and activities

Practice	Very Active	More Active	Generally Active	Not Very Active	Very Inactive	Average
Text explanation	20(15.63%)	82(64.06%)	25(19.53%)	1(0.78%)	0(0%)	3.95
Language points explanation	19(14.84%)	82(64.06%)	25(19.53%)	2(1.56%)	0(0%)	3.92
Attendance	74(57.81%)	37(28.91%)	17(13.28%)	0(0%)	0(0%)	4.45
Assignments	44(34.38%)	65(50.78%)	19(14.84%)	0(0%)	0(0%)	4.2
Group work (PBL)	33(25.78%)	68(53.13%)	25(19.53%)	1(0.78%)	1(0.78%)	4.02
Group tasks (Discussion,etc.)	32(25%)	64(50%)	31(24.22%)	0(0%)	1(0.78%)	3.98
Classroom practice	37(28.91%)	66(51.56%)	24(18.75%)	1(0.78%)	0(0%)	4.09
TEM 8 training	24(18.75%)	66(51.56%)	34(26.56%)	3(2.34%)	1(0.78%)	3.85
Assessment	38(29.69%)	58(45.31%)	28(21.88%)	2(1.56%)	2(1.56%)	4
Voting	44(34.38%)	61(47.66%)	23(17.97%)	0(0%)	0(0%)	4.16
Questionnaires	41(32.03%)	66(51.56%)	21(16.41%)	0(0%)	0(0%)	4.16
Notifications	46(35.94%)	62(48.44%)	20(15.63%)	0(0%)	0(0%)	4.2
Q & A	21(16.41%)	56(43.75%)	44(34.38%)	5(3.91%)	2(1.56%)	3.7
Unit tests	30(23.44%)	61(47.66%)	37(28.91%)	0(0%)	0(0%)	3.95

Mid-term report and presentation	36(28.13%)	63(49.22%)	28(21.88%)	1(0.78%)	0(0%)	4.05
Final Exam	37(28.91%)	65(50.78%)	26(20.31%)	0(0%)	0(0%)	4.09
Total numbers (Percentage)	576(28.13%)	1022(49.9%)	427(20.85%)	16(0.78%)	7(0.34%)	4.05

3.2.3. Respondents' Proficiency in Utilizing Online Learning Tools

The author surveys the same group of students from 4 aspects, and conducts follow-up interviews for special data after the survey. By using SPSSAU and WJX.CN, the data are analyzed by average and t-Test. According to the five-level scale, the questionnaire gives options of "very skillful", "relatively skillful", "generally skillful", "not very skillful", "very unskillful", and assigned 5.4.3.2.1 points respectively, and the average score comparison is shown in the Table 2. It can be seen that the average is 3.86 points, meaning the level of all students' proficiency in utilizing online learning tools is ranked as "generally skillful" or better than that.

Specifically, according to Table 2, if studying by t-Test (Independent Sample t-Test), a total of 3 items have no significance (p>0.05), all of which show consistency and no difference. In addition, male and female samples show a significant 0.01 (p<0.05) for "my ability to extract terms using CAT ", which means that there are differences in the ability of male and female students in this aspect. Specific analysis shows that gender has a 0.01 level of significance for this item (t=2.677, p=0.008), and the average of male samples (2.57) is significantly higher than that of female samples (1.97).

Table 2: t-Test Analysis of English majors students' ability of using CAT under BTM

	Genders (Mean ± SD)		*t*	*p*	Average
	Male(n=14)	Female(n=114)			
Students' ability to extract terms using CAT has improved	2.57±0.94	1.97±0.77	2.677	0.008**	3.96
The use of corpus retrieval analysis tools and CAT to organize vocabulary study files	2.43±0.85	2.03±0.78	1.801	0.074	3.93
The use of corpus retrieval, analysis tools, and CAT to assist reading comprehension and grasp the main idea of the reading materials	2.50±0.85	2.12±0.78	1.695	0.093	3.84
The use of corpus retrieval, analysis tools, and CAT to assist in the discussion of text topics	2.64±0.93	2.25±0.78	1.713	0.089	3.7

* p<0.05 ** p<0.01

3.2.4. Respondents' Satisfaction with BTM

The author surveys the same group of students from 8 aspects, and conducts follow-up interviews for special data after the survey. By using SPSSAU and WJX.CN, the data are analyzed by average and t-Test. According to the five-level scale, the questionnaire gives options of "very satisfied", "relatively satisfied", "generally satisfied", "not very satisfied", "very dissatisfied", and assigned 5.4.3.2.1 points respectively, and the average score comparison is shown in the Table 3. The positive change of learning attitude is presented according to the proportion of the number of respondents.

Specifically, the growth of students' learning effect is reflected in the following eight areas (see Table 3). According to the table, if studying by t-Test (Independent Sample t-Test), all items have no significance (p>0.05), all of which show consistency and no difference.

Table 3: t-Test Analysis of Satisfaction of English majors under BTM

	Genders (Mean ± SD)		*t*	*p*	Average
	Male(n=14)	Female(n=114)			
The degree students are satisfied with the course schedule	1.79±0.58	1.83±0.62	-0.272	0.786	4.17
The degree students are satisfied with the Internet and related learning resources obtained in the Advanced English Reading	1.86±0.53	1.74±0.61	0.704	0.482	4.25

course					
The degree that CBM Model has effectively improved my learning autonomy	2.07±0.73	1.90±0.75	0.791	0.431	4.08
The degree that students can learn more from Advanced English Reading course under CBM Model	2.00±0.55	1.81±0.62	1.107	0.27	4.17
The degree of overall satisfaction with Advanced English Reading course under CBM Model	1.86±0.53	1.83±0.62	0.137	0.891	4.16
Students' degree of willingness to utilize the CBM Model in the future	2.14±0.53	1.86±0.70	1.456	0.148	4.11
The degree of satisfaction and convenience of using Chaoxing operation functions	2.14±0.86	2.03±0.76	0.535	0.594	3.96
Students' learning attitudes have positively changed under the CBM Model	3.64±1.55	3.18±1.48	1.09	0.278	39.06%

* p<0.05 ** p<0.01

As for the advantages and disadvantages of online and offline BTM, 77.42% of students think that there are abundant online resources which have expanded their knowledge; 67.74% of the students believe that various forms of online and offline activities can enhance their learning interest; 66.13% of the students think that the online learning provides an access for students to preview in advance; 56.45% of the students believe that online teaching is helpful to carry out flipped classroom teaching and promote students' motivation in participating classroom activities. However, 87.9% of the students hold the view that they are not proficient in applying the operation of Chaoxing platform; 27.42% of the students think that there is limited time for them to complete the online tasks; 25.81% of the students are unable to keep up with the teaching progress both online and offline; About 17% of students find it difficult to finish online tasks because of their low efficiency.

3.2.5. Respondents' Application of CRA Tools

Since corpus retrieval and analysis tools(CRA) have been applied in BTM in Advanced English Reading course, the author surveys the same group of students from 15 aspects. By using SPSSAU and WJX.CN, the data are analyzed by variance and average. According to the five-level scale, the questionnaire gives options of "strongly agree", "relatively agree", "generally agree", "disagree", "strongly disagree", and assigned 5.4.3.2.1 points respectively, and the average score comparison is shown in the Table 4. The result shows that the average of these 15 aspects is 4.15 points, proving that the online and offline BTM adopted in this course has been recognized by the vast majority of students and has played an important role in improving students' abilities listed in Table 4.

Table 4: ANOVA result of English major students' applying CRA tools under BTM

	Classes (Mean ± SD)					F	*p*	*Average*
	Class1 (n=11)	Class2 (n=31)	Class3 (n=28)	Class4 (n=34)	Class5 (n=20)			
Help improve students' ability in scanning positioning words of the text	2.09±0.83	1.87±0.67	1.64±0.91	1.71±0.76	1.50±0.61	1.441	0.225	4.27
Help improve students' ability in extracting information of the text	1.82±0.87	1.94±0.73	1.68±0.86	1.74±0.71	1.50±0.69	1.079	0.37	4.26
Help improve students' ability in predicting and understanding the text	1.82±0.75	2.00±0.86	1.50±0.84	1.85±0.82	1.70±0.92	1.405	0.236	4.22
Help students adopt proper reading strategies	1.73±0.79	1.94±0.68	1.64±0.87	1.79±0.77	1.70±0.86	0.576	0.681	4.23
Help students actively carry out thinking activities such as inference, assumption and association	1.73±0.79	1.97±0.71	1.54±0.84	1.71±0.76	1.80±0.62	1.29	0.278	4.25
Help improve students' ability in grasping main idea of the text	1.82±0.75	1.97±0.71	1.54±0.88	1.71±0.80	1.75±0.72	1.181	0.323	4.25
Help improve students' reading speed	1.73±0.79	1.97±0.87	1.50±0.84	1.82±0.94	2.00±0.79	1.424	0.23	4.19

Help improve students' accuracy of doing reading exercises	2.00±0.63	1.90±0.70	1.57±0.92	1.76±0.85	1.50±0.61	1.446	0.223	4.27
Help improve students' learning efficiency and quality	1.91±0.70	1.97±0.80	1.64±0.87	1.88±0.81	1.60±0.75	1.056	0.382	4.19
Help stimulate students' enthusiasm and initiative in English learning	2.36±0.81	2.16±0.86	1.79±0.92	2.09±0.87	1.90±0.85	1.284	0.28	3.97
Help cultivate students' ability in applying educational technology during the process of English learning	1.82±0.60	1.77±0.96	1.54±0.84	1.71±0.80	1.50±0.61	0.646	0.631	4.34
Help students activate their thinking ability and concentrate on study	1.91±0.70	2.03±0.80	1.71±0.90	1.94±0.78	1.85±0.88	0.6	0.663	4.1
Help produce a sense of pleasure and achievement when learning English	2.36±0.67	2.13±0.81	1.79±0.92	1.88±0.84	1.95±0.89	1.293	0.277	4.02
Help students think bigger and broader	2.45±0.69	2.35±0.75	1.96±1.00	2.09±0.75	2.45±0.83	1.718	0.15	3.78
Be willing to operate corpus platform for BTM in the future	2.00±0.77	2.10±0.65	1.93±0.98	2.35±1.10	1.90±0.72	1.23	0.302	3.91

* $p<0.05$ ** $p<0.01$

Analysis of variance (ANOVA) (full name is One Way ANOVA) is used to survey students from five classes who have participated in the teaching reform practice for one year. It can be seen from Table 4 that all classes have no significance ($p>0.05$), all of which show consistency and no difference. It means BTM has the same effect on students' learning from different classes.

When respondents expressed their experience of utilizing CRA tools, the top 20 words most frequently used in their comments are listed in Table 5. Since all comments collected were written in Chinese, the author uses data visualization of word cloud based on SPSSAU method (see Figure 2.) to conduct data analysis on students' learning effects.

Table 5: The top 20 words most frequently used in respondents' comments on applying CRA tools

Rank	Words	Frequency	Rank	Words	Frequency
1	corpus	32	11	main idea	5
2	article	16	12	tool	4
3	keyword	15	13	ability	4
4	efficiency	15	14	vocabulary	4
5	positioning	14	15	thinking	4
6	reading speed	12	16	new ideas	4
7	doing exercises	8	17	search for	4
8	skillful	7	18	interest	4
9	software	7	19	greatly improve	4
10	try	6	20	knowledge	4

Figure 2: Word Cloud of the top 20 words used in respondents' comments on applying CRA tools

Based on the analysis of SPSSAU and WJX.CN data, it can be drawn that students generally believe that CRA tools can help improve their reading and translating skills. Combined with the high-frequency words they expressed, this paper summarizes the following similarities:

- CRA tools like AntConc are very helpful for students to learn affixes.
- CRA tools help students better analyze the text during reading by skillfully searching for the positioning words, keywords, predict the theme, and analyze the structure of the article. In this way, they are able to improve reading speed and reduce the level of reading difficulty. Once students have developed a good way of thinking that helps reading, they can comprehend the article more easily even without aid of any software.
- The retrieval and word frequency functions of CRA tools help students come up with new ideas for problem-solving, easily grasp the main idea of the text, and greatly improve the efficiency and accuracy when doing reading exercises.
- CRA tools help students expand English vocabulary by ranking the high-frequency words and the importance of keywords, so as to establish self-learning materials, laying a good foundation for translation learning.
- CRA tools help broaden students' mind and vision, improve their learning and working efficiency, and enrich their knowledge.
- With powerful functions and simple operation, CRA tools help raise students' interest and confidence in learning English, and facilitate their interdisciplinary learning.

4.CONCLUSION

SPSSAU and WJX.CN statistical methods are used to make reasonable statistics of the data and the relationship contained therein. After studying the data, the author concludes that online and offline BTM has played a significant role in improving students' abilities based on the following five facts:

- In terms of individual learning attitude and behavior, more than three-quarters of the respondents maintain a positive learning attitude towards online and offline BTM, and make routine learning schedules in a scientific and reasonable way to ensure the development of good study habits.
- In terms of online and offline blended learning tendency, 89.84% of the students believe that the online and offline BTM meets their needs. The ANOVA result of SPSSAU (overall average is 4.05 points out of 5 points) shows that all students are willing to participate in the existing tasks and activities.
- In terms of proficiency in utilizing online learning tools, all students are relatively skillful in operating these tools as shown in the overall average 3.86 points compared with total score 5 points, and t-Test data shows that male samples are better at applying YiCat to extract terms than female samples.
- In terms of satisfaction with BTM, the vast majority students are satisfied with the course teaching progress, learning resources, degree of learning autonomy, positive influence on learning attitude, the extension of knowledge, and the effectiveness of teaching reform (the overall average is 4.13 points out of 5 points). The t-test data shows that male and female samples show consistency and no difference.
- In terms of application of CRA tools, the vast

majority of students believe that CRA tools have played a significant role on 15 aspects in reading course, including quickly searching for positioning words and keywords, extracting information, predicting main idea of the article, understanding words and sentences, carrying out thinking activities, improving reading speed, learning efficiency and quality and so on (the overall average is 4.15 points out of 5 points). The variance data shows that as a necessary supplement to the online language learning tools, CRA tools have the same effectiveness on students' reading ability when they are adopted in Advanced English Reading course.

To sum up, the online and offline BTM has broad prospects in teaching English reading course. Combined with the needs of students, teachers should also strengthen and improve the following aspects: help students balance the allocation of learning time both online and offline; set the amount of online tasks in a reasonable way and avoid repeated tasks both online and offline; record students' learning data and analyze to provide valuable feedback to teaching and learning; provide and renew online learning resources timely; answer questions online regularly; use multimedia to enhance the interactive functions of the online learning platform; create an online learning community with democracy and encourage students to express their views freely; design teaching activities by applying proper educational technologies, strengthen the construction of new liberal arts by carrying out teaching English with technologies, so as to develop and refine students' talents and abilities within liberal arts-based, practical, and interdisciplinary learning environment.

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