A Comparative Study on the Effectiveness of Online Automatic Scoring of English Writing in Juku Correction Network and Mosoteach APP under Blended Teaching Mode

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Abstract. The rapid development of modern information technology has brought great changes to People’s Daily work and life, and the extensive application of network information technology in modern English teaching will bring about a series of innovations to the traditional English teaching mode. Based on the Blended English teaching model under the network environment, this paper attempts to clarify and present the advantages and disadvantages of two different online corrective software for college English writing teaching. Taking College English writing texts as the research object, this paper uses SPSS 19.0 data statistical software to compare and analyze the results of online automatic scoring of College English writing by Juku Correction Network and Mosoteach APP. Thus it is concluded that the Mosoteach APP is more convenient in assistant means of English writing teaching, while Juku Correction Network is more objective in the aspect of the effect of composition criticism, which will provide some reference for improving the quality of Chines college English teaching.

Keywords: Blended teaching mode, College english writing teaching, Juku Correction network, Mosoteach APP

1 Introduction
With the rapid development of the Internet and the deepening reform of modern education system, people pay more attention to the application of teaching methods and learning strategies. College English, as a basic language subject serving the society and life, should pay more attention to the cultivation of college students’ application ability. The 2010 English Teaching Requirements for Higher Education clearly put forward: “all schools should actively introduce and use modern teaching methods such as computer and network technology, develop and utilize digital teaching resources, and construct a new teaching mode suitable for students’ personalized learning and independent learning”. The adoption of blended teaching mode can not only enhance students' interest in English learning, improve their independent English learning ability, but also enhance their ability to apply English in real life. Therefore, based on the blended teaching model, this paper takes the non-English majors' minor writing papers as the object of investigation through two different learning software under the
network environment, and analyses and compares the different results, with a view to bringing some enlightenment and significance to the teaching of Chinese College English writing.

2 Definition of Blended Teaching Model
At the beginning of the 21st century, American scholars Smith, J and Alert Masier jointly put forward a new concept of learning mode, namely “Blended-Learning”, which is an organic integration of traditional Learning and e-learning to improve the deficiencies of network teaching and form the blended Learning mode. Subsequently, a large number of scholars and teaching workers at home and abroad have conducted in-depth research on hybrid learning and teaching, among which, Russel T. Osguthorpe and Charles R. Graham put forward in the article that “blended learning combines face-to-face mechanism with distance mechanism... People who use blending learning environment are always trying to maximize the benefits of face-to-face learning and online learning.”[1] Margaret Driscoll and others believe that blended learning mode is an effective way to combine multiple network technologies, multiple teaching methods, and multiple forms of teaching techniques with face-to-face teacher guidance to complete teaching techniques and practical tasks.[2] Many domestic scholars and experts have studied the Blended teaching mode and written books. Professor Ho Kekang (2004) pointed out that “the blended teaching mode is a combination of various learning methods in traditional classroom teaching— The combination of audio-visual media teaching methods with traditional classroom teaching methods; The combination of CAI and traditional teacher's single instruction; the combination of students' independent learning and cooperative learning”. [3] After long-term research, professor Huang Ronghuai proposed that “blended learning is a strategy to implement teaching by integrating different learning theories, techniques and means as well as different application methods”[4].

2.1 On the Online Automated Composition Scoring System
Feedback patterns and methods of learners’ compositions is a topic of research in writing.[5]With the rapid development of modern teaching methods, computer network technology plays an increasingly important role in assisting higher education. A typical performance is the online automated writing scoring system which integrates network technology and foreign language teaching. The successful writing automatic scoring systems abroad include: “Project Essay Grade (PEG), Intelligent Essay Assessor (IEA), Electronic Essay Rater (e-rater), Intell Metric, Bayesian Essay Test Scoring System (BETSY), etc.”[6] (Chen Xiaoxiao, Ge Shili, 2008)[6]. These are mainly used in writing assessment of TOEFL, GMAT, TWE and other examinations. In China, the main platforms for realizing online composition exercises are Juku Correction Network and Mosoteach APP.

2.2 Juku Correction Network
The Juku Correction Network independently developed by Beijing Word Network Technology Co., Ltd. is an online service system for automated correction of English compositions based on corpus and cloud computing. At present, it has been used in more than 30 famous universities in China, which promotes the reform of traditional teaching mode and arouses the enthusiasm of college students for independent learning. The Juku Corrections Network (www.pigai.org) adopts online intelligent statistics and natural language processing techniques to extract the linguistic features of compositions. Through taking the students’ composition and mass standard corpus for comparative analysis, it can be able to give marks, general comments and corrective feedback within 1.2 seconds to English compositions. Therefore, it can be seen that the system can effectively help teachers improve their work efficiency and help students effectively improve their English writing ability.

2.3 Blue Link Cloud Class APP
Compared with the large-scale composition correction which is limited to the correction of words and sentences, Mosoteach APP pays more attention to online classroom teaching as a whole, and it is a veritable mobile teaching assistant, that is, a new mode with interactive teaching in a mobile
environment at any time. With this web-based learning software, teachers can more easily manage students’ attendance and homework, send notifications in time, assign homework for correction, carry out interactive teaching activities such as sharing resources between teachers and students, organizing discussion and answering questions, etc. This learning platform can record students’ learning situation in detail and provide reliable data and information support for teachers’ teaching management. In October 2018, Mosoteach APP set up an automated correction function in the aspect of essay correcting.

3 A Comparative Study of English Writing Based on Juku Correction Network and Mosoteach APP

As we all know, English learning is inseparable from the five skills of listening, speaking, reading, writing and translation. However, “writing can not only help consolidate the language materials input through reading and listening, promote the internalization of language knowledge, and improve the accuracy of language usage, but also lay a solid foundation for substantive oral competence” (Dong Yafen, 2003:5) According to the composition scores reflected by various automated Scoring, although college students have certain English grammar knowledge and vocabulary accumulation, many students' English writings are full of mistakes and the words fail to form sentences.

3.1 The Research Question

This study aims to investigate the effects of different online automatic composition correction software on college students’ English writing efficiency. The specific research questions are as follows:

(1) What are the differences between different online automatic composition correction software?

(2) Are there any significant effects of different online automatic essay correction software on the quality of writing, such as syntax, vocabulary, grammar and spelling?

3.2 The Research Object

The subjects of this study are sophomores of non-English majors in comprehensive universities, basically covering liberal arts, science, engineering and other student categories, with a total of 40 students. And they were arranged in a class through the colleges’ self-selection of English minor courses before the beginning of the semester, and their English proficiency did not differ much.

3.3 The Research Tools

In this study, online writing review platform Juku Correction Network and Mosoteach APP were used. Both learning software can automatically judge students' submitted essays online and give them overall comments, as well as feedback on grammar, vocabulary collocation and non-standard expressions. Students can review, revise and submit new compositions for many times, and the platform can give the scores submitted for each time and keep all text records. The basic data of this study comes from all kinds of data saved by Juku Correction Network and Mosoteach APP. The writing task of the students involved in this experiment is an English argumentative essay with no less than 180 words, the title of which was “How can you deal with stress?” Students must within two weeks of the assignment submit their essays directly online or revise their compositions according to the system feedback until the final essay is submitted.

3.4 Data Collection and Analysis

After introducing the rules and functions of the use of Juku Correct Network and Mosoteach APP in detail to 40 students majoring in non-English majors and minored in English in the sophomore year, the author gave the composition number of Juku Correct Network and Mosoteach APP separately. And It also reminds students to submit the same composition in two different online platforms at the same time before the deadline. Within two week, 40 students submitted their final compositions one after another. However, four of them failed to submit their final compositions on Juku Correct
Network and Mosoteach APP for missing time. Therefore, the statistics and analysis of the final data also excluded the four compositions.

Compared to evaluation function of Juku Correct Network that is able to do in a timely manner marked “similar compositions” (suspected plagiarism), Mosoteach APP has not yet this function. In addition, the two online intelligent correction software on the content of the relevance of the discrimination is relatively weak, can not judge the “off-topic composition. In order to prevent the possibility of “deception” system among students, the researchers conducted an artificial “off-topic” judgment on the articles submitted by the subjects one by one. The results showed that the final 36 effective compositions did not deviate from the theme and were qualified experimental samples. The two systems of Juku Correction Network and Mosoteach APP record in detail the number of times each student submits a composition, the number of words, the final score, the use of vocabulary, sentence types, grammatical errors and spelling of words, etc. The author input these information into the computer, and use SPSS19.0 software to collate and analyze the relevant data.

3.5 Results and Discussion

According to the data, it is obviously convenient for students to use the Mosoteach APP with their smart-phone to write and rewrite, submit their composition timely, so there is no “unsubmitted” situation; While, students usually use their computers instead of their mobile phones to log on to pigai.com, so the number of submitter lacks 3 students. However, since October 2018, the Mosoteach APP has updated the online automatic correction function, which is in the experimental stage. At present, the scoring system is not perfect, and the scoring area is limited to 0-100 points, and the difference of the scoring is not distinctive, and the scoring is similar or the same. In contrast, Juku adopts a corpus-based approach to modeling, uses statistical and natural language processing techniques to extract the linguistic features of the essays, and scores the essays against the standard set of the manual scoring criteria( such as e-rater and Intell Metric).In other words, the “distance” between the sample composition and the corpus modeling composition is calculated to give a comprehensive score to the sample composition [8], so that the score is more scientific and the score has certain difference and contrast. Thus, the score is more scientific, and there are some differences and comparability in the score.

3.5.1 Different online automatic grading software to evaluate the differences in writing scores.

Because the evaluation scores set by the online automatic composition correction software of Mosoteach APP can only change between 0 and 100 points, while the scores of this automatic correction system are relatively fixed: 80, 85 and 90 points, and rise and decline of 5 points, while the score of Juku Correction Network” is also between 80 and 90 points, but the score difference is distinctive. The average score obtained by the online automatic composition scoring system of Mosoteach APP is 86.111136, while the average score given by the online automatic composition scoring system of Juku Correct Network is 78.9028. The standard deviation between the two systems is obviously different (table 1).

| Group | Scores from Juku Correction Network | Scores from Mosoteach APP |
|-------|------------------------------------|---------------------------|
| Mean  | 78.9028                            | 86.1111                   |
| N     | 36                                 | 36                        |
| Std. dev. | 5.10856                          | 5.49170                   |
| Std. error mean | .85143                          | .91528                    |

The t-test results of the paired samples of the scores judged by Juku Correct Network and Mosoteach APP are shown in table 2. The average composition score of 36 students showed a significant increase in the online composition grading system of Mosoteach APP (t = 5.562, P = 0.000). It indicates that there are differences in the evaluation standards of two different online automatic composition correction systems. In comparison, Mosoteach APP is not standard enough in the score setting, and the evaluation score is too single and too high.
Table 2 The t-test results of the paired samples of the scores judged by Juku Correct Network and Mosoteach APP

|                      | The difference number |      |         |       |      |        |      |        |
|----------------------|-----------------------|------|---------|-------|------|---------|------|---------|
|                      | Mean                  | standard deviation | Standard error mean | 95% Confidence Interval | T    | df     | Sig.  |
|                      |                       |                   |                     | lower bound | Upper bound |       |         |
| Group 1: Scores from Juku Correction Network - Scores from Mosoteach APP | -7.20833 | 7.77576 | 1.29596 | -9.83927 | -4.57739 | -5.562 | 35 | .000    |

3.5.2 The relationship between online scoring and English writing elements. Students’ English writing proficiency should not only be judged by the final score of the online automatic scoring system, but also be examined comprehensively in terms of the number of words used in their compositions, text structure, vocabulary use, grammatical errors and spelling of words. Table 3 is the descriptive statistics of the 36 samples of effective compositions in this study, from which it is not difficult to see that there are some differences in “syntax, grammar, vocabulary and spelling” and other errors compared with standard.

Table 3. T-test of paired samples

| error elements in Juku Correction Network | N | Mean | Std. deviation |
|------------------------------------------|---|------|----------------|
| Syntax errors in Juku Correction Network | 36 | .8056 | .20244 |
| Grammatical errors in JukuCorrection Network | 36 | 2.1389 | .36765 |
| Vocabulary errors in JukuCorrection Network | 36 | .9167 | .22316 |
| Spelling errors in JukuCorrection Network | 36 | .6389 | .17885 |
| Syntax error in Mosoteach APP | 36 | 1.1944 | .06690 |
| Grammatical errors in Mosoteach APP | 36 | 1.3889 | .28530 |
| Vocabulary errors in Mosoteach APP | 36 | .6667 | .14907 |
| Spelling errors in Blue Mosoteach APP effective N (listwise) | 36 | 1.1389 | .23955 |

The t-test of paired samples was performed on the different mean values of the error elements corrected in table 3, and the test results were shown in table 4. From the test results, it can be seen that in terms of the correction of syntactic errors, Juku Correcting Network raised more syntactic problems in the compositions of students than Mosoteach APP, so there is a significant difference between the two (t = -2.116, p = .042). However, there was no significant difference in the ability of correcting errors in vocabulary, grammar and spelling between Juku Correction Network and Mosoteach APP ( t = 0.867; 1.606, -1.655, p = .392; .117; .107).
Table 4 T-test ($\alpha = 0.05$)

| Group | Description                                                                 | Mean  | Std. deviation | Standard error mean | 95% Confidence Interval | T    | df | Sig. |
|-------|------------------------------------------------------------------------------|-------|----------------|---------------------|-------------------------|------|----|------|
|       |                                                                               | lower bound | upper bound     |                     |                         |      |    |      |
| Group 1 | Syntax errors between Juku Correction Network and Mosoteach APP | -.38889 | 1.10267 | .18378 | -.76198 | .01580 | -2.116 | 36 | .042 |
| Group 2 | Vocabulary errors between Juku Correction Network and Mosoteach APP | .25000 | 1.72999 | .28833 | -.33534 | .83534 | .867 | 36 | .392 |
| Group 3 | Grammatical errors between Juku Correction Network and Mosoteach APP | .75000 | 2.80179 | .46696 | -.19799 | 1.69799 | 1.606 | 36 | .117 |
| Group 4 | Spelling errors between Juku Correction Network and Mosoteach APP | -.50000 | 1.81265 | .30211 | -1.11331 | .11331 | -1.655 | 36 | .107 |

3.6 Analysis

3.6.1 Overall evaluation. In terms of overall evaluation, Mosoteach APP will be analyzed from four fixed levels, including text structure, vocabulary use, grammar and spelling. At each level, a general and single evaluation language is used to analyze the student’s composition as a whole. For example, “your article is ideal in the arrangement of the number of short sentences, but there are too many short sentences in some paragraphs”, “This article has shown a very high level of usage”, “The overall performance of your article in Grammar is excellent” and so on. Juku Correction Network is able to evaluate the standard composition collection by comparing the manual scoring, and the commonly used evaluation language ranges from high-score comments to zero-score comments. For example, one of high-score comment is set as “complete and rich in content, reasonable in structure, basically no language errors, only a few minor errors”, one of the medium-score comments is “Rich in content, well organized, but with a small number of language errors”, and one of falling-score likes “it’s a little less informative, and it’s a little more structured, and there are a lot of language errors.” The evaluation language system is divided into 11 different templates.

3.6.2 Correcting details. In the aspect of correcting details, Mosoteach APP pays more attention to the details of grammar, for example, it points out the grammatical mistakes in the sentence “so just eliminate stress, and only in this way, can we have a smooth life”, and suggest adding the to between “just” and “eliminate”. However, Juku Correction Network pays more attention to the writing of sentences and frequently points out the expression of “suspected Chinglish expression or sentences”, which often occurs in Chinese college students’ English writing, such as “my life pressure”, “countless stress”, and “the high developing speed”, etc. To some extent, it also reflects that “for a long time in English teaching in Chinese class, too much attention has been paid to the teaching of grammatical accuracy and too little attention has been paid to the complexity and diversity of syntax.”9 In addition, both Online Automatic Composition Correction systems have more Suggestions on the punctuation,
word spelling and synonym of the students’ writing.

4 Conclusion
With the rapid development of Internet technology, Chinese college English class should make full use of network technology and other modern teaching methods, develop and use digital teaching resources, and build a new teaching model suitable for students’ personalized learning and independent learning. Data analysis and Researches on 42 online automated English writing reviewed by Mosoteach APP and Juku Correction Network, make Chinese teachers and students more intuitive and convenient understanding of college English writing problems, and timely provide advice to modify according to the Online Automated Composition Correction. It can be seen that the use of a mixture of two different large-scale online automatic composition correction software, on the one hand, will optimize the classroom teaching model, stimulate the learning interest of students, and improve the writing efficiency of Chinese college students’ English writing; on the other hand, in the writing teaching, the automated correction system plays the role of auxiliary teaching\textsuperscript{[10]} and the teachers should rationally supervise the process of writing and make appropriate manual correction.

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