Reflections on Machine Scoring in Business English Writing under the Background of Big Data

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ABSTRACT

In the era of big data, information exchange is more convenient and faster, and its frequency increases rapidly. As a result, the demand for language services increases, and the importance of business English gradually highlights. With the rapid growth of business English learning, there is a great demand to cultivate talents in English writing and business. In the era of big data, corpus-based writing software has begun to subvert the traditional teaching model of writing. This paper will focus on the research and thinking of the automated scoring system, which is helpful to make more effective use of the automated scoring system to score students' English writing and improve their business English writing ability.

Keywords: *The era of big data, Business English writing, Machine scoring*

1. INTRODUCTION

Business English writing is an important course for college and university business English majors，which helps to improve students' comprehensive ability of using business knowledge and English language, and is also the prerequisite for students to complete their thesis and enter the workplace. How to guide students to master the professional format and expression of business English writing, and learn to avoid some misunderstandings in writing induced by cultural differences, are the focuses of business English writing course teaching [1]. Most students majoring in business English are full of enthusiasm for their major, but because of their weak English foundation, they are especially afraid of doing English writing and often choose to be passive in writing. At the same time, teachers have pressure to correct the composition. There is a long time lag between evolution and feedback. Given that, exploring the empirical research on the business English writing machine reading platform based on big data in colleges and universities shows that the scoring system based on AES could boost sense of self-efficiency for students to a certain extent, increase interest and autonomy in writing and improve the writing ability and level in the multidimensional analysis. Also, point was made about AES cannot replace teachers, it is only the "intelligent assistant" of teachers.

2. THE IMPORTANCE AND STATUS QUO OF BUSINESS ENGLISH WRITING

With the further deepening of economic globalization, the social market has put forward higher requirements for business English majors. The English Curriculum Standards for Higher Vocational Education (2021 Edition) issued in 2021 put forward that English courses for college of higher vocational education is the basis for developing students' core English literacy, enabling them to accurately express and communicate information through English writing, so as to put what they learn into practice [2]. Finally, it can realize the students written English in the future working status, achieving the role of promoting work efficiency. Hence, most higher vocational colleges in China have positioned business English writing as the core course. Due to the influence of traditional teaching thoughts and teaching methods, students cannot get rid of the Chinese thinking mode, and teachers one-sided emphasize on language knowledge, ignoring the cultivation of students' language ability, especially their discourse ability. This requires teachers to change the traditional teaching methods, starting with practical discourse explanation and cultivating students' logical thinking ability in English writing, so as to achieve standardized writing, complete structure, and consistent with the habit of expressing business English writing.

At present, there are three main characteristics of business English writing teaching in colleges and universities. First, most students have weak English language skills and cannot write large English compositions independently. And in college English education, many students are afraid of English writing, resulting in teachers need to spend a lot of class hours to help students consolidate and complement the foundation. Second, students' background knowledge of business English is seriously lacking. Most of them have a limited understanding of business knowledge, not to mention the background information of business English, which has caused significant obstacles to the

development of teaching activities. Third is about the practicability of the active learning materials and tasks in the course teaching. For business English majors, applied talents are the goal of talent training, so the teaching activities should combine English with business practice [3].

3. THE THEORETICAL FRAMEWORK OF BUSINESS ENGLISH WRITING TEACHING

In the business English writing, because the vocabularies and sentence patterns of business English are more difficult than general English knowledge, teachers should help students enhance their writing skills [4]. Students can dig deeper into writing problems through the process writing method, and at the same time improve their English thinking ability and writing ability. The writing process is as significant as the content, and the writing process determines the effectiveness of writing. Focusing on the writing process can help students acquire self-correcting writing habits and follow the rules of language acquisition. A good composition is produced in the steps of writing, which means that mistakes are endlessly being revised. Teachers guide the writing process and students work together to complete tasks; Process teaching method will play an significant role in the writing teaching in the future.

Automated Essay Scoring (AES) is a large-scale corp-based computerized system that refers to writing feedback generated through computer scoring, a scoring tool that generates scores based on artificial intelligence, normal language modules, language processing, and computer-technology-related semantic analysis. Automated correcting system based on "big data" and "artificial intelligence" technology has obvious writing advantages: it has simple operation process and easy to learn and operate; accesses to immediate feedback and sentence comments; provides a platform for students' self-training; it is convenient for teachers' teaching and research [5].

Despite AES has advantages, the disadvantages of AES are a real dilemma for AES technology. The accuracy and fluency of AES seems to be typical features of the system; In contrast, the AES does not evaluate whether the structure and content of the essay are relevant to the topic, because it cannot have the same mode of thinking as humans. The AES system can be closely related to the length of the article rather than providing effective rhetorical control over the content; AES algorithms need to focus more on important language markers than existing ones to ensure that AES is suitable for analyzing scores to make scores for syntactic features and usage more reliable [6]. Teachers play a key role in the integration of AES in class. The teaching environment should be considered when evaluating the properties of AES or considering the influence of AES system on students' writing. To ensure the effectiveness of AES, teachers should consider teaching methods, and the use of AES should be combined with teachers' writing guidance. AES scores appear lower than teacher scores, and detailed scores by AES and teacher scores show significant differences. These findings suggest that teacher scores are higher than AES scores [7].

4. RESEARCH DESIGN OF AUTO-CHECKING OF BUSINESS ENGLISH WRITING

4.1. Questions to be Studied

Is there any difference between composition errors in the scoring of AES system and those in the grading of business English writing teachers? If so, what are the detail differences between these mistakes? What are the perspectives and attitudes of business English students who utilize AES versus those who use standard teacher scoring?

4.2. The Selected Research Object

This study selected 100 first-year business English majors in our school, all of whom have 10 years of English learning experience. The average age of the participants was about 19 years and their English level was intermediate English learners [7]. According to the results of the placement test, the teacher divided the subjects into two groups, 50 in the experimental group and 50 in the control group. The experimental group chose AES for computer-assisted scoring, while the control group chose traditional essay writing and scoring by a teacher. The two groups of business English writing were taught by the same teacher, and the teaching content and design of the teaching process were also the same.

4.3. Experimental Process

After the completion of the teaching task, the writing test of business English was required. In order to ensure the objective and fair results of the experiment, the selection of writing materials were made by the teachers of the teaching and research group. After the writing test, all subjects were asked to fill out a questionnaire.

The experimental group used AES system for digital writing. Participants not be able to use AES revision tools during the writing process and submitted the writing immediately after completion. Teachers logged on to AES to export raw data for composition error analysis. The control group took the traditional paper-and-pencil writing test, in which the teacher scored the compositions and classified and analyzed the errors and

scores. After completing the writing test, participants answered a questionnaire. The independent variable was composition error in AES system scoring and composition error in business English writing teacher scoring, and the dependent variable was the difference between these two scoring methods [8]. After the research test, teachers collected 100 business English writing papers to correct errors and analyze them, 50 papers scored by AES analysis function, and 50 essays scored by teachers. At the same time, the questionnaire survey was conducted using Questionnaire Star. To summarize the thoughts and opinions of the experimental and control groups on AES and traditional writing, a frequency analysis was performed using SPSS.

4.4. Analysis of Experimental Results

According to the comparison results of scoring data (Table 1), AES is higher than teacher scoring, and there is a correlation between the two methods. Based on the questionnaire, the advantages of AES can be expected to be quick scoring, with grades and errors that need to be corrected presented within seconds. Students can correct their writing in a timely manner based on such advantages, and strengthen their writing ability during the correction process [8]. For teacher scoring, students' composition could be corrected in the real environment, but the time of correction is undoubtedly impossible to do in a few seconds, which was called the most difficult thing of teacher marking [9].

Table 1. The results comparison of AES and teacher scoring

grouping typical	number of people	mean value	standard deviation	t	P
experimental group	50	81.33	4.523		
control group	50	78.79	6.88	11.333	0.003

From the analysis results of the questionnaire, it can be seen that the experimental group has a positive attitude towards AES. AES can complete the score of the composition in a few seconds, 90% of the subjects said that AES strengthens the personal positive intention of business English writing, 85% of the subjects more like the correction function of AES, because they can correct writing for many times to achieve higher scores. The control group had a active approach towards the teacher grading. Teacher ratings may stimulate 83% of participants' interest in business English writing. 80% of the participants likely have a good grasp of the writing format. Therefore, it is appropriate to combine AES with teacher scoring, which can be clearly shown in the data in the figure below (Table 2).

Table 2. Comparison of automated scoring system, teacher's manual scoring and man-machine combination scoring

scoring methods	composition length	speed of scoring	tools of scoring	error correction range
automated machine scoring	about 120 words	about 5 seconds	computer	not comprehensive
teacher's manual scoring	about 120 words	about 8 minutes	paper, pen computer, dictionary	comprehensive
man-machine combination scoring	about 120 words	about 4 minutes	computer	comprehensive

5. CONCLUSION

AES cannot replace teachers, it is their "intelligent assistant". Based on previous research reviews, it can be anticipated that AES errors may be markedly different from teacher scoring errors. In the business English writing course, when using AES for paper revision, teachers need to combine their own feedback to adjust the machine feedback. The advantages of AES are beyond doubt, but due to the specificity of the course, teachers need to carry out some error corrections and guidance on machine evaluation. AES is a "cold" human-computer interaction process. When AES is finished, errors are only displayed on the computer screen in letters and students are asked to correct them without communication [10]. Teacher scoring refers to face-to-face and engaging in emotional communication between teachers and students in class. Encouraging words from teachers' feedback can help students enhance the effectiveness of business English writing. In the further research, this study will continue to observe the writing class, and the writing that integrates students' writing attitude is also an important part of business English writing teaching.

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