Second Language Writing Performance Based on Feedback of the AWE System

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ABSTRACT
This paper makes an analysis of second language learners' use of an automated writing evaluation system, such as frequency of human-computer interaction, rate of error correction and students' attitudes towards the system, etc. and the impact of online feedback on English writing performance of Spanish majors who study English as their second language. The result of the study shows that the majority of students agree they can benefit from the system and it can improve their writing quality to some degree. Meanwhile, there also exist challenges for teachers to make good use of the AWE system. A model of multiple feedbacks is suggested in the paper aiming to better promote writing efficiency.

Keywords: *AWE, feedback, Writing performance, Learners' attitudes.*

1. INTRODUCTION

Writing is one vital part of language output, which reflects learners' overall language competence. It has been one focus of language researchers regarding to how to enhance learners' writing competence for a long time, in which writing feedback plays an indispensable role in EFL writing instruction. In traditional foreign language writing class, feedback is mainly from instructors. With the development of natural language processing and artificial intelligence, automated writing evaluation (AWE), as a formative assessment system, has gradually gained popularity and become a crucial aid to teaching writing.

Thanks to this system, students can get involved in the writing process due to its promptness and convenience. It also embodies the student-centered conception. By means of computer-aided technology, AWE provides automatic test and analysis of the content and language usage in students' writing and offers suggestions for improvement. It can give scores instantly when students upload their compositions and help them to improve their writing. It benefits both students and teachers for the following reasons. On the one hand, students can revise their drafts several times according to the suggestions made by the system so as to promote writing quality. On the other hand, it enables teachers to release pressure of evaluating a large number of drafts and enhances their working efficiency. In short, the automated writing evaluation system provides strong technological support for teaching and learning writing skills. What is the effect of the automated writing evaluation system in second language writing classrooms? What are users' attitudes towards this system? These are what this paper attempts to explore.

2. LITERATURE REVIEW

At present relatively mature automated writing evaluation systems include Pigai Network, iWrite, Bingguo, Writing Road Map and E-rater (Wang Jian, Zhang Tengyao, 2021). Studies at home are mainly concerned with the efficiency of automated writing evaluation systems, the influence of AWE on writing quality or writing level, the study of writing processes and study of users' attitudes. Previous studies show that automated writing evaluation systems have edge over other forms of feedback in that these systems can automatically provide personalized feedback for students and correct mistakes of language use. In the meantime, it can help to stimulate students' learning motives and promote their self-efficacy (Lu Lu, 2016). Yang Xiaoqiong and Dai Yuncai (2015) built an automated writing teaching model based on Pigai

Network and noted that this model was helpful to promote students' self-efficiency and decrease their writing anxiety. Zhao Xia et al. (2018) pointed out that the application of AWE enhanced students' writing ability, including vocabulary, grammar and the format of compositions. They also found that both AWE and traditional writing correction played a positive role in improving students' writing competence. And students who used Pigai Network achieved higher scores than students who were corrected by teachers.

Few studies at home focused on foreign language learners who took up English as their second language. Hence, taking sophomores of Spanish majors as research subjects, this research will study the impact of the automated writing evaluation system on writing performance and students' attitudes towards the system.

3. THE WRITING EXPERIMENT VIA THE AUTOMATED WRITING ASSESSMENT SYSTEM

In this study, a writing experiment was carried out among Spanish majors to investigate the effect of feedback via the automated writing assessment system. Data collected will be analyzed in this part.

3.1 The Process of the Writing Experiment

In 2024, a teaching experiment lasting one semester was carried out among Spanish majors with a class of 24 students with the purpose of testing the use of AWE. Four online writing tasks have been assigned to them during that semester. The students are required to write two types of writing, including narratives and argumentations, the topics of which is in accordance with the writing part of College English Test Band 4 and are closely related to college students' lives. Each time after finishing one writing task, students are required to upload their first drafts to the automated writing evaluation system (Pigai Network) directly, and they revise their drafts according to the suggestions of the system several times before the deadline. By online writing evaluation, the system analyzes the frequency of errors in terms of punctuation, syntax, spelling, part of speech and collocations, etc. and provides specific revising suggestions from the perspective of spelling and usage of words, etc. From the first task to the fourth task, the average score of each task of the whole class has improved gradually, from 82.3 to 84.1. It is worth mentioning that in this class there are 2 students who revised their compositions up to 122 and 109 times, which reflects their serious attitudes toward using the system and eagerness to achieve a high score.

3.2 Data Collection and Analysis

The following "Table 1" shows the result of four online writing assignments.

Table 1. Results of feedback

Writing Task	Average Frequency of Modification	Frequency of Human-computer Interaction	Rate of Error Correction
Task 1	19	468	27.7%
Task 2	5	140	49.5%
Task 3	4	120	39.7%
Task 4	2	57	13.3%

"Table 1" shows the average frequency of modification, frequency of human-computer interaction and error correction rate.

For the first writing task, the average frequency of modification is 19 times. Students have used this system for the first time, so they are curious to complete the task online and looking forward to a high score, and the frequency of modification is the highest among the four tasks. And it can be inferred that the reason why average frequency of modification of task 4 is the lowest. It is possibly due to the fact that students are accustomed to the use of this system and are not as curious about the system as the first time they use it. Additionally, the task is assigned at the end of the semester. Students need to prepare for final exams and do not invest much energy on modifying the errors. And another reason is due to the effectiveness of the modification. Students feel they are unable to greatly enhance the scores after several times of trial so they do not polish their compositions as frequently as the first three assignments. Their interests in using the system have decreased, which

is in accordance with the result of the research conducted by Zhao Xia et al., Ma Weihua, and Zhen Qiang (2016).

With regard to the frequency of human-computer interaction, it is the same case as the frequency of modification. In the first task, the interaction is 468 times, which is the highest among the four tasks. And the human-computer interaction of the last task is the lowest, 57 times. Task 2 and Task 3 are 140 and 120 times respectively, which shows students' attempts to get a satisfactory score by modification.

Rate of error correction reflects the number of errors which have been corrected. The higher the rate is, the better the composition becomes. The second task is the highest, 49.5%, which shows nearly half of errors have been corrected after the system provides suggestions for students.

In this table, all the indexes of the last task are the lowest among four tasks, which reflect students' attitudes towards the usage of AWE to some degree.

3.3 Discussion

At the end of the semester, questionnaires concerning the use of the automated writing evaluation system were distributed to the class in order to investigate their attitudes towards the system. The result shows that it is convenient to use automated writing evaluation system, including Pigai Network, which can effectively improve writing quality. 60% students believe they can benefit from the system regarding structure and cohesion, spelling and punctuation. 45% students hold that the system can help them in the content, wording and phrasing, as well as grammar. As an aiding correcting system, the automated writing evaluation system helps students to polish their first drafts, and improve expressions and sentences. Students can also correct some grammatical errors by themselves according to the hints given by the system. The result is similar to Zhao Xia et al.'s research. Detailed reports given by Pigai Network enable students to reduce frequency of errors and play an active role in enhancing writing accuracy.

After the teaching experiment, we chose some students to take interviews. The majority of students who took the interview spoke highly of the automated writing evaluation system. They think the system enables students to enhance their interest in finishing English assignments and lessen the pressure. Students can make full use of fragmented time to write anytime at any place. The automated writing evaluation system helps to recognize language errors in students' compositions and give suggestions on how to correct them so as to help students locate errors and improve their writing.

In addition, students also point out the limitation of the automated writing automation system. Although the system can provide some basic grammatical and spelling suggestions, it may not be able to recognize all linguistic errors, especially some complicated grammatical structure or syntactic problems. Pigai Network generally corrects compositions only based on preset rules and models so it is unable to understand the context of a composition or special expressions, which may lead to inaccurate results. Some of the interviewees mention that people should not depend too much on the system. Teachers need to give scores according to students' overall writing performance to reduce the disadvantages of online systems.

To sum up, the overall attitude towards the use of AWE is positive, and it should be noticed that online systems should not be applied as the only method of writing evaluation. If AWE is combined with other feedbacks, the disadvantage of sole feedback will be decreased, and the combination of multiple feedbacks will have positive impact on the improvement of writing quality.

3.4 Reflection on the Role of Teachers and Students

In traditional writing classrooms, teacher feedback is the main source of feedback. Highly effective and accurate feedback is a critical part of teaching, which determines teaching efficiency and students writing performance. After the application of the automated writing evaluation system, teachers have an alternative option.

From the perspectives of teachers, the easy access to AWE relieves them from heavy workload of correcting compositions. The system is both quickly responded and highly efficient. Teachers can draw the data of compositions via computers or mobile phones anywhere anytime. It is convenient for them to collect more general errors of digital compositions than those written on paper so as to help students to improve their compositions promptly.

Under such circumstances, teachers' overall quality faces new requirements. To obtain a good outcome of feedback, teachers need to be equipped with certain qualities. Carless and Winstone (2023) believed teacher feedback quality involved aspects

of cognition, attitude and competence. Firstly, teachers should have a basic understanding of the principle and practice of teacher feedback. The cognition of how feedback works will help them better design classroom activities and check students' response and learning effect of feedback. Secondly, when students are resistant or reluctant to deal with feedback, teachers need to hold a positive attitude towards challenging situations and try to encourage them to persist and utilize feedback as much as possible. Thirdly, teachers should master relevant feedback skills relating to specific majors that feedback activities can be designed and carried out. Hence, it is necessary to conduct relevant training of feedback among teachers.

Additionally, it is also indispensable for students to actively respond to the feedback of the automated writing assessment system, along with other types of feedback. According to Zhang Ya, Jiang Zhanhao and Han's study, what helps learners to improve their writing quality is not only writing feedback, but how much efforts that learners have taken to respond to that feedback, that is, the degree to which learners get involved in the feedback, including how to deal with and utilize that feedback. Only when learners really pay attention to feedback, they can benefit from it. Outside environmental factors such as types of feedback, scores given by automated writing evaluation systems and teachers' standpoints jointly affect engagement with feedback. Therefore, making a survey of which type of feedback is best suitable to different student will be a better way to help them make full use of their favorable types of feedback. It is suggested that a multiple feedback model that is composed of multiple types of feedback can be constructed instead of sole automated writing assessment.

4. CONCLUSION

The experiment of this study reveals that although the AWE system has some apparent advantages, it can not totally replace teachers' feedback, especially at the end of the experiment in this study. Previous studies have shown that teacher feedback, peer assessment and human-computer feedback can be applied jointly. Specifically, how should the model be carried out? What is the role of the automated writing assessment in this model? More data need to be collected in the future. Anyway, with the development of artificial intelligence and digital intelligence, automated writing evaluation systems are proved to enhance students' writing quality to some degree. It is necessary to conduct further research on how to make full use of automated writing evaluation systems to promote the correcting efficiency and writing quality.

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