Effect of Pigai.org on English Majors’ Writing Self-efficacy and Writing Performance

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Abstract. With the deepening of college English teaching reform, modern educational technology and network teaching platform are gradually applied to college English teaching. As to the English writing, using the automatic scoring system to automatically evaluate the students’ composition has become a new trend. Pigai.org, as one of the many automatic scoring systems in China, has received great attention at home and abroad due to its advantages of timely feedback, high working efficiency and wide application. The thesis conducted a three-month English writing experiment to study the effect of Pigai.org. This experiment used 39 sophomores of English major as the research subject and adopted English writing self-efficacy questionnaires, English writing tests and interview as the research methods to further discusses the influence of Pigai.org on writing self-efficacy and writing achievement of the subjects, so as to effectively play the role of the Pigai.org in the teaching of English writing. The results of this research were as follows: firstly, the English writing self-efficacy and the English writing achievement of the subjects were improved after using Pigai.org by and large. Secondly, using Pigai.org had different influence on the self-efficacy and the writing achievement of students in different levels. The experimental results showed that the effect of Pigai.org on low-level students was more significant than that of high-level students.

Keywords: Pigai.org, English Majors, Self-efficacy, Writing Performance

1. Introduction
Correction of composition plays a vital role in the teaching of English writing, while writing correction is an onerous task for teachers, so automatic scoring systems are called for at the right moment. With the development of Computer Assisted Language Learning in China, the modern educational technology and network teaching platform are increasingly being applied to college English teaching, in which the automatic scoring system is widely used in the teaching and learning of English writing. One of the representative systems is Pigai.org, which is designed to ease teachers’ heavy burden, make the effective feedback and improve students’ writing performance. Nowadays, more and more scholars pay attention to Pigai.org and study the effect of applying it in English Writing teaching. Pigai.org has several outstanding advantages. Firstly, it can provide accurate results
based on corpus and cloud computing technology. Secondly, the scores, comments and sentence reviews of composition can be given in a timely manner. Thirdly, it is currently the largest English writing platform in China, and more than 5,000 schools are using the system. Therefore, compared with other automatic scoring systems, the research on Pigai.org is more concerned with the scholars’ attention. At present, the research mainly focuses on two aspects: one is the inquiry of the application process and result in teaching classroom; the second is the research on the influence of writing ability. In traditional English writing teaching, teachers tend to focus more on the results of English writing, but the affective factors of students in the writing process have neglected. As an affective factor, self-efficacy is a very important mediator in the study of students’ English writing. It is a predictor of student’s achievement and it affects the degree of persistence, effort, and emotional state of students’ behavior. Therefore, it will be of great use to explore the impact of the use of Pigai.org on the self-efficacy of students’ English writing.

Based on the previous researches, this paper continues to pay attention to the English writing self-efficacy. However, the difference lies in the application of the Pigai.org to writing teaching and explores the impact of Pigai.org on writing self-efficacy and writing performance of English majors at different levels.

2. Literature Review
The automatic scoring system has been developed abroad in the 1960s. At present, a variety of automatic scoring systems, such as PEG (Project Essay Grade), IEA (Intelligent Essay Assessor), E-rater (Electronic Essay Rator), IntelliMetric, and Jess, have been developed successfully in foreign countries. Once applied, these systems have attracted extensive attention from scholars abroad. Reilly (2014) [1] has studied the effectiveness and adaptability of the automatic scoring system to evaluate writing in the paper Evaluating the Validity and Applicability of Automated Essay Scoring in Two Massive Open Online Courses. He found that the writing assessment of the automatic scoring system is effective, but it needs to be improved so that the results of the assessment will be more accurate. In the paper Does Automated Feedback Improve Writing Quality? Wilson (2014) [2] conducted a semester experiment on students from grade four to grade eight in 28 schools. His research found that automatic feedback can actively assist teachers to overcome difficulties in evaluating, diagnosing and answering students’ writing texts. Attali (2004) [3], in the paper Exploring the Feedback and Revision Features of Criterion, took the position that Automatic Scoring System (ASS) can not only reduce the workload of the teacher, but also give students’ feedback instantly and effectively.

With the gradual application of modern information technology in college English classroom, the automatic scoring system is more and more common in the teaching of college English writing, and many Chinese scholars have studied the automatic scoring system. Bi (2017) [4], in the paper A Study on the Effect of Automatic Scoring System on College Students’ English Writing Self-efficacy and Writing Performance, pointed out that the automatic scoring system plays an important role in the teaching of college English writing and has a positive impact on the students’ writing self-efficacy and writing achievement. In the paper The Effects of Yiku Automated Writing Evaluation System on English Writing Ability of Students at Different Language Proficiency, Huang & Zhang (2015) [5] discussed the influence of Pigai.org on the writing ability of students with different language proficiency from the aspects of accuracy, fluency, complexity, and general quality of writing. Chen (2015) [6], in the paper A Study of College English Writing Self-efficacy Based on Pigai.org, indicated that the Pigai-based teaching mode can be more effective and helpful to improve students’ writing task and writing skill self-efficacy in contrast to processed approach to English writing teaching mode; it is also productive to help students overcome their psychological barrier, boost their writing self-confidence and avoid intimidation behaviors. Liu (2014) [7], in the paper A Study on the Application of the Pigai.org to College Students in English Writing Teaching, conducted a questionnaire and an interview to freshmen. The result showed that the feedback from Pigai.org had a positive impact on the students’ writing ability.

From the above, it is suggested that more and more scholars pay attention to students’ English
writing self-efficacy and writing achievement under the network environment such as Pigai.org. Some scholars have studied the influence of Pigai.org on the writing ability of students in different levels. Some scholars have studied the influence of Pigai.org on the self-efficacy of students’ English writing. On the basis of the previous research, this paper not only further explores the effect of Pigai.org on students’ English writing self-efficacy and writing performance, but also studies the effect of the use of Pigai.org on English writing self-efficacy and performance of students at different language proficiency.

3. Methods of the Research

3.1 Research Questions

(1) Has the self-efficacy of the students’ English writing improved after the use of Pigai.org? (2) Has the achievement of the students’ English writing improved after the use of Pigai.org? (3) Is there the same effect on self-efficacy and English writing achievement in different levels of students’ English writing after the use of Pigai.org?

3.2 Research Subject

The subject of the study was sophomores in the school of the foreign language of Anhui Xinhua University with a total of 39 students. In order to exclude irrelevant factors that affect the writing self-efficacy and writing achievement of the subjects, the subjects were not informed to carry out experiments in the process of research, so as to ensure that experiments were carried out under natural conditions.

3.3 Research Instruments

3.3.1 Writing Tests. The study conducted a writing test every two weeks and a total of six tests were conducted in three months. The titles of the writing tests were derived from the compositions of CET-6, which conforms to the English level of the students at this stage; what’s more, it is a large and authoritative examination in China. Therefore, the use of the composition of CET-6 can guarantee the objectivity and fairness of the test.

In the six tests of this experiment, the first writing test and the last writing task were regarded as the pre-test writing test and post-test writing test. According to students’ performance of the pre-test, they were divided into three groups with high-level, middle-level and low-level. After the experiment, the pre-test and post-test achievements of these three groups were compared, the influence of the use of Pigai.org on English writing performance of different level students was analyzed, and the results were concluded.

| Week       | Writing Topics                                      |
|------------|----------------------------------------------------|
| The first week | I have no special talents. I am only passionately curious. |
| The second week | If you cannot do great things, do small things in a great way. |
| The third week  | Knowledge is a treasure, but practice is the key to it. |
| The fourth week | The greatest use of life is to spend it for something that will outlast it. |
| The fifth week  | Good habits result from refusing temptation. |
| The sixth week  | Innovation is the soul of a nation’s progress. |

3.3.2 Questionnaire of Writing Self-efficacy. The College English Writing Self-efficacy Scale of this study compiled by Li Hang [8]. The scale is suitable for Chinese students with high credibility, which draws on the achievements of many studies at home and abroad. These achievements mainly include: the writing skill sense scale compiled by Pajares[9], the writing self-efficacy scale designed by Shell, and the writing self-efficacy scale prepared by Jones[10] for American college students. At the same time, the questionnaire also refers to the self-efficacy questionnaire of College Students’ foreign
language writing revised by Tang Fang and Xu Jinfen.

3.3.3 Interview. The study also has adopted the interview as a supplement to questionnaires and writing tests, with the aim of investigating the feelings and opinions of students at different levels after using Pigai.org in three months’ experiment. The author interviewed 8 students randomly. They came from the high-level group, the middle-level group, as well as the low-level group respectively.

The main questions of the interview include: (1) What is the difference between writing of using traditional method and writing of using Pigai.org? (2) Do you think writing on Pigai.org is helpful to your English writing? What are the specific aspects? (3) Will you continue to use Pigai.org to write in the following study? (4) Do you support writing and correct through Pigai.org in English teaching? Why?

4. Results and Discussion

4.1 Results and Discussion of Pre-test and Post-test

| Group            | Time     | N  | Mean | Difference | Std. Deviation | Difference |
|------------------|----------|----|------|------------|----------------|------------|
| The high-level   | pre-test | 2  | 90   | 0.5        | 2.001          | 0.029      |
| group            | post-test|    | 90.5 | 1.972      |                |            |
| The middle-level | pre-test | 27 | 79.8 | 2.5        | 1.68           | 0.19       |
| group            | post-test|    | 82.3 | 1.49       |                |            |
| The low-level    | pre-test | 10 | 68.2 | 5.4        | 1.348          | 0.228      |
| group            | post-test|    | 73.6 | 1.12       |                |            |

(Note: the full mark of the writing test is 100. The score of the high-level group is higher than 90, the score of the middle-level group is between 70 and 90, and the score of the low-level group is less than 70. The letter “N” is the abbreviation of “number”, and “Mean” refers to “the average score”, and “Std. Deviation” refers to “the standard deviation”.)

According to the data of table 3, it can be seen that there are 2 people in the high-level group. The average score is 90 in pre-test, and is 90.5 in post-test. The difference between the two tests is 0.5. The standard deviation is 2.001 in pre-test, and is 1.972 in post-test. The difference of the score is 0.029. Therefore, after three months of writing experiment, the students’ achievements have been slightly improved.

There are 27 people in the middle-level group. The average score is 79.8 in pre-test, and is 82.3 in post-test. The difference between the scores is 2.5. The standard deviation is 1.68 in pre-test, and is 1.49 in post-test. The difference is 0.19. Consequently, the students’ achievements have been improved.

Besides, there are 10 people in the low-level group. The average score is 68.2 in pre-test, and is 73.6 in post-test. The difference of the scores is 5.4. The standard deviation is 1.348 in pre-test, and is 1.12 in post-test. The difference is 0.228. Hence, the students’ achievements have been greatly improved.

To sum up, the use of Pigai.org has a positive impact on students’ writing performance, especially for students with low writing proficiency.

Table 3 Comparisons of Students’ Writing Performance Distribution in the Pre-test and Post-test

| Group     | The high-level group | The middle-level group | The low-level group |
|-----------|----------------------|------------------------|--------------------|
| Pre-test  | 2                    | 27                     | 10                 |
| post-test | 3                    | 31                     | 5                  |

In accordance with the table 4, the number of students in the high-level group was 2 in pre-test, and 3 in post-test. The number of students in the middle-level group increased from 27 to 31, and the number in the low-level group decreased from 10 to 5. These changes show that after three months’
writing experiments on Pigai.org, the students’ writing performance has been improved.

4.2 Results and Discussion of Students’ English Writing Self-efficacy Questionnaires

Table 4 Comparisons of Students’ English Writing Self-efficacy in the Pre-questionnaire and Post-questionnaire

| Group           | Time             | N   | Mean | Difference | Std.Deviation | Difference |
|-----------------|------------------|-----|------|------------|---------------|------------|
| The high-level group | pre-questionnaire | 10  | 81   | 1.3        | 1.746         | 0.114      |
|                 | post-questionnaire |     | 82.3 |            | 1.632         |            |
| The middle-level group | pre-questionnaire | 27  | 73   | 3          | 2.012         | 0.052      |
|                 | post-questionnaire |     | 76   |            | 1.96          |            |
| The low-level group | pre-questionnaire | 2   | 59   | 6          | 1.851         | 0.131      |
|                 | post-questionnaire |     | 65   |            | 1.72          |            |

According to the data from the above table, in pre-questionnaire, the average scores of self-efficacy in the three groups of students were 81, 73 and 59 in order. The standard deviation is 1.746, 2.012, and 1.851 respectively. After three months of writing experiment, the average scores of three groups in post-questionnaire were 82.3, 76 and 65. The standard deviation is 1.632, 1.96, and 1.72. In a word, the English writing self-efficacy of these three groups of students has been improved, among which the most remarkable group is the low-level group because the differences of the mean and the standard deviation between the pre-questionnaire and the post-questionnaire are 6 and 0.131 respectively. While in high-level group, the differences are just 1.3 and 0.114; in middle-level group, the differences are just 3 and 0.052.

4.3 Results and Discussion of Interview

To sum up, the majority of students claim that Pigai.org has a positive impact on their English learning. Using Pigai.org for a long time is helpful to improve their English writing ability. But the minority assert that some problems still exist in Pigai.org, so it is not very helpful for their English writing. Therefore, in the teaching of English writing, we should give full play to the advantages of teachers and Pigai.org so as to help students improve their English writing.

5. Conclusion

Through three months’ writing experiment, data collection, analysis and summarization, this paper draws the following conclusions:

Firstly, the use of Pigai.org has a positive impact on students’ English writing performance. By comparing data and interviewing students, it is found that Pigai.org can point out the shortcomings of students’ compositions timely in the process of using it, and students can acquire more knowledge, so as to improve their writing performance.

Secondly, the use of Pigai.org is beneficial to improve students’ sense of self-efficacy in English writing. Compared to the traditional English writing model, students are more willing to write on the Internet. Using Pigai.org can not only greatly improves their enthusiasm for writing, but also makes them more confident to write some better compositions.

Thirdly, the use of Pigai.org has different effects on students of different levels. From the experimental data and interview results, the high-level students’ writing performance and writing self-efficacy were not significantly improved. However, the middle-level and the low-level students improved significantly, especially those with low level.
Fourthly, teachers still play important roles in the use of Pigai.org for evaluation. At the same time, teachers should give feedback to the students in the process of writing on Pigai.org. This is more conducive to motivating students to write excellent compositions and improve their writing levels.

Last but not least, there are still many restrictions in this paper, such as few samples, short time of writing experiment, interference of other factors, and so on. Therefore, the effect of Pigai.org on English Majors’ writing performance and self-efficacy needs further exploration. In the future study, the researcher will do her best to continue the study to make it better and better.

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