

AWE-based corrective feedback on developing EFL learners' writing skill

Zhihong Lu¹, Xiaowei Li², and Zhenxiao Li³

Abstract. The effective design and use of Automated Writing Evaluation (AWE) tools in developing English as a Foreign Language (EFL) learners' writing skill and learner autonomy have remained great challenges for system designers, developers, and EFL instructors compared with that of the pencil-paper writing in the context of regular teacher-fronted classroom in Chinese higher educational institutions. The function of Corrective Feedback (CF) provided by the *Pigai* system, i.e. a web-based AWE tool in China (<http://www.pigai.org/>), can be reflected on the students' writing scripts. To measure if AWE-based CF is beneficial to EFL learners in improving their writing skill as well as learner autonomy, a study was carried out based on the *Pigai* system in a web-based college English course which focuses on developing learners' output abilities. The correlated data and feedback showed that the application of AWE-based CF, i.e. 10-minute online writing performance, did have a marked impact on EFL learners' writing skill and learner autonomy. In this paper, the effects of using the AWE system and its CF on students' efficacy in English writing as well as its pedagogical effectiveness will be discussed. Learners' perceptions toward AWE-based CF and the effective use of AWE tools in EFL contexts will also be covered.

Keywords: automated writing evaluation, AWE, corrective feedback, learner autonomy, *Pigai* system.

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1. Introduction

CF, as defined in [Wikipedia \(n.d.\)](#), is frequently practiced in the field of education as well as learning; “[i]t typically involves a student receiving either formal or informal feedback on his or her performance on various tasks by a teacher or peer(s)” (para. 1). [Lightbown and Spada \(1999\)](#) stated that CF is any indication to the learners that their use of the target language is incorrect. Though the CF in pencil-paper writing class used to have significant effects on improving learners’ writing skills, there still exists potential problems that should not be ignored.

[Nystrom \(1983\)](#) discussed teachers’ role when giving CF in pencil-paper style and he concluded that “teachers typically are unable to sort through the feedback options available to them and arrive at the most appropriate response” (p. 170). [Van Lier \(1988\)](#) considered that teachers had too much control of students’ self-initiated repairs which in turn hampered learners’ self-correction ability. [Chaudron \(1988\)](#) and his colleagues found that in traditional classes CFs were, to some extent, biased.

With the rapid development in the fields of information technologies and natural language processing in last few decades, more powerful AWE tools have been developed, making it possible to release instructors’ working load while inspiring learners’ sense of writing and promoting their awareness of self-correction in writing. This study aims to investigate the effects of the CF function of the *Pigai* system on students’ writing scripts, a 10-minute online writing as an embedded task in an integrated college English course and its impact on the learners’ writing skill and learner autonomy.

2. Method

2.1. Research questions

The research is driven by the following questions:

- Is AWE-based CF helpful to improve EFL learners’ writing skills?
- Is there a significant difference between male and female learners in developing their writing skills by using the AWE tool?
- How do EFL learners perceive AWE-based CF in the process of writing?

2.2. Research design

This study was carried out at one of the first author's college English classes, in which there were 25 non-English majors in a digital lab from September, 2014 to January, 2015. All the students had passed CET-4⁴ before taking the course, and 23 students had accomplished all of the ten writing tasks throughout the semester.

Each time in class, students were assigned to a task of four-round productive activities on a controlled topic:

- Round one: 10-minute 3-person group discussion.
- Round two: 5-minute pair-work.
- Round three: 10-minute online writing.
- Round four: 1-minute recorded personal statement.

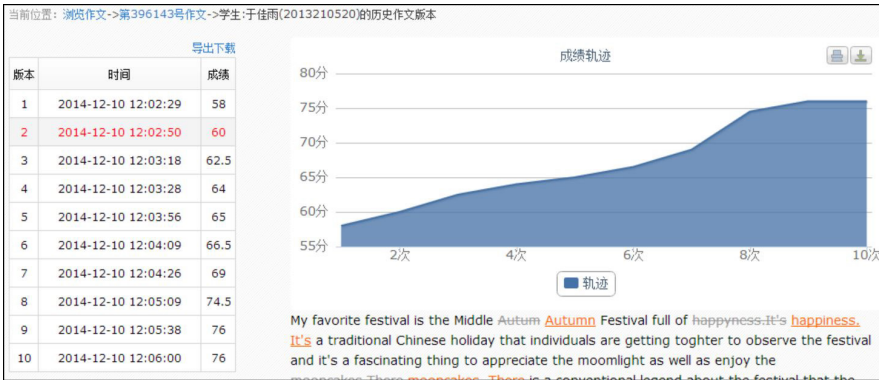
In round three, students were required to write a passage about 200 words to the same topic on the *Pigai* system within ten minutes. After submission, students could receive their scores immediately with detailed real-time CF and comments. Therefore, students could revise their texts as many times as they wanted within a time period (set by the teacher) and their performance of each time revision could be tracked (see [Figure 1](#) and [Figure 2](#)).

Figure 1. A screenshot of the online writing assignments on the *Pigai* system

作文号	作文标题	答题人数	类型	创建时间	截止时间	操作
378140	What are your attitudes toward online shopping?	25	作文	2014-11-05	2014-11-05	修改 更多
374024	What are your attitudes toward fast food?	25	作文	2014-10-29	2014-10-29	修改 更多
369989	Do you think e-books will eventually replace printed books?	25	作文	2014-10-21	2014-10-22	修改 更多
366752	The Factors I Consider When I Look for a Job	25	作文	2014-10-14	2014-10-15	修改 更多

4. CET is the abbreviated form of "College English Test". The national College English Test Band Four (CET-4) in China aims to evaluate non-English majors' comprehensive language proficiency. Apart from CET-4, there is also CET-6, which is widely used to evaluate above-average college students' English language proficiency.

Figure 2. A screenshot of the tracking record of a student's writing



2.3. Instruments

One follow-up questionnaire and a scale of students' perception toward AWE CF (at 5-point Likert) were designed and delivered to the class at the end of the term. A complete set of 10-minute writing tasks including ten writing tasks were required to be completed on the *Pigai* system in class.

2.4. Data collection

All the students' writing scripts were automatically scored and collected through the *Pigai* system.

2.5. Data analysis

Data was processed by using SPSS 22.0.

- Paired sample *t*-tests were used to find out if there were significant differences between the students' improvement in writing and their revision times.
- Paired sample *t*-tests were used to find out if there were significant differences between male and female students in the improvement of their writing and their revision times.
- Descriptive statistics (mean, standard deviation, percentage) were employed to analyze the students' perception of AWE-based CF with respect to the 10-minute online writing task.

3. Discussion

3.1. Analysis of scores

As shown in Table 1, there were significant differences in students' writing scores between their first and last writing tasks, and also between their first and final revisions of the two writing tasks.

Table 1. Paired sample *t*-test for the improvement of scores (201409~201501)

Whole class	Mean	SD	Std. Error Mean	<i>t</i>	df	Sig. (2-tailed)
First revision	-8.087	8.176	1.704	-4.743	22	.000
Final revision	-14.152	9.139	1.905	-7.426	22	.000
Revision times	-8.087	9.361	1.951	-4.143	22	.000
Improvement	-6.065	9.132	1.904	-3.185	22	.004

(N=23)

3.2. Analysis of different genders

The result of a paired sample *t*-test of scores for male and female students showed that there were significant differences across genders in the ten writing tasks. Besides, the revision times were increased significantly throughout the whole term.

The difference was that female students, with a level of significant value of 0.046 ($t=2.252$, $df=11$, $p<0.05$), improved more significantly than male students at level of 0.052 ($t=-2.202$, $df=10$, $p>0.05$).

3.3. Analysis of students' perceptions

With respect to how students perceive AWE-based CF in developing their writing skills in a 10-minute online writing task, nine highly correlated items from the questionnaire (#01, #02, #04, #11, #23~#27) were selected and the mean scores of the items ranged from 4.05 to 4.57, which showed that most students held positive attitude toward AWE-based CF and felt it helpful to improve their writing skills as well as learner autonomy.

4. Conclusions

This study leads to the following conclusions:

- AWE-based CF has positive effects on improving students' writing skills, which can be observed from the following aspects: the scores for the first and final submissions increased; the improvement in the students' writing skills highly correlated with their revision times; the improvement in students' writing after self-revision has been made greatly.
- Both male and female students improved their writing skill significantly in their first and last writing tasks, however, female students' writing skill has improved more significantly than that of male students.
- AWE-based CF, to some extent, may help EFL learners to improve their writing skills as well as learner autonomy.

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