Macrothink Institute™

International Journal of Education
ISSN 1948-5476
2016, Vol. 8, No. 1

My Access and Writing Error Corrections of EFL College Pre-intermediate Students

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Received: February 11, 2016 Accepted: March 15, 2016 Published: March 25, 2016

doi:10.5296/ije.v8i1.9209 URL: http://dx.doi.org/10.5296/ije.v8i1.9209

Abstract

Purpose – This study aims to examine the effects of Automated Writing Evaluation (AWE) feedback on pre-intermediate EFL students' writing performance. Furthermore, the purpose of this study is to inspect the effects of AWE on self-correction in multiple submissions.

Design/participants – This study employs both qualitative and quantitative methods. The participants were students whose English proficiency was at the pre-intermediate level, below CEFR B1. They were enrolled in a two-hour, 18-weeks elective college English writing course for non-English majors. Twenty-seven students completed at least two submissions of drafts on an essay prompt. Through convenience sampling, two male and three female senior students majoring in Business, Chinese and Accounting participated in face-to-fact interviews.

Methodology/approach/instrumentation – This study uses descriptive statistics and correlational analysis to evaluate the data. Research data were obtained during 18 week period. *My Access* was used as an auxiliary writing tool in the college English writing course for non-English-majors. Students' writing performance, self-correction with *My Access* feedback and self-reported perceptions of using *My Access* were used as the instruments.

Findings – The findings of the study can be summarized as follows: 1) based on analyses

of qualitative data the individual student made improvement in various writing traits in revisions; 2) while the students were more capable of self-correcting in usage type of lexical and syntactic errors using AWE, they were relatively incapable of handling independently mechanics and style types of errors; 3) the results of the interviews and self-reported student perceptions of *My Access* confirmed the effectiveness of AWE feedback in revisions and self-correction; 4) although findings of this study supported positive effects of *My Access* feedback for independent revision and correction, the importance of teachers' role in writing instruction and periodic teacher-student interactions in enhancing particular writing skills is stressed.

Practical implications/value – The application of AWE influences writing instruction in both ESL and EFL contexts by both assessing strengths and weaknesses of student writing and enhancing writing quality. Investigating the effectiveness of AWE feedback in the meditational process of constructing and revising text is thus of great importance to ensure its validity and usefulness. Utilizing AWE can, no doubt, be effective with the participation of teachers. Writing teachers play a crucial role in assisting and guiding students in the writing process.

Keywords: Automated writing evaluation (AWE), EFL writing, corrective feedback, my acess

1. Introduction

In recent decades, rapid advances in computer technology have extended considerably the capacity and fashion of EFL (English as a foreign language) instruction. Among the technological applications, automated writing evaluation (AWE), originally developed in the 1960s, becomes noteworthy to meet the needs of assistance and assessment of EFL writing. Widely used AWE programs such as *Criterion* and *My Access* are armed with artificial intelligence technology for sophisticated lexical, syntactic, discourse, and grammar analyses for enhancing writing competence. In addition to being used for instructional assistance, a primary feature of AWE is immediate scoring with diagnostic feedback on aspects of writing, which has been proved, to some extent, to encourage revision in the writing process (Chen & Cheng, 2008; Lai, 2010; Yeh, Liou, & Yu, 2007). Other advantages of AWE feedback also include saving time, reducing cost, immediate scoring, and individualization.

Although AWE technology has been widely applied to both high- and low-stakes testing in the United States, its use in EFL writing classes in Asian countries is still limited. For AWE to be adopted and trusted for supporting writing instruction, it is undoubtedly essential to verify its reliability and validity. Evidences have been provided in previous studies (Attali & Burstein, 2006; Weigle, 2013) by primarily comparing machine and human scores. As for scoring reliability, Attali, Lewis, and Steier (2012) found higher correlations between scores produced by AWE than those by human raters. Moreover, AWE usefulness in the meditational process of constructing and revising text has also been confirmed empirically for motivating learners and enhancing text quality (Fang, 2010; Lai, 2010; Yeh et al., 2007).

In addition to essay scoring, AWE also provides instantaneous reporting and diagnostic feedback on errors in grammar, usage, and mechanics. Although previous studies (Chen & Cheng, 2008; Ebyary & Windeatt, 2010; Lai, 2010) revealed mixed feelings of students toward AWE feedback for revising essays, few empirical evidences exist to prove to what extend such feedback really prompts students to correct their own mistakes for improving text quality. If AWE feedback does help students correct mistakes, which writing traits students are able to self-correct with AWE feedback. In addition, an extensive body of research has been conducted either in English-speaking contexts such as the United States or with English majors and advanced students in ESL/EFL contexts (Chen & Cheng, 2008; Fang, 2010; Grimes & Warschauer, 2010; Yeh et al., 2007). The issue about to what extent AWE feedback helps learners of lower English proficiency for self-correction for improving writing quality still remains to be explored.

Taiwan, a non-English-speaking context, has been striving to bolster students' English aptitude and global market competitiveness. Its Minister of Education announced a policy in 2003 to encourage colleges and universities to adopt English proficiency graduation requirements. Thus, increasing students' English proficiency to meet the graduation requirement and demands of English skills for future career and education becomes urgent. In particular, how to enhance non-English-majors' English proficiency outside of the limited four to six credits of required English courses must be taken into consideration. Which means, this relatively large population of non-English-majors must strive to improve English competency skills to meet the graduation requirements mostly through self-learning. Therefore, seeking an effective self-learning tool becomes critical. Likewise and more true when it comes to English writing which is considered a higher-level language competency skill. Under the circumstances, investigating if AWE is effective for self-learning of English writing must be undertaken.

Published evidence of effects of AWE used as an instructional supplemental is scarce (Weigle, 2013); not to mention its use for developing pre-intermediate EFL students' writing skills. It is hence worth investigating in-depth to gain an understanding about benefits of AWE for a previously overlooked student population, beginning and pre-intermediate EFL students (equivalent to levels of A2 to B1 on the Common European Framework of Reference (CEFR)). Therefore, the purpose of this study was to investigate pre-intermediate college EFL students' writing improvement by analyzing their AWE scores, errors, and perceptions about usability and usefulness for facilitating revision. Three research questions undergirding the current study were:

1. Do pre-intermediate non-English-major college students improve text quality of English writing in terms of text length, holistic and trait scores?
2. What are the students' distinct error types and which error types can they self-correct with AWE feedback?
3. What are the students' perceptions of AWE for revision?

2. Literature Review

2.1 Human and AWE Feedback to Writing

In assessing learners' essays, human raters are trained primarily to provide qualitative feedback to students at key stages of writing process. While human scorers as real audiences can provide readable and flexible feedback according to students' background and needs particularly for a small-scale of people, AWE scorers can give an appropriate measure of knowledge structure for a larger group (Clariana & Wallace, 2007; Palmer, Williams, & Dreher, 2002). AWE feedback offers quantitative information about length of sentences, word frequency distribution, word repetition and statistical analyses.

Although human and AWE feedback function differently in the writing process, integrating both forms can benefit learners with diagnostic and corrective feedback and self-regulatory strategies to improve writing (Riedel, Dexter, Scharber, & Doering, 2006). Furthermore, in terms of explicitness and directness, while specific errors are identified and suggestions for revision are offered in human feedback, general comments and vague feedback are found in AWE (Lai, 2010). In addition, human feedback has been reported to foster social knowledge construction in the teacher-student writing conference and peer discussion (Chen & Cheng, 2008; Ebyary & Windeatt, 2010; Liu & Lin, 2007).

AWE feedback, nevertheless, has its merits especially in providing immediate holistic and analytic feedback, increasing student autonomy, and motivating students to make more frequent revisions (Grimes & Warschauer, 2010; Yeh et al., 2007). In particular, Grimes and Warschauer (2010) noticed that students would be more constructively engaged with AWE after submitting drafts than they would with teachers in hopes of a better automated score.

As aforementioned, although human and technological forms of feedback have different merits, both are considered indispensable in enhancing English writing in terms of quality and quantity. Provided with constant feedback, learners will learn to offset their own weaknesses, enhance understanding, and explore better solutions to writing problems. They learn useful strategies to detect errors for improving formal accuracy of writing by incorporating feedback in the revision of text (Chen & Cheng, 2008; Duijnhouwer, Prins, & Stokking, 2012; Yeh et al., 2007).

While both human and technological forms for feedback are considered beneficial in writing development, their values are perceived differently by learners. In a study for investigating ESL and foreign language (FL) learners' reaction to teacher feedback, Hedgcock and Lefkowitz (1994) found that while both groups of learners reported favorable views toward teacher feedback, learners' perceptions about what constitutes useful feedback varied. While the ESL learner preferred content-focused feedback, the FL counterpart favored form-focused feedback. In another study (Lai, 2010), although considering both human and AWE feedback effective, Taiwanese English-majors preferred direct feedback with correct form especially in language style and mechanics and convention.

Although certain types of feedback are proved to be effective, other types are found to have no or negative effect (Polio, Fleck, & Leder, 1998; Semke, 1984). For example, Semke (1984)

found that surface-level form of error correction may significantly reduce errors on accuracy than may on message-related content feedback, but it could have negative effect on fluency. Yeh et al. (2007) examined the effectiveness of an AWE program, *My Access,* in improvement of textual quality and found that students benefited most from feedback category of focus and meaning. Chen and Cheng (2008) found that AWE feedback works more effectively with beginners or intermediate learners in the areas of mechanical accuracy and formal organization. It, however, fails to benefit more advanced learners who may need feedback on meaning. Nevertheless, other researchers questioned the efficacy of error feedback (Chandler, 2003; Ferris and Roberts, 2001).

In addition to improving students writing quality and quantity, feedback has also been found to have effects on students' affective factors such as motivation and self-esteem by providing positive feedback to encourage students to write more (Peterson & McClay, 2010). Therefore, showing interest to praise students' writing and giving suggestions are necessary in teacher response. Similarly, Lee (2008) observed that focusing on interesting content and responding to selected error patterns help build students' confidence to write. Affective feedback also helps raise students' self-efficacy to believe that they can revise by themselves to perfect their writing when they understand revisions from feedback (Dempsey, Pytlikzillig, & Bruning, 2009). On the other hand, unfavorable teacher response can inhibit further revision of text. Jones (1985) found that teacher intervention which focuses primarily on linguistic form may discourage second language learners to make needed discourse-level changes.

2.2 AWE Applications in Writing Instruction

AWE has been used in English writing instruction primarily for fostering individualization, student-centeredness, and effectiveness (Grimes & Warschauer, 2010; Levy, 2009). Therefore, when integrating AWE in the writing class, the teacher's role may vary according to the varying roles of AWE. For instance, the teacher may play a minimal role when AWE is used as a *tutor*, which offers an environment to fulfill a writer-oriented *process* approach and guides brainstorming, drafting, and revising for different proficiency levels of upper elementary, middle school, high school and upper education and writing genres of informative, narrative, literacy and persuasive. After being assigned a writing prompt, students can proceed individually from generating, planning, and developing their ideas following AWE guidelines (Levy, 2009).

By contrast, a teacher may play a relatively more vital role when AWE is used simply as a *tool* for evaluating and detecting students' writing problems. As a tool, AWE provides both holistic and analytic scoring on writing traits to indicate students' degree of learning for advancement or graduation, which can fulfill achievement or diagnostic purpose as decided by teachers. Take an AWE program, *My Access,* as an example. Its holistic score is yielded by measuring students' writing based on how well meaning matches that of previously graded essays (Foltz, Laham, & Landauer, 1999). An analytic score, on the other hand, relates to students' strengthens and weaknesses on writing traits which can later be reinforced in classroom instruction by teachers. In the situation when AWE is used as a tool for evaluating students' composing progress, teachers may plan teaching objectives based on students'

grammatical and rhetorical errors detected by an AWE program (Palmer et al., 2002).

When AWE is used as a tool for evaluating and detecting students' writing problems, its feedback contains information about organizational features, direction, sentence cohesion, paragraph cohesion and essay-level cohesion to help students construct ideas (Parr & Timperley, 2010). With such information, learners are more actively involved in the composing process in that they can recurrently revise their writing works in their own pace (Chen & Cheng, 2008; Grimes & Warschauer, 2010; Lai, 2010; Scharber, Dexter, & Riedel, 2008) and submit any time and as many times as they desire (Riedel et al., 2006). Moreover, learners' error rates of word choice, missing words, grammar, and spelling decrease after following AWE feedback (Stern, & Solomon, 2006; Strijbos, Narciss, & Du¨nnebier, 2010).

3. Methodology

3.1 Subjects

This study sought to gain an in-depth understanding about if pre-intermediate students, also novice English writers, were able to improve text quality, revision, and self-correction with an AWE program, *My Access*. Their perceptions about usability and usefulness of *My Access* during the revision process were also investigated. In order to recruit participants, this study employed a *convenience sampling* method based on principles of convenience and availability for selecting participants (Creswell, 2009). The participants were students whose English proficiency had been placed at the pre-intermediate level, below CEFR B1. At the time of data collection for this study, they were enrolled in a two-hour, 18-weeks elective college English writing course for non-English-majors. Twenty-seven students who had completed at least two submissions of drafts on an essay prompt were contacted. For the subsequent face-to-face interviews, two male and three female senior students majoring in Business, Chinese, and Accounting were invited and agreed to participate.

3.2 Data Collection

In the college English writing course for non-English-majors as mentioned above, *My Access* was used as an ancillary writing tool in the writing instruction. As a course requirement, the students were assigned a narrative writing topic, *A Lesson Learned,* at mid-term of fall semester of school year 2011. The chosen essay prompt, being categorized by *My Access* as the High School level, was considered and adopted by the course instructors to be appropriate for novice EFL writers below CEFR B1. The students were given two months to make as many submissions of essay drafts as they were able to. *My Access* was integrated into the instruction primarily for formative assessment and for facilitating additional writing practice and revision. At the onset of the course, a training session was held in order to familiarize the participants with *My Access*.

Upon each essay submission, *My Access* generates data of word count, holistic and analytic scores on five writing traits and types of writing errors. These AWE data were collected for analyses of writing improvement. After the completion of the writing course, semi-structured

interviews to investigate students' perceptions of writing with *My Access* were conducted with the five participants during the spring semester of year school 2011. Open-ended questions adapted from Scharber et al. (2008) about students' perceptions of using *My Access* and effects of its feedback in revision (see Appendix) were used to guide the interviews.

3.3 Data Analysis

My Access provides analytic scores which rate rhetorical and formal aspects of writing traits: (a) focus and meaning, (b) content and development, (c) organization, (d) language use and style, and (e) mechanics and convention. Moreover, writing errors are flagged in relation to four types: (a) grammar, (b) mechanics, (c) style, and (d) usage. To fulfill the purpose of this study, statistical data of frequency of revisions, holistic and analytic scores, error count, and word count of initial and revised drafts were recorded for analysis to determine writing improvement in terms of essay length, types of errors, and self-correction in the revision process. The face-to-face interviews with the five participants were tape-recorded and transcribed for analysis in order to cross-examine the effects of AWE feedback on writing performance.

4. Results

This section presents quantitative and qualitative results derived from feedback of *My Access.* Student interviews for answering the research questions about students' writing performance, self-correction with *My Access* feedback, and perceptions of using *My Access* are also reported.

4.1 Writing Performance in Revision

To examine writing performance using *My Access* feedback in the revision process, *My Access* evaluation of the five participating students' initial and revised texts on the assigned topic were used for analysis. Table 1 presents writing performance in number of submissions, word counts, mean holistic scores, and course grades. At a first glance, it is noted that there is little correlation between the course grades and the average *My Access* writing scores. For example, S2 who was scored by *My Access* the highest among the five participants received the lowest course grade by the instructor. Such a result indicates that integrating formative evaluations from both teachers and AWE technology may be necessary in order to yield more accurate students' writing performance.

Table 1. Times of Submission, Means of Word Counts, Holistic Scores, and Course Grades

Student	# Drafts	Mean Word Count	Mean Holistic Score	Course Grade
S1	2	331.5	3.8	88
S2	8	278	3.58	77
S3	2	188	2.4	80
S4	5	148.8	2.36	85
S5	6	159.5	2.35	78

Note. #Drafts indicates the number of drafts submitted to *My Access*.

In terms of text length and holistic scores, *Pearson Product-Moment Correlation Coefficients* (Table 2) show that there was a significantly positive correlation between word counts and *My Access* holistic scores (r = .979). In other words, the more the students wrote in their drafts, the higher the holistic scores they received. However, holistic scores were not significantly related with times of submission (r = .038) or course grades (r = .26). At this point, it seems that times of submission do not influence *My Access* holistic scores, but word counts appear to be an influential factor of *My Access* scoring.

Table 2. Pearson Correlation Coefficients for Number of Draft, Word Count, Holistic Score, and Grade

Measure	# Drafts	Word Count	Holistic Score
# Drafts	1	-.147	.038
Word Count	-.147	1	.979**
Holistic Score	.038	.979**	1

Note. # Drafts indicates the number of drafts submitted to *My Access*.

**$p \leq .01$.

To determine writing improvement by means of the five writing traits, the initial score was subtracted from the final score and the difference was then divided by the initial score. As a result, the students' writings were improved in areas of word length, holistic score, and analytic score. While the students displayed writing strengths on various traits, all of them continued to compose longer texts (improved by 28% to 105%). The holistic scores increased from 17% (S1) to 96% (S4). The average improvement rates of text lengths and holistic scores are 58.3% and 43.4%. It was noted that S1 and S3 made only two submissions while the others' submitted eight, five, and six drafts. The fewer the submissions, the less improvement the students made holistically.

As for rate of improvement on the five writing traits, the participants made progress on different traits. S1 improved most on organization and content and development (16%). In contrast, after seven revisions, S2's holistic score improved by 38% and her analytic scores improved from 38% to 46% on the five traits. Her greatest improvement is in mechanics and conventions (46%), while the least is in content and development (38%). S3 improved most on content and development (33%), S4 (59%) and S5 (114%) both improve most on language use, voice and style. No students progressed most on focus and meaning. Two traits that the participants, in average, improved most are in language, use, voice, and style (51.2%) and organization (43.6%).

Table 3. Improvement Rates of Text Length and Holistic and Analytic Scores

Student	# Drafts	Text Length (%)	Holistic Score (%)	FM (%)	CD (%)	O (%)	LU (%)	MC (%)
S1	2	34	17	14	16	16	15	14
S2	8	86	38	40	38	43	42	46
S3	2	28	29	29	33	25	26	17
S4	5	105	96	87	82	90	114	78
S5	6	39	37	39	41	44	59	42
Average	4.6	58.3	43.4	41.8	42	43.6	51.2	39.4

Note. #Drafts indicates the number of drafts submitted to *My Access*.
FM = focus & meaning; CD = content & development; O = organization; LU = Language use and style; MC = mechanics & convention.

4.2 Self-correction of Errors

Students' writing errors are categorized by *My Access* into four types: grammar, mechanics, style, and usage. Such a categorization is beneficial for students to self-correct flagged errors in the composing process. Each student's distinct error type(s) and self-corrected errors by following *My Access* feedback are reported below.

Of the four error types, S1 made more usage errors in the first draft (three counts: one word order and two misused word), but she made more mechanics errors in the final draft (four counts: two spelling and two punctuation). In the entire revision process, while S1 successfully corrected two mechanics and two usage errors, she made additional mechanics errors in the revision process (two spelling and two punctuation). An example of the uncorrected mechanics errors is displayed as follows:

So <Punctuation errors> *I start to study English hardly because I don't want to make any similar event happen.*

S2's primary errors on style (seven to ten counts) outnumbered grammar (two counts) in revision. By following *My Access* feedback, she was able to successfully self-correct two

grammar (subject-verb agreement), two mechanics (punctuation), and one usage (unnecessary preposition) errors. Nevertheless, S2's great difficulty was in producing grammatically correct sentences containing multiple types of errors. For example as displayed in the following:

But<Clause errors> *I did not what is stop <Missing articles>where it should stop*.

As seen in this sentence, S2 not only had insufficient knowledge about grammatical correct sentence structures, she was also incapable of correcting errors individually.

In contrast with the other four students, S3 made no mechanics errors in his drafts. There remained two grammar (subject-verb agreement), three style (Clause), and two usage (missing articles) errors in his revision. It shows that S3 not only failed to use *My Access* feedback to self-correct errors, he even made additional errors in the subsequent revision.

Although S4 made no errors in grammar, mechanics and usage in revisions, style error relating to clause persisted and stayed uncorrected throughout the subsequent revisions. As shown in an erroneous sentence:

Some <Clause errors> *people tell me, many people didn't like me more time*.

This sentence contains a global error in the second clause in addition to the local errors detected by *My Access*. It also shows a common error committed by weaker writers to tend to join two independent clauses together without conjunctions or semicolons.

S5's errors were mostly related to style (clause). *My Access* reports indicated that he was able to self-correct one grammar, three style, and two usage errors with two mechanics (punctuation) and one usage (article) errors remained uncorrected in the final draft.

From the preceding descriptions of error types and self-corrected errors, the students in average made two fewer errors in the revision process. Overall, by comparing the students' first and final drafts, the error types which maintained uncorrected were primarily mechanics and style.

4.3 Perceptions of Writing with My Access

The students' perceptions of writing with *My Access* and of revising by following *My Access* feedback are reported as follows.

4.3.1 Perceived usefulness of AWE feedback

All participants except S3 changed their perceptions about writing with *My Access* after observing their own improvement in revision. At the same time, they developed more confidence in writing in English partly because *My Access* made it easier for them to construct ideas and revise compositions. For example, S1 stated: "It is much easier to organize a composition than before." More importantly, the students were inspired to revise more frequently by following *My Access* feedback then they would normally do with other feedback modes. As S5 said, "Comparing with previous writing experiences, I wrote more and developed richer content because my vocabulary and grammar were enhanced with *My*

Access feedback." Overall, comparing with traditional pen-and-paper writing, the students felt that *My Access* feedback helped them to writing more and better.

4.3.2 Strengths and weaknesses on writing traits

The students responded positively about effectiveness of *My Access* in the revision process. Being assessed analytically in relation to the five traits, the students became aware of their own writing strengths and weaknesses and were able to develop ideas more logically in constructing texts. As aforementioned, the students made more progress in content and development and least in Language Use and Style after following *My Access* feedback. As S4 explained, "Although feedback on Language Use and Style helped little in improving my writing, I still tried to use different words in my revisions when reading *My Access* feedback."

4.3.3 Difficulties in using My Access

Two major difficulties in using *My Access* were expressed in the interviews. First, although the students generally considered *My Access* effective in guiding them to organize ideas and write more logically, their limited English proficiency hindered them from understanding the English-mediated feedback. As S5 said, "It was not difficult for me to use the system. However, if the system had a Chinese version, it would have been helpful for me to understand the feedback better. After all, most students who are learning to write are not good in English."

Second, due to the fixed, decontextualized, and repeated feedback generated by *My Access*, the students were generally in frustration and doubt about consulting *My Access* feedback for revision. To them, *My Access* feedback was too vague and general to pinpoint individual weaknesses and errors for self-correction. Thus, they expected more concrete explanations for making effective revisions. As S2 expressed, "If the system had provided more specific feedback, it would have been more helpful for me to make revisions independent of the teacher."

5. Discussion

Unlike finding of Yeh et al. (2007) that students consider *My Access* feedback helpful with focus and meaning, findings of the present study were in alignment with Chen and Cheng (2008) that students benefit more on language use, voice and style and organization. Numbers of submission and text lengths were increased. Mechanics and Conventions, on the other hand, were the most difficult areas for students to improve. Moreover, similar to the findings of Lai (2010), the students generally held positive views toward AWE.

5.1 Improvement of Text Quality

Although individual differences exist in language proficiency and writing ability, the increase of students' writing scores proves that *My Access* feedback was beneficial to a certain extent in making revisions for improving in various traits. In this study, the students' capacity of applying *My Access* feedback to enhancing writing performance was displayed in the

improvement rates between the initial and final submissions on text length and holistic and analytic scores. In particular, one of the noteworthy results is increase in text length. Previous studies (Lai, 2010; Pennington, 2003) have empirically supported the fact that students revise more in a computer context due especially to their positive cognitive-affective response to writing with the computer. Such a finding may also indicate that students experience higher-levels of senses of optimism and motivation to write and of control and self-efficacy in an AWE context than in pen-and-paper writing. Additionally, the students made progress in different writing traits. In comparison, S1 progressed more in organization, S2 in mechanics and conventions, S3 in content and development, S4 and S5 in language use, voice and style than others. Such results support findings of previous studies that AWE feedback is effectiveness in terms of process (Lai, 2010) and that the degree of effectiveness varies for different students with different writing problems (Parr & Timperley, 2010; Stern, & Solomon, 2006; Strijbos, Narciss, & Du¨nnebier, 2010).

Students' abilities of understanding and utilizing the English-mediated *My Access* feedback in correcting errors can be reflected from the analytic scores on writing traits. That the students improved more in language use, voice and style and organization may indicate that they understood better and were thus able to utilize *My Access* feedback effectively in improving errors of grammar and usage. Such findings may imply that EFL students below CEFR B1 or the pre-intermediate level of proficiency may benefit more from feedback focusing on lexical and syntactic errors. Furthermore, based on the increased holistic scores of subsequent rewrites, it is presumable that students' writing improvement may be partly due to the frequency of online practices (Semke, 1984). Nonetheless, in addition to frequency of revisions, it is crucial for self-correction that students internalize AWE feedback by making comparison with their previous drafts, identify their problems in the text and execute the corrections in order to make genuine progress in writing. In other words, a key element to complete a *problem-oriented process* (Ferris & Roberts, 2001) should rely on students' complete understanding of error feedback whether it is from the instructor or AWE.

5.2 Self-correction of Writing Errors

Aligning with findings of Semke (1984) and Polio et al. (1998), the students in this study were able to improved writing by self-correcting surface-level errors of grammar, mechanics, style and usage. That is, surface-level feedback, regardless of feedback types, helps reduce errors on accuracy. More specifically, the students learned to be aware of usage problems about use of prepositions, articles and word order after relative pronouns. For example, S2 changed her incorrect use of preposition and S5 improved in definite and indefinite articles. Additionally, according to the interviews, most of the students attributed their improvement to *My Access* feedback in the aspect of content and development. Not only that they were motivated to write more (Lai, 2010), they also tried to use multiple ways to express ideas and construct sentences in the subsequent drafts.

As aforementioned, the students were able to independently correct errors in usage; they, however, had problems in revising mechanics and style errors. A most frequent occurrence of style error was clauses. They tended to joined two independent clauses together without

conjunctions or semicolons. It should be noted that although *My Access* detects writing errors and provides feedback for revision, there is a setback for EFL students to utilize the feedback for self-correction of errors. It was found that the students, due partly to insufficient grammatical competence, tended to ignore errors which were considered difficult to correct. For example, S5 expressed that he only attended to the feedback and flagged errors which he could understand and considered capable of correcting. Such a hindrance may point to the importance of individualized and explicit instruction whenever students face barriers of understanding computer-generated feedback for correcting writing errors. In this view, how to foster students' understanding about AWE feedback becomes an important issue when being integrated in writing instruction.

6. Conclusion

Findings of the current investigation support that, for pre-intermediate EFL students, *My Access* is effective in terms of revision and self-correction of certain error types. Overall, the students' writing performance as indicated by text length, holistic and analytic scores, and self-correction of errors proved that the system was beneficial in enhancing essay quality of subsequent writing. In addition to writing improvement, the students also showed positive perceptions of writing with *My Access*. Several pedagogical insights are gained from the findings as presented below.

First, this study found that, for EFL students below CEFR B1 of English proficiency, *My Access* feedback helped enhance holistic and trait scores and essay length in multiple submissions. In terms of text length and holistic scores, the fewer the submission, the less improvement the students made holistically. It shows that EFL students at the pre-intermediate level of English proficiency will be more confident and willing to write and revise more when they are aware of individual writing problems. However, a caution raised by Ebyary and Windeatt (2010) merits attention. After becoming accustomed with AWE scoring mechanism, students may learn to increase their overall scores by *fooling the machine* with avoidance strategies. That is, they merely try to tackle the machine-marked problems without necessarily understanding why. Therefore, human and multiple-method evaluation should be in constant use to ensure and validate students' development of writing proficiency.

Second, this study found that *My Access* works better with pre-intermediate EFL students in facilitating surface- or micro-level revisions. With *My Access*, the participants were able to self-correct mechanics and grammar errors. While one may consider surface-level rules more fixed and thus easier for EFL students at a lower level of English proficiency to acquire, one should be aware that interference of the previously acquired Chinese writing conventions in L2 writing may not be overlooked as a critical issue in EFL writing. Given the awareness of L1 interference, classroom instruction should constantly focus on raising students' awareness of mechanics and conventions in English writing and, additionally, guiding students to contrast differences in mechanics between L1 and L2 writings.

Moreover, although the participants were able to self-correct the surface-level mechanical

problems as flagged by *My Access*, they continued to repeat or to make additional mechanical errors. Such an observation may pinpoint the fact that the pre-intermediate students' English command is insufficient to understand and generalize what is learned with *My Access* feedback. It is thus critical to raise an issue that, with AWE, improvement may not necessarily represent learning. Therefore, teacher facilitation focusing on understanding individual students' writing problems should be available in order to enhance formal aspect of writing accuracy.

Third, although the pre-intermediate non-English-majors made progress on various writing traits and in various degrees, no students progressed most on focus and meaning. In contrast, the first-year English-major students of Yeh et al. (2007) regarded *My Access* feedback most helpful on focus and meaning. Such a discrepancy in findings between the English- and non-English majors confirmed Chen and Cheng's assertion (2008) that more advanced students including English majors need feedback focusing on meaning of writing. Form-focused feedback is more useful for making significant improvement to beginners or novice AWE writers.

Fourth, in relation to more complex levels of writing, the participants were concerned about their ability of using *My Access* independently and thus needed teachers' explanations and guidance especially for revising more substantive errors such as connecting between evidences and purposes of the topic. It is thus suggested that for developing complex aspects of EFL writing, constant feedback from face-to-face interactions in teacher-student conferences (Matsumura & Hann, 2004) are provided. Student-teacher relationships in the writing classroom may, as Grimes and Warschauer (2010) suggested, "shift from an adversarial role of teacher-as-judge toward a supportive role of teacher-as-coach" (p. 29). More specifically, they advised writing teachers to *humanize* writing instruction by using AWE to "overcome students' reluctance to write and to help with low-level errors so that she can focus on high-level concerns like ideas and style" (p. 29).

Last, to be effective in utilizing AWE, there is no doubt that writing teachers play a crucial role in assisting and guiding students in the writing process. In order to facilitate pre-intermediate EFL students more effectively, teachers may focus on two primary types of writing errors, style and mechanics, as frequently detected by *My Access* in this study. First, teachers may teach and explain clauses explicitly. How to use compound and complex sentences should be elaborated. Second, the students in the current investigation frequently forgot to use commas after conjunctions such as *therefore* and *however*. Hence, teachers may want to center on teaching punctuations of commas and semi-colons. In addition to paying attention to improving students' accuracy in writing, it is also essential to orient students to the categories of *My Access* feedback before they start using the system. Once students become independent users of AWE applications, periodic teacher-student conferences which provide individualized consultation according to individual student's writing marks and errors should be held to ensure that the students fully utilize the AWE feedback. Other techniques which helps enhance effectiveness of integrating AWE in writing instruction include assigning teaching assistants who have previously completed writing courses using AWE for familiarizing new AWE users with its feedback and functions, and conducting group work to

induce peer feedback for students to learn and improve collaboratively.

7. Limitations and Suggestions

Although this study confirms the effectiveness of *My Access* on students' writing performance and self-correction, there were two major limitations concerning the number of participants and essay submissions. Therefore, it is suggested that future studies collect more student's essays for analysis of text quality improvement, errors, and self-correction. Besides, although there were 46 students enrolled the writing course, only 5 students volunteered to participate in the study. Hence, a larger sample size is needed for conducting more in-depth qualitative and quantitative investigation of students' perceptions of utilizing AWE feedback. Moreover, student characteristics of major, learning needs, educational experience, and experience of utilizing AWE feedback should also be taken into consideration for they may impact the results of the studies of response and revision.

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Appendix. Semi-Structured Interview Questions

1. Which feedback (*Focus and Meaning*, *Content and Development*, *Organization*, *Language Use, Voice and Style*, and *Mechanics and Conventions*) was/were most helpful? Explain specifically about its effect on your revision? What did you learn from the feedback? What changes did you make in your revision according to the feedback?
2. Which feedback (*Focus and Meaning*, *Content and Development*, *Organization*, *Language Use, Voice and Style*, and *Mechanics and Conventions*) was/were least helpful? Why?
3. Did you change learning attitude towards writing in English with *My Access*?
4. In your opinion, is *My Access* an effective means of formative assessment? Why or why not?
5. Do you have any suggestions for the implement of *My Access* in an English writing course as a supplementary tool for independent learning?
6. Will you recommend *My Access* to anyone who is interested in improving English writing performance?