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EFL WRITERS' PERSPECTIVES ON APPLYING AN AUTOMATED ESSAY
SCORING SYSTEM

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ABSTRACT

The purpose of this study was to examine EFL learners' perspectives on applying the on-line automated essay scoring (AES) system in the college writing class. This study will focus on discussing two main aspects to realize how EFL students can improve their writing supplemented with an on-line AES system. Twenty two English major students originally came from vocational high schools joined this project. In the findings, it indicates that, after applying the computer program for three semesters, most students made some progress on their writing. Although they liked the function of the immediate scoring, they reported having negative feelings about receiving the scores. In addition, it was hard for them to understand the computer-mediated feedback demonstrated in English. Most students preferred teacher's individual tutoring to the robot-like computer feedback. In particular, for the less proficient EFL writers, the on-line AES system not only cannot replace writing teachers, indeed, teachers play an even more important role in helping individual students. In addition, while less proficient EFL writers are getting familiar with the functions provided by the system, they will also take more responsibility on their own writing tasks.

Key words: AES system; *My Access*; EFL writers; accuracy of the scoring; less proficient writers

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INTRODUCTION

The purpose of this study was to examine students' perspectives on employing the on-line automated essay scoring (AES) system, *My Access*, in the college writing class in Taiwan. It will consider two aspects: the students' perspectives toward the AES program and the writing performance students made in the process of writing. Many studies (Burstein & Marcu, 2000; Rudner & Gagne, 2001; Rudner, Garcia, & Welch, 2006) evaluated different AES systems and their function on essay scoring. Employing AES systems has become popular in recent times. For instance, in the United States, students are required to pass a writing test for high school graduation. According to Hurwitz' statement in the New York Times (2004), "Indiana is the first state to use a computer-scored English essay test in a statewide assessment, and its experience could influence testing decisions in other states." Applying the on-line AES system on writing is becoming a popular tendency in Taiwan as well.

In many universities, the AES system is situated in the language centers or teaching resource centers and is open to every student who has applied for the user account to use. It acts primarily as an on-line self access learning tool and supplementary equipment in a writing class. In this study, the teacher/researcher attempted to realize students' perspectives on employing the AES system in their writing class. According to statistics, the Testing Center for Technological & Vocational Education, 86% of vocational high school graduates failed on the subject of English (United Daily News, 2006). Because of the relatively low number of English learning hours (2 hours per week), students, in general, have unsatisfactory English performance. Compared to the students in some other colleges, the students with the vocational high school backgrounds have lower English abilities. With the margin place among four skills, speaking, listening, reading and writing, it may be more difficult for the teachers and students to work on their academics in college writing classes. Therefore, how will students perceive the AES system used in their English writing? Also, will students with less proficiency in English performance be able to reach the better outcome through the use of the AES system? The goals of this research project are not only to reveal students' perspectives on AES system application, it also anticipates shedding light upon how to help students to upgrade their English writing capacities.

Literature review

One of the earliest mentions of automated essay grading in the literature was in an article by Page in which he described Project Essay Grade (PEG) (Page, 1966). PEG was developed by Page and his colleagues. It relies on linguistic features of the essay documents. Shermis (2002) employed PEG to evaluate essays both holistically and also with the rating of traits such as content, organization, style, mechanics, and creativity for web-based student essays that serve as placement tests at a large Midwestern university. It showed that the PEG software was an efficient means for grading the essays, with a capacity for grading approximately 6 documents every second. Burstein, Chodorow, & Leacock (2003) indicated that the reason for developing AES systems is "not only to provide students with opportunities to practice writing, but also to provide them with quick and accurate feedback regarding grammatical errors, style, content, and organization." Page (2003) also indicated that AES systems can be very useful because they can provide the student with a score as well as feedback within seconds. Most importantly, AES systems can help ease the grading workload for teachers. AES systems not only can help teachers mitigate their grading workloads, they can also provide students with the convenience of a 24-hour writing tutor.

With regard to grading written English papers by means of computer software, some researchers evaluated various kinds of automated essay scoring programs. For example, Williams (2001) evaluated four programs: Project Essay Grade (PEG), E-rater, LSA (Latent Semantic Analysis), and TCT and indicated that in terms of comparison with human scoring, E-rater is best, followed by LSA, TCT, and finally PEG. He concluded that commercial essay grading products would help teachers ease their grading workload in a variety of discipline. The AES systems have been used for decades and have earned many positive comments. For instance, Chute (2001) and Brent, Carnahan, & McCully (2005, 2006) indicated that the software programs eliminate any "bias" human graders might have. They thought the grading was fair. Also, the program provides the user with immediate feedback. Although many studies have positively approved the advantages of employing AES systems on essay writing, specific problems, indeed, appeared through processing the computer system. Chute (2001) stated, "The computers can't grade every writing assignment, only the ones they've been "trained" to analyze". Likewise, Page (2003) also stated that computers could not assess an essay as human raters do because the computer would only do "what it is programmed to do" and it wouldn't "appreciate" an essay (p.51). In addition, Dikli (2006) indicated that the software systems are unable to detect "plagiarism" (p.59). If such weaknesses appear in the software programs, one may ask why many instructors still use them? At the heart of this issue is the fact that contemporary students are simply more likely to integrate technology into their schooling lives. They generally tend to be more interested in computer-based writing than in "old fashioned" pen-and-pencil based writing. Thus, it inspires the teacher/researcher to examine whether the fashionable product may be factors in students' considerations in using an AES system.

In Taiwan, many universities and colleges have adapted the AES program, *My Access*, as a supplementary tool for writing and assessment. Many studies have investigated the effectiveness of *My Access* used in EFL

writing classes (Yu & Yeh, 2003; Elliot & Mikulas, 2004; Yang, 2004; Chen & Cheng, 2006; Yeh, Liou, & Yu, 2007). In their study, Yeh, Liou, and Yu (2007) pointed out that the *My Access* system was good at general and mechanical aspects but not at students' specific cultural values. They found that it could not cope with local topics or content in EFL Taiwanese students' essays. Chen & Cheng (2006) explored factors that may lead to facilitation or frustration when the program *My Access* was used, indicating that the students were much less satisfied with the grading function than the writing/editing functions. This dissatisfaction was largely because this program failed to give specific feedback in the content and rhetorical aspects of their writings. The researchers concluded that pedagogical approaches and contextual factors are more crucial than the functions of the program in determining its effectiveness. Moreover, Yu & Yeh (2003) and Yang (2004) also claimed that the automated feedback provided by this program is insufficient and unspecific, thus providing little help in students' writing processes and sometimes even causing frustration. Although many studies showed that students experienced various problems while using *My Access*, some studies revealed that the EFL students did improve their writing skills supplemented by the computer program. For example, through analyzing nineteen Taiwanese freshmen, Yu (2005) found that students' writing was significantly improved with the help of the feedback from *My Access*. Students also agreed its functions on providing feedback for revision. Furthermore, among forty-five junior students, Fan (2010) pointed out that a majority of the students benefited by using the computer-mediated feedback to revise their essays. She indicated that the system had a positive effect on writing skill development. Therefore, with the features of unlimited submission, immediate scoring, and targeted feedback, writing teachers may integrate the system into the coursework. It implies that *My Access* may still have a place as being a supplementary writing tool in the EFL classroom. Because fewer studies investigated the effects of applying the AES program to technological university students, in this study, it will examine the usefulness of the AES system, *My Access*, employed by the English major students who were originally from vocational high schools which put more weight on technical but less on academic subject training. These students will perform several writing tasks in description style supplemented by the AES system.

Research questions

Many studies have investigated the effectiveness of the use of automated essay scoring system on the English writing skills demonstrated by native and non-native English writers. Most studies also concluded that the AES system demonstrated positive effects as a supplementary tool in the writing class. However, few studies explore the students' perspectives of employing the AES system administered by EFL college writers who were originally from vocational high schools. The following three research questions were specifically addressed in this study:

- What perspectives did EFL writers have by means of employing *My Access*?
- What problems occurred while applying *My Access*?
- What writing performance did EFL writers make by means of being assisted by *My Access*?

Methodology

In order to disclose the answers to the research questions, the data collected include: feedback sheets, interviewing, the amount of draft submission, students' written papers scored by *My Access*, and students' writing performance analyzed by *My Access*.

Participants

The students came from a technological university that is located in the central region of Taiwan. They were Applied English majors who originally graduated from vocational high school and were all in the same class since they entered the college. They participated in this project for three consecutive semesters. The total number of students was 22. During the project, in addition to working on the designated writing tasks through having access to the on-line AES program, they also needed to record their feedback at the end of each semester. In addition, all participants were asked to be interviewed individually by the teacher/researcher at the end of the project.

The designated amount of written papers

At the beginning of the study, the students were assigned three topics to write about. Those topics were all selected from built-in *My Access* system. In order to correspond to the textbook applied in the writing class, they were requested to compose a one-paragraph essay while they were conducting their writing via an online program. Later, they needed to compose three-paragraph essays during subsequent semesters. The total amount of designated writing topics was 12 in three semesters.

The features of measurement instrumentation

There were only two contact hours for the writing class weekly. It was hard for the students to improve their writing skills within such a small time frame. In order to give students more opportunities to practice and learn their own weakness, the AES program, "*My Access*" played a very important supplementary role in the writing class. Students not only were able to gain access to this software by themselves at any time they may desire, they also could have a private on-line tutor to instruct them with their writing. In addition, this software grades students' work immediately when they submit their compositions.

Time frame

After constructing students' initial and primary writing frameworks during the very first semester, in the following semester, the students began to employ the AES system as their supplementary writing tool. As a whole, the teacher/researcher spent three consecutive semesters observing the students' writing development and assessing the AES utility employed by EFL writers.

Feedback sheet

For the purpose of understanding students' perspectives upon the system application, a feedback sheet was administered in the writing classroom at the end of each semester. There were five items in the feedback sheet. Students were encouraged to give their valuable opinions about applying the AES program so that their teacher could evaluate the usefulness of AES system applied by EFL writers. All students gave responses cooperatively. The contents of feedback sheet included: problems that occurred during the process, student's perceptions on the assessment of the grading system, the preference of paper-based and computer-based writing, the usefulness of employing the AES system, and their preference of grader (human or mechanical). With the responses indicated in the feedback, it could reveal students' perspectives upon the AES system application. Likewise, conducting the face to face interview could gain further confirmed information.

Interview data summary

This project was conducted for three consecutive semesters. When it was approaching its end, the teacher/researcher conducted an interview with 22 students. Based on both the teacher/researcher and students' available schedule, the interview was conducted in the teacher/researcher's office, the classroom, or in the school library. It took about 15 to 30 minutes to complete each interview and the language employed was Mandarin Chinese. The interview was done in order to have participants express their deeper feelings about AES application. And, the main purpose was to confirm the opinions reflected by students for each semester and to construct an overall picture about the usefulness of employing an AES system in the EFL writing class. The questions contained four aspects: perceptions on improving writing skills, difficulties encountered, the preference of paper-based and computer-based writing, and perceptions on the assessment of the grading system (interview questions are illustrated in the appendix A).

Results and Discussion**Students' perspectives on employing the on-line AES system**

Based on the opinions reflected in the feedback sheet and interview, three main factors were considered: the preference of using computer as a medium to do the writing, what extent students preferred to employ *MY Access*, and what extent students followed the instructions given by *MY Access*.

Most participants (above 90%) strongly claimed that their preference of doing their essay writing was at home, and especially in the evening. In this context, the on-line automated essay scoring system with its features of no temporal and space limitations, can provide a convenient tool for students to use. When they were asked how they liked to write, more than half stated that they preferred computer-based writing. The ratio was 63%, 56%, and 80% in each semester respectively. With regard to the change in preference for

computer-based writing over the semesters, the teacher/researcher interviewed the participants their opinions about this change. And, many students indicated that they had grown accustomed to employing technical products in their lives. They stated that they not only could save their writing e-papers in the system and were able to redo the same topic repeatedly; they also could save paper use. However, when they were asked how they liked *MY Access* on a scale of 1 to 5, the indications were that 23% of students were inclined to apply the AES system as a supplementary tool to their writing. The degree of preference of using *My Access* was illustrated in Table 1.

Table 1 Preference of Using MY Access

Scale of preference	1	2	3	4	5
Numbers of students	1	1	15	4	1
Ratio (N= 22)	5%	5%	68%	18%	5%
Rank	3	3	1	2	3

Note. Scale of preference 1: do not like it at all; 2: do not like it; 3: neutral;
4: like it; 5: like it a lot

68% of students were neutral to the use of *My Access*. They indicated that they were interested in using some features provided by the system. For instance, it presented no temporal and space restrictions, so they could freely gain access to the Internet as their own convenience. In addition, they could learn the immediate scores once they submitted their writing papers. However, some students said in the interview that the direct and immediate scores gave them negative reactions when they repeatedly obtain unexpected scores given by the machine. Other than this, a few students indicated that they would ignore the comments given by the AES system. The main reason for this was that they could not entirely understand the English instructions. Thus, at the end of each semester, more than half of the students indicated that they preferred the teacher's tutoring to *My Access'* comments.

Another feature of the system was that it has unlimited usage and the writers could send their papers to the system and have their papers scored immediately. The quantity of drafts submission is presented in Table 2. Certain students submitted their drafts more frequently than others. For example, one student had the highest submission frequency during the three semesters. They were 48, 31 and 29 drafts respectively for each semester. However, another student only submitted five drafts for the first semester, 2 drafts for the second, and none for the third. How these two extreme learners would perform on their writing and why the extremes took place will be discussed in the next section in detail.

Table 2 The Quantity of Drafts Submission

Semester	1 st	2 nd	3 rd
Quantity of essays	3	4	5
Quantity of drafts submission	243	236	373
Average quantity	81	59	75

Discussion: problems in applying on-line AES system

Although the on-line AES program was adopted positively by most students, some problems, such as technical and human factors, were still interwoven into the writing work. The most annoying problem to the participants was that the computer program would "stop" unpredictably; thus, the students had to re-start the program to continue with their assignment. Other than the technical problems, certain problems made by writers themselves also seriously affected their writing performance.

Frustrated writers caused by the objective scoring system

In the interview, some students indicated that they felt reluctant to submit their essay because they had received many 'major syntax problem' comments. In the interview, one student claimed that he felt really hurt and frustrated and decided to stop composing his essay by using the on-line *MY Access* software in the third semester. The teacher/researcher inquired why he quit practicing composing. He indicated that he was

desperate to work on his writing since he kept constantly receiving 'major syntax problem' comments and doubted he could do the writing anymore. (This was, incidentally, what was eventually deemed to be the most serious result that appeared in this study.) In addition, is it true that more will be better?

The length of writing papers

In the interview, some students reflected their belief that essays with more words would be scored higher. This also corresponds to the opinions stated by students from another university, National Central University (NCU), through their use of the AES program (2008). Then, in this study, how in fact, were essays with more words scored by the AES system? By analyzing the scores received from mid-term and final exams, there appeared a slight difference. In the mid-term exam, the essay with the most number of words earned the highest score, but the essay with the least number did not receive the lowest score. However, in the final exam, the essay with the most number of words did not earn the highest score. Nevertheless, the essay with the least number of words earned the lowest score. In this regard, it showed that the length of the papers did influence the score graded by the AES system. That is, the longer papers would receive higher scores. This complies with certain students' perceptions about the correlation between text length and score. To conclude, more may be better and less may be worse. In addition, will more practice produce better outcomes in applying the AES system, not just longer essays?

The fossilized grammar concepts

In three semesters, one student with the most draft submission (108 times) gained the highest score in the entire practice. However, two out of four top drafts submission received the last and second last scores. Nevertheless, one student with fewer draft submissions also obtained a poor outcome. As such, the frequency of practice assisted by the AES system may not positively help EFL writers improve their writing, but merely indicate that the difficulties of students' writing performance needed to be taken into careful consideration. The study also found that students made the same errors repeatedly. For example, they knew the rules of basic sentence patterns, subject-verb agreement and tense. However, the sentences they composed would be like, "I can with my family go to family trip...", "My friend ask me if I could go shopping...", and "My mother bought a lot of snacks and we can eat them....," Is it because students were used to applying their own preferred tenses and usages and ignored the suggestions given by the system? If so, how will students correct their fossilized incorrect grammar knowledge?

The most frequent errors that appeared were all the same during all three semesters. This is indicated in Table 3.

Table 3 The varieties of errors and their ratio of appearance in each semester

	1 st	2 nd	3 rd
Mechanics			
Subject-verb agreement errors	19%	30%	35%
Spelling errors	30%	24%	19%
Punctuation errors	38%	30%	28%

Subject-verb agreement, spelling, and punctuation were the problems that students frequently had in their writing. In the process of conducting this project, one situation was that some students would use comma all the way through the essay and only place a full stop at the end of the last sentence. Thus, their writing was composed of one long sentence instead of a complete paragraph. In addition, one student started every new sentence on a new line when she was composing her essay. She indicated that she did not know how to arrange each sentence appropriately. Therefore, her essay was presented with all of its sentences in individual lines. Since the number of spelling and punctuation errors declines over the semesters, it indicates that students actually learned the mechanics of writing somehow. Conversely, the number of subject-verb agreement errors went up successively, which might be a trade-off with higher levels of textual complexity (students using a wider range of vocabulary and constructions and hence making more new mistakes). The ratio of those three error classes was different in each semester but they were the most frequently appearing

errors across semesters. Thus, it would mean that it is very likely that the students need more tutoring to address these weaknesses.

In addition to the phenomena presented on students' written papers, many students were constantly questioning the fairness and accuracy of the scores given by the AES system.

The suspicions about the evaluation of the grading system and the progress students made

Unlike the literature (Chute, 2001; Brent, Carnahan, & McCully, 2005, 2006) indicated that the AES system would be more objective than human graders to score the writing papers; in the interview, many students questioned that *My Access* could assess their papers appropriately. They claimed that they had followed the instructions given by the system and worked hard on editing their writing drafts. However, based on the scores graded by the system, many students were not satisfied with their minor progress on the writing skills. They said that they would feel fulfilled if the scores graded by the system would advance to another level, such as from 3 to 4 or 5 (the highest level is 6), but not only progress 0.5. In this study, many drafts composed by different students were rejected to be scored at the very beginning. It was the first time for students to take the English writing course. In addition, they were from the vocational school system originally. With their inexperienced writing skills and small quantity of English learning hours, it was hard for them to complete successful writing papers initially. Furthermore, certain students would transform Chinese syntax into English directly and this resulted in problematic grammar and structure in the contents. Certainly, those students felt discouraged but many of them achieved better scores eventually. When students received lower scores or their papers were rejected to be graded by the system, they would be frustrated and discouraged because it meant that their writing skills had not reached to the required level. Conversely, students indicated that they would feel satisfied with their performance with higher scores. In the process of implementing the interview, two extreme opinions appeared. One was that students thought that their writing had improved after submitting their drafts several times and had obtained better scores from the AES system. Another group believed that once they had acquired the "taste" of the AES system and preferred and then followed it, their drafts ultimately were scored higher. In their opinions, they did not agree that their writing ability had made progress by using the AES system. For example, after revising a specific draft and submitting it repeatedly, one student eventually had his draft scored. He argued that, instead of learning writing skills, he discovered what kinds of structure the machine prefers while doing 12 experiments with one specific draft. If it is true, then, it shows that students pay serious attention to the scores and feedback given by the AES system even when they question the system's artificial intelligence (AI) programming. They did improve their writing skills after they found the 'taste' of the AES system which, in fact, provided EFL writers coaching in how to conduct their writing papers appropriately. In the same way, comparing the first draft with a rejected score, one student, who consistently did not trust the score graded by the AES system, had his draft scored while doing the same topic at the end of this project. This indicates that the AES program did assist students to improve their writing skills. Unfortunately, they did not appreciate the positive function of improving writing skills but questioned the accuracy of its scoring. Similar situations also appeared in other studies. For instance, Scharber, Dexter, & Riedel (2008) investigated pre-service teachers' reactions to an automated essay scorer used within an online, case-based learning environment called ETIPS. When students found that the scorer was not accurately measuring their essay improvements, they became quite frustrated with it. They seemed to lose confidence in the automated scorer's ability to give them helpful formative feedback.

During the process of exploring the application of the on-line AES program, it was found that three main factors influenced students' writing performance. They were the perceptions on the part of the students that the system exhibited relatively strict and impersonal scoring, rigid and sometimes incorrect grammar concepts, and the unreliable scoring assessment. With its merits of automated scoring and proposed revisions, the AES program may place the responsibility of writing improvement more with the students than with the teacher. However, the writing teachers still cannot be absent, especially, when they work with less proficient ESL writers. How, given these factors, can teachers help students improve their writing proficiency?

Pedagogical implications with on-line AES system

The function of immediate scoring was the one that students both liked and disliked the most. Most students looked forward to receiving their scores after finishing composing their essays. However, many students felt anxious and frightened when they clicked the "submit" button, because they had become accustomed to experiencing the impersonal nature of the program's scoring system. In the feedback sheet, when students were asked how they felt at the moment of receiving their scores, the majority of students indicated that they had negative feelings about learning their scores given by the computer system. That is why one student quit the practice of writing assistance through the AES program. Thus, in addition to constantly explaining how and what the AES program will demonstrate in terms of its function, teachers can give specific students individual tutoring. Also, they can ask some better performing students to help their peers. The AES program can diagnose students' written problems and gather statistics of frequent errors. Based on the statistic report, teachers can give targeted instruction. In this study, students were often weak on subject-verb agreement and clause usage. Teachers can give further instruction on these aspects so as to help students get rid of their incorrect grammar concepts that they have acquired for years and enhance correct grammar knowledge. This point of view is similar to the study conducted by Wang and Brown (2008). They suggested that AES tools can be utilized more specifically in assisting student writers with feedback on improving their sentence skills. In addition, English teachers still need to assess students' writing personally and offer dialogic feedback to students, who will benefit from their teachers' specific comments. Hopefully, student's writing proficiency will gradually be reinforced and this in turn can augment their confidence through the reception of improved scores.

No limitation of submission is another merit provided by the AES program. Teachers can take the AES program as an on-line self access learning tool and encourage students to submit and revise their drafts as advised by the program. In this study, students were requested to do three, four and five essays at the first, second and third semester respectively. At the end of the project, they were asked what they thought the appropriate quantity was for a semester. More than half (57%) of the students answered, "three to four essays." Thus, the quantity of essays conducted in this study was accepted by most students as adequate.

Some students questioned the usefulness of the scoring by the AES program. The main reason was that their drafts were rejected by the program's scoring system many times. Although some of them finally gained better scores, they did not think that their writing ability had really improved but 'knew' what the 'emotionless machine' liked and catered to its pleasure. However, one student quit because he thought he could not improve as assisted by the "weird scoring machine." In fact, this was a distinctive phenomenon that appeared on a number of occasions during this study. When asked their preference of essay editors: the on-line AES system, the teacher, or the peers, more than half (73%) students preferred the teacher. This corresponds to the studies conducted by Zhang (1995), Nelson & Carson (1998), and Yang (2004) that ESL/EFL students preferred the teacher's feedback. Their mutual opinion was that they could better understand teacher's language/instruction during individual tutoring. Those (23%) who preferred the AES system indicated that they could do the computer-based writing faster and could look up unknown words via e-dictionary. At this point, it seems that this was not related to the student's high estimation of the multi- functions provided by the system on writing improvement. Although the on-line writing software seems as if it can lessen the workload of writing teachers, for example, helping with the problems posed by having to grade large quantities of essays, indeed, the workload is still there. However, teachers can save the time of scoring and offer more individualized attention, especially for those students who are less proficient at writing.

Conclusion

Many studies have discussed applying the automated essay scoring program to do essay composition and have concluded that, in general, many users experienced improvement in their writing skills. In addition, the AES system emphasizes the advantage on mitigating writing teachers' heavy workload on essay grading. In this study, the function of immediate scoring was the feature students preferred most while applying the AES system. However, it ironically was also this feature that caused a good deal of damage to student's sense of self-esteem. Thus, it seemed to be a double-edged sword to the users. Many students indicated that they felt

frustrated and uncomfortable when receiving their scores. Another function provided by the AES system was the unlimited drafts submission with scores. Most students gained slightly higher scores when they submitted their drafts repeatedly. However, some essays were alternatively received and rejected by the AES system. In fact, the overall performance of average scores was less than 3.5 on a scale of 6. This implies that most of the students in this study were somewhat less proficient writers. Also, the most frequent errors were made repeatedly in the three semesters. This indicates that students did not improve certain incorrect grammar concepts on their writing. In addition, some students claimed that it was hard for them to read and understand the long explanations given by the system. Most students stated that they edited their drafts repeatedly by employing their own knowledge. Therefore, it seems worthwhile to conduct a further study on comparing the similarities and differences between human tutoring and AES tutoring on less proficient EFL writers. Also, it should be noted that the EFL writers who are from the different educational backgrounds might also perform differently. In this study, the participants were from the vocational high school originally. Their English competency might have been lower because of the relatively small quantity of English learning hours they encountered in their study environment. Thus, this factor might have served as an influence on their performance of writing in English.

While the study was in process, students initially composed one-paragraph writing. Gradually, they were instructed to compose three-paragraph essays. Almost at the same time, many students earned better scores graded by the AES system. Thus, they wondered if the system displayed 'bias' on the length of the writing messages. It was found that there was positive correlation between the length of composition and the scores graded by the computer system. In this, students might not realize that their writing skills had been improved by means of employing the computer program because they were able to lengthen their composition papers.

This study showed that the frequency of practice may not positively help EFL writers improve their writing, but merely indicate that the difficulties of students' writing performance needed to be taken into careful consideration. One might ask what the AES system provides in terms of offering encouragement to positive and diligent more accomplished users. In fact, a number of aspects should be taken into careful consideration. For instance, "My Access" is an English version on-line automated essay scoring program with a well-designed writing tutoring kit. It is generally hard for less proficient EFL students to read and apply all the directions or feedback proposed by the program. That was one reason why most students preferred to work with teachers on their drafts individually. They believed that unlike their human teachers, the computer system was robot-like and not able to quite interpret the precise meanings and subtleties contained in their written papers. Thus, the workload for writing teachers was not truly reduced, but merely extended into another form of duty. In addition, based on the feedback on participants' writing papers, Chen, Chiu, & Liao (2009) pointed out that the *My Access* system would provide more incorrect feedback on students' writing papers while comparing with another AES system. Yeh, Liou, & Yu (2007) also stated that, although it was positive for EFL writing through the use of the on-line writing program, certain limitations still existed concerning *My Access*. They indicated that writing teachers might need to rely on their human assessment on specific aspects of writing. As such, in the future, the research can focus on comparing the machine's scores with the ones graded by human teachers with the same essays to better realize its real effect.

For those less proficient EFL writers who lack independent ability to successfully complete their writing tasks, teachers can give additional individual tutoring or they can ask certain capable students to work with their peers together. Teachers still play the key roles as instructors on the writing stage. The relationship among students, the teacher, and the AES program can be compared to patients, the doctor, and diagnostic medical instruments. By means of his/her professional skills and the analysis provided by of the medical instruments, the doctor can give the patients appropriate medical treatment. Through the peculiar functions such as the overall errors analysis offered by the AES system, the writing teacher can provide more individualized assistance directed at addressing students' weaknesses. Therefore, the main purpose of applying the AES system is not for mitigating a teacher's workload of essay grading but to help the teacher provide more appropriate assistance to his/her students on their writing tasks. Thus the AES system, when

used as an adjunct to traditional methods which the role of the teacher is a reader and grader and students are writers. Hopefully, it can help students employ their English writing skills more practically. In addition, with competent writing skills, they are able to communicate with people from other cultural backgrounds, and, through this, they can connect to the world more easily.

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Appendix A

1. Do you think your writing has been got improved after using *My Access*?
 2. Do you have any problems in using *My Access*? If so, what are they?
 3. Which do you like better? Paper-based writing or computer-based? Why?
 4. Do you agree with its grading system? If not, why not?
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