

PROBING INTO STUDENTS' USE OF AUTOMATED FEEDBACK IN ESSAY REVISION: A CASE STUDY OF TWO CHINESE EFL LEARNERS

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Abstract: Automated feedback (AF) has been extensively investigated by L2 researchers, but in-depth research on English learners' use of AF to revise their English essays is still limited. Moreover, whether there exist individual differences in essay revision remains underexplored. To address these gaps, this cross-sectional study, by adopting a qualitative research method, mainly reports on two Chinese EFL (English as a foreign language) learners' use of the feedback provided by Pigai, an AWE (automated writing evaluation) system. First, both researchers analyzed learners' different writing drafts to see where changes were made. Then, learners participated in a retrospective interview regarding their revision behaviors. The writing drafts and the interview data reveal individual differences between both writers' revision behaviors. Specifically, one writer accepted only a tiny portion of Pigai's suggestions. In contrast, the other not only took up automated feedback but actively made self-initiated revisions. Such differences might be attributed to their gender difference, English proficiency, interest and motivation levels in English learning, stances on automated feedback, and writing experiences in secondary school.

Keywords: automated feedback, essay revision, Chinese EFL writers, contributing factors

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INTRODUCTION

Written corrective feedback, despite its controversy (Truscott, 2009), has proved effective in both L1 and L2 writing instructions (Ferris, 2010; Bitchener and Ferris, 2012). However, providing human feedback (teacher or peer feedback) is taxing and even impractical in the Chinese EFL (English as a foreign language) learning setting, where one college English teacher has to teach several hundred students. Fortunately, driven by technological advances, such impracticality has been addressed by automated writing evaluation (AWE) systems, which, as touted by their developers, can generate summative and formative feedback (Wang & Bai, 2021). Commercially available AWE systems, like Criterion and My Access! have been integrated into

classroom writing instruction worldwide. In the Chinese context, recent years have witnessed the emergence of a handful of locally developed AWE platforms, including Pigai, Bingo, and iWrite. The effectiveness of these online “tutors” has been clamorously advocated by their developers. They claim that the AWE feedback is advantageous in its timeliness and ubiquity due to its availability to the users right after submitting their writing drafts (Ramineni et al., 2012; Ranalli & Yamashita, 2022; Shang, 2022). In this sense, human feedback is never comparable to automatic feedback.

The increasing popularity of computer-assisted instruction (CAI) and educational technology in language teaching has piqued substantial scholarly interest in AWE feedback. However, the way EFL learners use AWE feedback to improve their essay quality remains underexplored (Ranalli, 2021; Link et al., 2022; Liu & Yu, 2022). Against such a background, the present study intends to probe into Chinese EFL learners' use of AWE feedback in revising their English essays, and to see whether (or why) they differ from each other in the revision process. To have a clear picture of what has transpired in this research agenda, the literature that is the most relevant to the present study is reviewed below.

Researchers have extensively explored students' responses to AWE feedback, or their uptake and utilization of automated feedback to revise their writing drafts. For example, Ranalli et al. (2017) showed that students could use Criterion's feedback to rectify 60% of the errors identified by this system. Foltz and Rosenstein (2013) found that students used Write To Learn's feedback to revise their essays and submitted 4.5 drafts on average. But Attali (2004) found that most students submitted their writing draft only once and failed to revise their essays. More studies revealed that AWE feedback assisted students in correcting certain types of errors (especially such superficial errors as spelling, punctuation, capitalization, and the like), and that students tended to delete the problematic parts of essays to avoid making mistakes (El-Ebyary & Windeatt, 2010; Chapelle et al., 2015; Bai & Hu, 2017). Regarding the quality of revision, students could use Criterion's feedback to make 60%-70% successful revisions (Chapelle et al., 2015; Ranalli et al., 2017), pointing to a further improvement of the feedback. Bai and Hu (2017) concluded that students excelled in polishing their essays in writing mechanics but were poor at correcting errors in grammar, collocation, and synonyms. Lu (2016) investigated six non-English major postgraduates' Pigai-based writing processes through think-aloud protocols and stimulated recalls. Grounded in Activity Theory, this study also discussed the factors affecting students' revision behaviors. It was found that students actively responded to the automated feedback and that their writing processes followed three phases: analyzing feedback, revising language, and examining revision results. It further attributed the results to such factors as students' perceptions of Pigai, the goals and nature of the revision tasks, and the teaching requirements. Nevertheless, this study failed to analyze, in a real sense, the participants' individual differences in the revision process. More studies are needed to unveil mental activities during essay revision.

As for the factors that influence EFL learners' revision behaviors, Wu (2016) demonstrated that students' revision processes would be impacted by their stances on AWE feedback, their writing proficiency, their attitudes towards the writing task and revisions, the difficulty of the revisions, the quality of the feedback, and time. Lu (2016) found that students' revision processes might be closely related to their

perceptions of Pigai, the goals and nature of revision tasks, the teaching requirements, and the learning achievement evaluation. However, Roscoe et al. (2017) indicated that students' perceptions had minimal impact on their "in the moment" use of Pigai to write and revise essays, but significantly predicted future intentions to use the software again or to recommend the software to a friend. Zhang and Hyland (2018) posited that engagement is a critical factor in using written feedback. Specifically, the highly engaged learner tended to participate actively and reflect more deeply on AWE feedback, showed more positive attitudes, and employed more revision strategies. In contrast, the moderately engaged learner was less motivated and showed less willingness to employ the feedback. Based on the results, this study pointed to the dynamic interaction between behavioral, affective, and cognitive engagement.

Although extant research has explored how students responded to automated feedback and how they used it to revise their writing drafts, most studies just counted the uptake rate of the revision suggestions or the proportion of good, neutral, and bad revisions (e.g., Bai & Hu, 2017). Scant attention has been paid to student writers' revision processes (Stevenson & Phakiti, 2014). Thus, the picture of the actual revision process is still obscure. As Zhang & Hyland (2022) puts it, "it is the student engagement with feedback rather than the feedback itself that is crucial to learning" (p.1). For teachers, a clear understanding of learners' behaviors might, to a certain degree, benefit their pedagogical practice. Plus, most studies have focused on the general revision process of a focal group of students but failed to analyze the specific revising patterns and thinking activities of individual student writer who uses automated feedback (e.g., Foltz & Rosenstein, 2013; Lu, 2016). The present study attempts to fill these gaps by answering two research questions: (1) Do Chinese EFL writers differ in their revision behaviors? (2) If there are differences in learners' essay revision process, what might be the contributing factors?

METHODOLOGY

Participants and instructional context

The present study is one part of a large research project centering on the impact of AWE system on EFL learning. One intact class of 32 first-year undergraduate students majoring in accounting from a college in China's mainland participated in the present cross-sectional study, including 23 females and nine males. The average age of the students was 18.8 years old (ranging from 18 to 20, SD=0.7), and they had been learning English for approximately ten years since Grade Three in elementary school. All the students had never been to any English-speaking country or learned English from anyone from an English-speaking community. None claimed to have ever written an English essay on any AWE system before college entrance. The students were enrolled in College English I, a compulsory course for all the first-year undergraduate non-English majors. This course lasted 16 teaching weeks, and the second author met the participants twice weekly (90 minutes for each session). Throughout the semester, the teacher should give specific writing instruction designed for each unit (five units in total) to the students because they would prepare for a high-stakes English test called CET-4 (College English Test Band Four) next term.

To familiarize the participants with Pigai's interface to produce an essay, the second author made an elaborate introduction to this system prior to the current

study, including how to log in to the system, locate the writing assignment, submit the essay, and use automated feedback, etc. This study was conducted in a laboratory condition where students had access to the Internet. They were required to complete an essay within 30 minutes (the time needed to finish the writing section of CET-4). And before submitting their final draft, all the participants were allowed 30 minutes to make self-monitored revisions based on Pigai's feedback.

A preliminary analysis of the data revealed two types of essay revisers. Nineteen of the 32 participants enthusiastically revised their essays, while the rest showed little passion for the revision activities. Two participants, one epitomizing each type, were selected for the detailed case study in this report. Their biodata is listed in Table 1.

Table 1. Participants' information

Characteristics	Liao	Xiang
Gender	Male	Female
Age	19	18
College entrance English score	93	117
Years of English study	9	9
Learner type categorized by the teacher	Unmotivated	Motivated
Use of AWE system in secondary school	No	No

Instruments

Writing task

The writing task for this study was selected from an authentic CET-4 test (see Appendix), which required students to produce an argumentative essay. The rationale for choosing the CET-4 task lies in its high validity.

Locally developed AWE system: Pigai

Pigai (literally meaning "correction" in Mandarin Chinese) is a locally developed and widely used AWE system in China's mainland. Theoretically, this system regards the students' essays as a learner corpus, divides each essay into 192 dimensions (although detailed information on these dimensions remains unknown), and compares all the dimensions of the to-be-scored essays with those of the standard corpus. Based on the comparison, it then generates holistic scores, general comments, and elaborate feedback. *Pigai* provides the following services: sentence-by-sentence comments, language knowledge sharing, plagiarism detection, weakness analysis, and the like. Apart from all these, it can use the corpus to recognize "Chinglish" (unidiomatic expression or collocation produced by Chinese EFL learners) and can produce formative and summative assessments.

According to its official web page (<http://www.Pigai.org>), *Pigai* has been applied in English writing instruction by over 1,000 universities in China's mainland, including a proliferation of key universities like Tsinghua University, Peking University, Nanjing University, Fudan University, Shanghai Jiaotong University, to name just a few. What is worth noting is that the writing section in the final examination of some schools is scored solely by *Pigai*. As of June 22, 2022, *Pigai* has evaluated approximately 900 million essays. Figures 1 and 2 demonstrate the quantitative and qualitative feedback *Pigai* provides.



Figure 1. The holistic score and general comments

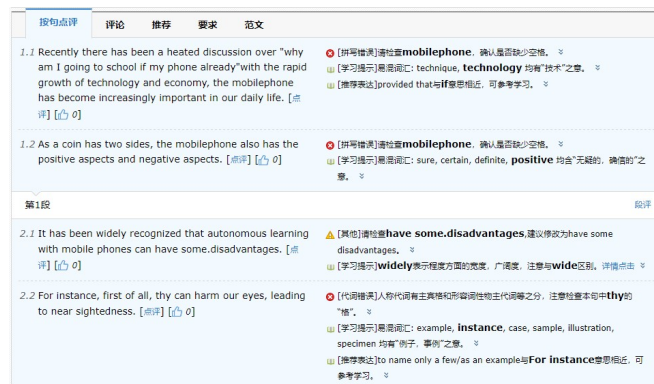


Figure 2. Sentence-by-sentence feedback

Retrospective interviews

Retrospective interviews were designed to probe into the revision behaviors of the two participants. The interviews were based on the changes in participants' different drafts and were thus individualized and spontaneous.

Data collection and analysis

The data include all the writing drafts produced by both participants, and the transcripts of the stimulated interview recordings (analyzed by both authors of this study). Students' written products were closely examined by both researchers to spot the changes in various drafts. Upon completing the writing and revising tasks, Liao and Xiang participated in the stimulated interviews to recall why modifications or changes in different drafts were made. To obtain accurate information on essay revision while not overburdening the participants with English processing, the second author conducted the interviews in the interviewees' mother tongue (i.e., Mandarin Chinese). Data shown in the next section are English translations.

FINDINGS AND DISCUSSIONS

Findings

A close analysis reveals that *Pigai's* feedback falls under four main categories: 1) general comments on the overall essay quality at the lexical, syntactic, textual, and content levels; 2) study notes, including recommended expressions/words and

hyperlinks used for synonym discrimination; 3) corrective feedback (errors in terms of punctuation, spelling, verb forms, word choices, collocations, and so on); 4) positive feedback, pointing out the good expressions used in students' essays. Both participants focused only on the corrective feedback and study notes instead of the other two types. As mentioned previously, both participants best represented each of the two types of essay revisers: one showing less engagement, and the other showing more engagement with automated feedback.

Table 2. Participants' revision results

Participants	Submission time (s)	Revision Results	Feedback Types Attended to by Students		
			Corrective Feedback	Study Notes	Self-initiated
Liao	2	Successful (N)	1	0	0
		Unsuccessful (N)	1	1	0
Xiang	10	Successful (N)	3	4	7
		Unsuccessful (N)	0	1	2

Liao: insufficient use of automated feedback

Liao exemplifies one “unmotivated reviser” among the students and did not engage much with *Pigai's* feedback. As seen from all his drafts, he revised his essay only once (with only two submissions) and made only three changes in his second draft. The following excerpts display what transpired in his revision process. *Pigai's* feedback was originally in Chinese and was translated into English by the authors of this article.

Lexical substitution

Liao made one lexical revision, but with no success.

[Revision 1]

Draft 1: Although the phone knows everything, we still have to go to school to learn.

***Pigai's* feedback:** Please distinguish “have to” from “must”.

Draft 2: Although the phone knows everything, we still must go to school to learn.

In this example, Liao correctly used “have to” in her first draft, but upon noticing the suggestion provided by the system, he replaced “have to” with “must” without hesitation:

Because this was the first revision suggestion, I noticed it at first sight. In senior high school, my English teacher often told students that “have to” and “must” shared the same meaning in Chinese but could not be used interchangeably. I was often confused with the two and unsure of their usages, and when Pigai pointed out that (the suggestion), I changed it (“have to”) immediately.

This piece of feedback is not a corrective one in nature, but Liao still made a correction. In the interview session, he mentioned:

Actually, at first, I just didn't know whether the system was indicating an error in the sentence. Later, I knew it was a suggestion; but, you know, I was not sure whether “have to” was correctly used, so I changed it.

From the above accounts, it is evident that his low English proficiency might very

well contribute to the unsuccessful revision.

Grammatical correction

Liao also noticed one obvious grammatical mistake and corrected it very confidently.

[Revision 2]

Draft 1: To sum up, I will going to school though my phone already knows everything.

Pigai's feedback: [Incorrect verb form] Please check “will going” and confirm the usage of the modal verbs.

Draft 2: To sum up, I will go to school though my phone already knows everything.

In this sentence, Liao made a successful revision and expressed his certainty in the revision process:

I then took notice of this grammatical problem in my essay. Pigai system diagnosed this error as “incorrect verbal form”, and reminded me to pay attention to the modal verbs. In high school, my English teacher always emphasized that English modal verbs should be followed by the base forms of verbs.

Deletion of the error

In the last revision, Liao removed the erroneous part for lack of knowledge.

[Revision 3]

Draft 1: All even if mobile phones can let us know the world, we should also go to the classroom.

Pigai's feedback: [Stylistic error] “Let us know” is a colloquial expression and should not be used in written language.

Draft 2: [deletion]

Once again, he attributed his failure to revise essays to his lack of knowledge:

All too often, I really can't distinguish written English from oral English, and I just know what I want to express. I have no idea how to correct this error, so I just deleted it.

Disregarding some automated feedback

Liao could not understand some of *Pigai's* suggestions, so he just disregarded them. Consider the following revision suggestion.

Draft 1: Phone is good for life, it can help us a lot.

Pigai's feedback: [Syntactic error] This is a run-on sentence.

Liao did not have any idea of what a run-on sentence was:

I really don't know what Pigai is telling me. What is a run-on sentence? I can't remember whether my high school teacher has ever taught me.

Plus, he neglected *Pigai's* advice on writing mechanics and skipped most study notes. He considered the former unimportant and was unsure of the latter:

I don't think punctuation marks and capitalization are the most important parts of English writing. They will not hinder readers' understanding of what I have written. Besides, I'm not quite sure of the usage of the words and expressions listed in the study notes section. So, I will not focus on that part.

Reservations about automated feedback

At the end of the interview, Liao expressed some reservations about the

automated feedback:

I think the general comments are too abstract and do not go into matters profoundly, and thus are ineffective. Moreover, I used the feedback to revise my essay, but no change in the essay score has been seen, which undermined its reliability. Worse still, the feedback is sometimes confusing, and I could not quite understand what it is talking about.

Xiang: extensive use of automated feedback

Xiang submitted ten writing drafts and made a lot more revisions than Liao did. Beyond the submission and revision times, what made her different from Liao is that she had experience in revising essays in high school and that she initiated multiple revisions instead of just relying on *Pigai's* feedback. She tried to refine the essay by exhausting all her writing knowledge.

Mechanical errors first

Unlike Liao, Xiang was an experienced “essay reviser”. She first paid attention to the feedback on mechanical errors, made revisions, and resubmitted the essay to see whether the revisions were successful or not.

[Revision 1]

Draft 1: I think we should go to school although phone already knows everything. Today, the smartphone...

Pigai's feedback: Please pay attention to the usage of punctuation marks.

Draft 2: I think we should go to school although phone already knows everything. Today, the smartphone...

[Revision 2]

Draft 2: Additionally, I hold the view that the smartphone is a bad business.

Draft 3: Additionally, I hold the view that the smartphone is a bad business.

She recalled:

The (AWE) system reminded me of the problem in punctuation, but did not tell me where the problem lay. I had to locate the problem on my own and then found that the punctuation marks were not misused but that there should be only one space after the comma. (Then) I deleted the redundant space and resubmitted the essay. I then read through my essay and found another unnecessary space, so I deleted it again.

Trial and error process of lexical choices

From revisions 3 to 6, Xiang underwent a trial and error process where she made both successful and unsuccessful revisions by taking up *Pigai's* feedback and suggestions. Meanwhile, she also tried hard to retrieve the English knowledge stored in her mind.

[Revision 3]

Draft 3: I think we should go to school although phone already knows everything.

Pigai's feedback: The verbs “consider, think, believe, count, deem, reckon, regard” are confusing.

[Recommended expressions] “I think” can be superseded by “I argue/claim/assert/hold the view that...”

Draft 4: I regard that we should go to school although phone already knows everything.

In draft three, the feedback is confusing because there were no concrete examples

showing how to use the recommended words and expressions. Xiang mistakenly replaced “I think” with “regard” after accepting *Pigai’s* suggestions:

The system provided some words which I think were better than the one in the original draft, so I tried choosing one to replace “I think”. I know there was no problem with “I think”.

[Revision 4]

Draft 5: I deem we should go to school although phone already knows everything.

Xiang expressed her doubt about “regard”. Then, she changed “regard” into “deem”:

In draft five, the combination of “regard + one object clause” sounds strange, so I replaced it with “deem + that-clause”.

Meanwhile, *Pigai* pointed out another problem as shown in Revision 5:

What upset me was that the system identified “school although phone” as one collocation. I was just speechless and disregarded it.

[Revision 5]

Draft 6: I deem that we should go to school although phone already knows everything.

Pigai’s feedback: Please check the appropriateness of the collocation “school although phone”, which is less seen in the English language.

Later, Xiang continued to hunt for a substitution of “I think”, and finally made another successful revision:

Then I noticed the word “reckon” in the previous writing suggestions and was still keen on making a change, because the word “reckon” seems to be a lower-frequency word. It may make my essay more complicated at the lexical level.

[Revision 6]

Draft 7: I reckon that we should go to school although phone already knows everything.

Attention to essay coherence

In the first seven drafts, Xiang did not pay much attention to the textual coherence in her essay as the system did not provide such feedback. But in the eighth edition, she added some transition words to make her arguments more fluid. For example:

[Revision 7]

Drafts 1-7: We come to school to acquire knowledge...I hold the view that the smartphone is a bad business...The functions of smartphone are exceedingly powerful...

Draft 8: First of all, we come to school to acquire knowledge...Additionally, I hold the view that the smartphone is a bad business...The last but not least, the functions of smartphone are exceedingly powerful...

Xiang said:

In class, Mr. Zhang frequently reminds us of the cohesion and coherence in the essay. And I remembered the transition words that can be used to make my points of view clear. These items have appeared in many sample essays I have been exposed to.

Revision by consulting e-dictionary

In draft eight, Xiang misused “last but not least”, and successfully corrected this mistake in the ninth draft with the help of one e-dictionary:

At first, I was very confident in using this item, but Pigai said it was wrong. So I looked it up in the e-dictionary and found “last but not least” was more frequently used. (So) I deleted the article “the”.

[Revision 8]

Draft 9: Last but not least, the functions of smartphone are exceedingly powerful...

Pigai's feedback:

[Collocation error] Please confirm the correctness of “the last but not least”.

[Article error] “The” is unnecessary in “the last but not least”.

Lexical use and syntactic structure

Xiang was always trying to refine the lexical use and syntactic structure of her essay, but constantly committed errors, as shown in revisions 9 to 11.

[Revision 9]

Draft 8: We can find many things what we want to know by using the smartphone.

[Revision 10]

Draft 9: We can find many matter what we want to know by using the smartphone.

Pigai's feedback:[noun error]Please check the plurality and singularity of the noun “matter”.

[Revision 11]

Draft 10: We can find many matters that we want to know by using the smartphone.

In the interview, Xiang could use some metalinguistic terms to explain her revision:

I just wanted to change some words, because “thing” was too common a word. What's more, I knew that “we want to know by using the smartphone” was an attributive clause modifying the noun “matter”. But in my impression, the two relative pronouns “that” and “which” should be put at the beginning of the clause, instead of “what”. So, I changed it.

Attention to the essay content

Unlike Liao, Xiang also made revisions at the content (or meaning) level. For example, in draft nine, she supplemented “at school”, showed clearly what “it” referred to, and pointed out the causality between the two sentences:

When I reread my essay, I found some sentences confusing, so I felt I had to add something to make myself understood. You know, writing is communicating, and we should explain.

[Revision 12]

Draft 8: We should make many friends, and exercise our communicative ability.

Draft 9: We should make many friends, and exercise our communicative ability at school.

[Revisions 13-14]

Draft 8: It blocks interpersonal communications. Phubbers can be seen everywhere.

Draft 9: The smartphone blocks interpersonal communications, because phubbers can be seen everywhere.

Other self-initiated revisions

Except for the self-initiated revisions mentioned earlier, Xiang initiated some other revisions (including the content revisions), although no AWE feedback was provided.

[Revision 15]

Draft 8: For example, many people play their phone in the restaurant, in the bus, in the streets or at school.

Draft 9: For example, many people play their phone in the restaurant, on the bus, in the streets or at school.

She claimed in the interview:

I noticed the preposition error in my essay, although I had to admit that I was poor at using prepositions, conjunctions, and so on.

In draft nine, the system only pointed out the subject-predicate agreement problem in the latter part of the sentence but ignored the same problem in the former part. Xiang self-reportedly noticed the problem and rectified it:

Pigai only reminded me that “endows” was inappropriate. I carefully read the line and found the modal verb “can” should be followed by verbs in base forms. But interestingly, the system did not identify the improper use of “brings”.

[Revision 16]

Draft 9: It can not only brings us knowledge and friends, but can also endows us with nonprofessional ability at school.

Pigai’s feedback: Please check “endows” and pay attention to the subject-predicate agreement.

Draft 10: It can not only bring us knowledge and friends, but can also endow us with nonprofessional ability at school.

A positive stance on automated feedback

When asked about her attitude toward *Pigai’s* feedback, Xiang expressed a generally positive point of view:

Generally, Pigai’s feedback can assist me in noticing some fundamental errors, activate relevant language knowledge, serve as a guide in revising and refining my essay, and further improve my writing ability and English proficiency at large. Especially when I found my essay score constantly improving, I felt a great reward. But undeniably, there is still a long way to go for the system to be perfect in providing comprehensive feedback.

Discussion

The present study involved 32 first-year college EFL learners in China’s mainland, but this article only reports on the revision processes of two students who represent two types of essay revisers—the unmotivated Liao, and the highly motivated Xiang, to shed some light on the impact of individual differences on Chinese EFL learners’ use of automated feedback in essay revision. From the above description, we can find substantial differences between both participants’ engagement with automated feedback. As the results demonstrate, Liao submitted only one revised draft, but Xiang nine. Liao revised his essay with limited AWE feedback and made only three revisions. Specifically, he substituted one word, successfully made one grammatical revision, and deleted one erroneous part. In

contrast, Xiang not merely employed AWE feedback but also actively initiated many revisions by drawing on her language knowledge. She showed a strong willingness to polish the essay, and paid attention to a wide range of aspects, including the writing mechanics, lexical choices and use, syntactic structures, essay coherence, and content. In general, the findings of this study comply with those of Zhang and Hyland (2018).

A close analysis reveals that the far cry between both participants' engagement might be attributable to five factors: participants' gender difference, their English proficiency, their interest and motivation in English learning, their attitudes toward automated feedback, and their writing experience in secondary school.

It is found in this study that Liao (male) and Xiang (female) performed differently in using automated feedback, with Xiang showing higher motivation and willingness to revise the essay than Liao. Therefore, a tentative conclusion might be drawn that gender difference has a role to play in students' essay revision processes. More research, however, needs to be done to confirm this conclusion.

From the interview data, we can find the tremendous impact of English proficiency on students' revision processes. Proficient learners are often armed with more metalinguistic expertise. As Kormos (2012) demonstrated, learners with abundant metalinguistic knowledge are more likely to notice their errors and devote more attention to monitoring linguistic accuracy. Due to low proficiency, Liao only turned to feedback and did not know much about how to produce a high-quality essay. Her low proficiency is revealed by her inability to distinguish the usages of "have to" and "must". She also ignored most suggestions, made some superficial revisions, or even directly deleted the erroneous part. This finding is consistent with the results of El-Ebyary and Windeatt (2010). In contrast, Xiang was a relatively more proficient English learner than Liao and could activate considerable linguistic knowledge implicit or explicit in her mind, although she would be unsure of some knowledge due to limited time and working memory during revision. But at this time, she would consult an e-dictionary for accurate information. Moreover, Xiang's revision process formed a sharp contrast to Wu and Zhang's (2016) finding that Chinese EFL writers made little semantic revision (e.g., content and organization). She took notice of all aspects and even showcased strong reader awareness when she saw writing as communicating.

The differences in the revision behaviors can be vastly accounted for by their interest and motivation in English learning, as motivational intensity would affect learners' attention paid to feedback and their further involvement in creating text revisions (Kormos, 2012). Their motivational divergence is reflected by multiple factors. First, according to the second author's classroom observation, Liao and Xiang perform differently. The latter is always actively participating in classroom discussions, attentively listening to the teacher, and showing great interest in what the teacher is saying. In contrast, the teacher describes the former as "mute", "silent", "passive", and "inattentive". Second, Xiang submitted more revised drafts than Liao, which is evidence that the former had a higher motivation level. Third, highly motivated learners tend to take risks to try new items to enlarge their interlanguage, thus showing their learning autonomy. Wu and Zhang (2016) found that L2 writers with high autonomy tended to not only adopt the AWE feedback to make revisions but also correct the errors discerned by themselves. In different revision phases, highly motivated writers would adopt different revision strategies and use different

tools to verify their hypotheses (Lu, 2016). Obviously, Xiang falls under this category of learners.

The behavioral differences between the two writers may also be explained by their stances on automated feedback (Wu, 2016). Liao held a negative attitude towards and expressed doubts about AWE feedback, as no score improvement could be seen after revising the draft. He also thought that some suggestions were confusing. Xiang, however, considered such feedback useful, and expressed generally positive attitudes. She posited that *Pigai's* feedback could help her activate her knowledge at the lexical, syntactic, and organizational levels. Moreover, Xiang saw the learning potential of L2 writing (or writing to learn). As Manchón (2011) argued, L2 writing is conducive to L2 development in that it helps the writers to notice and internalize new linguistic knowledge, provides output opportunities, and promotes automatization, knowledge consolidation and hypothesis testing. Different beliefs in *Pigai's* feedback, to some extent, contribute to different behaviors.

Still, previous writing experiences in secondary school exert a significant impact on the revision processes of both writers. Liao's high school English teacher would often mark a score, underline some errors, and provide some highly general comments like "very good!", "Excellent!", "Well done!", "Pay attention to your grammar!", "You should write more!" and so on. According to his accounts, the teacher seldom asked students to reread and revise their writings. This may be a longstanding problem in second language writing classrooms in the Chinese setting, where teachers lay more emphasis on the written products and often ignore the writing process. Most of them still adopt a summative assessment model. The teachers seem to be a "dictator" in assessing writing, who either give a holistic score to each essay or provide very general comments without any instructional significance (Huang & Zhang, 2014). No wonder Liao appeared inept at revising her essay. In contrast, Xiang's English teacher would require students to revise their essays from all aspects, and even divided the whole class into several groups to locate the problems of the essays so that all the group members could learn different writing and revision strategies from each other. She also expressed appreciation for her English teacher, for no other teacher had adopted such a teaching method to help improve her English writing ability.

CONCLUSION AND SUGGESTION

This case study depicted how two Chinese EFL writers adopted AWE feedback to refine their writing drafts and compared their revision processes. The results reveal that the two student writers have different revision behaviors due to gender differences, English proficiency, interest and motivation levels in English learning, divergent attitudes towards automated feedback, and differing writing experiences in secondary school. Unlike previous studies, this study displayed the whole revision processes of EFL writers.

However, it should be noted that the current study has involved only two subjects. Multiple-case studies are needed to explore the individual differences in using automatic feedback to revise writing drafts. Also, whether differences in grades and majors have a part to play remains unanswered. Future studies should take these factors into complete account. Moreover, the research method is relatively simple, and more methods or tools should be used to illuminate the revision process of EFL writing, such as the use of think-aloud protocols and computer techniques to record

the whole process of essay revision. Last, this study is cross-sectional in nature, and whether EFL learners' essay revision behaviors will go through any changes can be addressed by a longitudinal research design. To recap, writing is a complex process that requires the skillful coordination of many cognitive and linguistic processes and resources (Hayes, 1996; Kellogg, 1996), so further in-depth studies are badly needed.

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APPENDIX

Directions: For this part, you are allowed 30 minutes to write an essay based on the picture below. You should start your essay with a brief description of the picture and then comment on the kid's understanding of going to school. You should write at least 120 words but no more than 180 words.

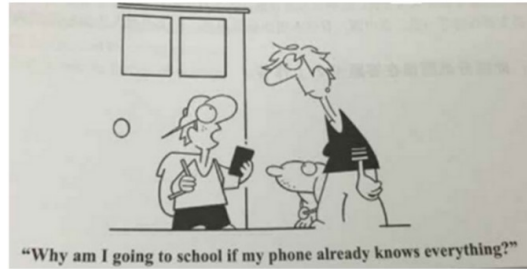


Figure 3. The cartoon for the writing task