

The effect of a word processor on L2 editing in the writing program of  
the general elementary classroom

A Research Proposal

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## **Introduction**

### *Statement of the Problem*

Writing is an essential skill needed by humans to function as “literate members of society” (Beck and Fetherston, 2003, p. 140). In order to prepare their students for the future, schools in every country make writing a major focus of language arts programs and embed it in most other subjects. Many students struggle with writing, but particularly those students who are studying in a second language. While there are a number of reasons that precipitate difficulty, second language (L2) students in particular struggle because they often lack the writing skills of native language writers, and often fail to even perceive what editorial changes are required (Kelly and Raleigh, 1990; Pennington, 1997). When instructed to revise or edit, they may give their writing a cursory glance and then declare it finished. Although peer editing is sometimes cited as being positive (Mullen, 2003), when there is a high percentage of L2 students in the classroom, this usually results in the blind-leading-the-blind or long line-ups waiting for the teacher or the services of native language speakers who are “known” to be good editors.

### *Personal Connection*

My interest with this issue grew out of my own frustration in teaching writing to elementary age students, and wondering how I could effectively help all my students, but more specifically my L2 students, become better editors. Beck & Fetherston’s (2003) research into word processors sparked an idea for a possible answer to my problem.

### *Structure*

In this paper, I will first summarize and critique five related research papers. I will then draw out common themes, discussing what has been previously established, and then

recommending future research. Finally, I will outline a proposal for a research plan based on the stated problem.

### *Key Words*

“Computers;” “word processors;” “elementary;” “L2;” “ESL;” “editing;” “revision;” “CALL”  
Revision/editing refers to “all of the decisions that are made about a piece of writing from its first conception in a rough draft through all types of shaping, changing, and expansion, to the final proof-reading of the finished copy” (Butler in Mullen, 2003).

### **Statement of Purpose**

The purpose of this study is to investigate the effect of a word processor on the editing achievement of Grade three L2 students. In this study the L2 language is English. “Word processor” refers to using a computer with the Microsoft Office Word 2007 program installed.

### **Questions:**

- 1) Can the use of a word processor and its editing affordances improve the editing process for ESL students?
- 2) Are any gains made by using a word processor for editing sustainable and does the knowledge gained transfer to other writing activities that do not use a word processor?

### **Statement of Hypothesis**

L2 students have no natural intuition about the English language. Therefore, it is extremely difficult, particularly for young writers, who have not yet learned a great deal to know where to start when they are required to edit their work during any writing assignment. One of the affordances of a word processor is its ability to provide feedback in terms of incorrect grammar and spelling. By using the word processor, the incorrect work of ESL students will be

highlighted on the page, thus giving them a beginning point of what needs to be changed. This starting point can scaffold learners in the editing process, allowing them to explore and construct their own knowledge of grammar and spelling.

## **Review of Related Literature**

### *Selection of Literature*

My search for related literature began with the ERIC database and Google Scholar using the keywords “writing,” “word processing,” “elementary,” “ESL,” and “L2.” Perusal of the reference sections of some key authors led me to further studies. The majority of the studies were dated prior to the mid-nineties, and primarily focused on junior high and above. Most of the research reports focus on computers for writing in the general elementary classroom. A few focus specifically on word processors, writing, and ESL classroom. Inclusion of the literature was based on match to topic and the K-12 age group. Some of the articles are not current but are pertinent to the investigation. Due to the nature of online learning, I was precluded from accessing some recent print works.

### *Summary and Critique*

Based on previous literature, Beck and Fetherson (2003) hypothesized that using a word processor in the writing process would increase motivation and improve the quality of writing. Using convenience sampling, they worked with seven, Australian middle-class, Year Three students. Their writing was evaluated using two standardized writing assessment tools in a pre-post test design. The students were subjected to two treatments, (pencil and paper and word processor) to determine if word processors improved writing. The researchers found that the

students' use of a word processor improved writing, increased motivation, and eliminated anxiety about writing by hand.

While the basic experimental design is sound, the results have limited use due to a lack of control over a number of variables. Students are neither randomly selected nor assigned, gender is not considered, the sampling is extremely small and the study length short. Additionally, there is no account for the inherent motivation of using a word processing program with stem starters and pictures as opposed to a blank piece of paper with little stimulation.

Although Beck & Fetherston (2003) did not control for motivation, nevertheless, their findings do concur with most of the “more than 200 studies” (Goldberg, Russell, and Cook, 2003, p. 3) created in the two decades preceding their research. In their meta-analysis of research from 1992-2002, Goldberg et al. (2003) narrowed 99 studies down to 26 for inclusion in their study of computers in K-12 writing. A further 38 studies that did not meet the principle criteria, but were closely related, were also studied separately. The 26 studies specifically focused on computer versus pencil and paper writing in K-12 education, and were additionally analyzed for publication bias, effect size, and the possible effects of study features. Goldberg et al. (2003) found that in general writing quantity and quality improved, students revised more during the writing process, and were motivated when using computers, as opposed to pencil and paper. It should be noted that the effect size was greater for junior high and high school rather than elementary, and studies around revision were too small to be definitive. Of the 38 additional studies, not all of them found computer writing to be superior to pencil and paper. One study found students writing to be “stilted and less creative” (Goldberg et al., 2003, p.19) while another found that writing with computers was more time consuming.

Owston, and Wideman (1997) take for granted that a computer will provide positive motivation, replace messy handwriting with neat published work, and increase the quality of writing. The purpose of their study was to find out whether a high computer access site (HAS) would have a greater effect on student writing than a low access setting. Their study sought to fill in gaps present in previous studies such as limited study durations, inadequate computer access, and lack of research on younger children.

Over a period of three years, the writing of two groups of suburban Canadian students was studied, using a quasi-experimental design. 52 Grade Two students (two classes) in a K-8 model access site designed for computer use with a student to computer ratio of 3:1 were compared to 58 students (two classes) in a low access school with a student to computer ratio of 15:1. Both quantitative and qualitative data was collected and writing samples were assessed in April and May of each of the three years using both holistic and indexical measures. Owston & Wideman (1997) concluded that the higher access group had both better attitudes and writing.

Due to the longitudinal nature of this study, the authors have some authority to find writing improvement, however there are some outstanding issues that must be noted. Maturation, history, and mortality were not addressed although the study spanned three years. Additionally, several teachers were involved, but varied in content taught, writing intervention, and amount of writing and genres submitted for assessment.

Pennington's (1997) research narrows the broad focus of computers and writing down to the use of computers for non-native writing, although her focus remains broad in terms of age. Her literature review concentrates primarily on studies conducted between 1989 and 1997, explored through the lens of eight effect areas of word processing as described by the literature. Based on the studies Pennington (1997) concludes that computers have the potential to

“influence the way users learn,” (Pennington, 1997, p. 159) including their writing. Computers motivate and lighten the “cognitive load of communication” (Pennington, 1997, pg. 157), allowing learners the freedom to focus on other areas of writing such as revision. Although this is encouraging news for researchers interested in L2 learners, due to the shortage of literature specifically focused on non-natives, Pennington supplemented with studies focusing on native English writers. Therefore she is largely hypothesizing that what works for native writers will also transfer to non-natives.

Fidaoui, Bahous, and Bacha (2010) narrow their focus even further, from the general classroom to 48 grade 4 (9/10 year-old) ESL students (23 male/ 25 female) in Lebanon. Their three-month study sought to determine whether computer assisted language learning (CALL) could motivate students to develop better writing skills. Instruments included questionnaires, student and teacher interviews, and non-participant observations. Students from three ESL class sections were selected through purposive (based on typicality) and convenience sampling (based on consent).

Fidaoui et al. (2010) had mixed findings. As has already been established by other studies, the teachers and students both found the use of computers to be motivating. Most of the students themselves believed that the computer helped them edit and revise. The teachers had differing views. Some teachers found that the computer did indeed point out the mistakes and help the students correct them while others felt it did not help with corrections, and that the spell checker function did not improve student writing. Teachers cited lack of technology as a major deterrent along with technical problems such as saving work. One teacher observed that using a computer did not help passive learners improve.

The findings of this study are generally positive in terms of the role of computers in improving the writing of ESL students. However the focus is on motivation, attitudes and perceptions of both students and teachers, and not measurable data of improvement. Therefore it is only a step toward finding that computers aid L2 students in the editing process. More research is needed to determine the specific affordances and their effect on L2 editing.

### **Synthesis**

#### *Motivation*

There is common consensus in the literature that the effect of using a computer in the writing process is a motivating factor for both native and non-native learners (Beck & Fetherston, 2003; Fidaoui et al., 2010; Goldberg, et al., 2003; Owston, & Wideman, 1997; Pennington, 1997). Pennington (1997) asserts that the argument has now shifted from the sharp dichotomy of computer versus pen and paper to wide acceptance of computers in writing and a focus on strengths and limitations. Students themselves are cognizant of this motivation and cite a number of reasons: less worry about handwriting and neatness, the ability to produce longer work (Beck & Fetherston, 2003; Fadaoui et al., 2010), and the feeling of importance because the skill is adult-like (Fadoui et al., 2010). Although some students found using computers to be a fun and non-traditional way of writing (Fidaiou et al., 2010), it is less likely that students would be influenced by the novelty effect due to the current prevalence of computers in schools (Goldberg et al., 2003).

#### *Improved Writing*

The presence of motivation can influence academic achievement, and for L2 writers it may “counteract any negative attitudes which they might harbor toward writing” (Pennington, 1997). It is also well established that the use of a computer in writing improves the quantity and quality



of the writing (Beck & Fetherston, 2003; Fidaoui et al., 2010; Goldberg, et al., 2003; Owston, & Wideman, 1997; Pennington, 1997). Computers relieve students of their “cognitive load” allowing them to focus on other areas such as ideas, quantity, structure, and revision (Owston & Wideman, 1997; Pennington, 1997). While it can be argued that some studies have not found computers to improve writing the reasons may be due to the relative shortness of the studies, which are not long enough to validly test improvement in an area such as writing (Goldberg et al., 2003; Pennington, 1997), poor typing skills, types of word processors, and classroom organization (Owston, & Wideman, 1997).

### *Limitations*

While the use of computers has found positive acceptance in the writing process, it is not without limitations, and any research needs to account for these effects. Keyboarding skills can be a major obstacle requiring extra precious class time (Goldberg et al., 2003). Students’ comfort levels and technological expertise factor in as well with the potential for lost work due to incorrect saves (Fidaoui et al., 2010). The amount of computer access will also have an impact on study findings (Fidaoui et al., 2010; Owston & Wideman, 1997). Finally, using a computer may not be enough to motivate passive learners (Fidaoui et al., 2010) who will need some other type of intervention.

### *Revision*

Thus far, the research has shown that implementing computers into a writing program is primarily positive with improvements in motivation and both quality and quantity of writing. But can the affordances of the computer, and specifically a word processor aid L2 writers in their revising and editing process? It is here that the literature is less unified. Pennington (1997) asserts that the computer has the possibility to be a “learning tool” (p. 159). One grade four ESL

student stated, "I learn from my mistakes and how to type well" (Fidaiou et al., 2010, p. 157). Another student asserted, "I really improved because if I put two spaces so it puts a green line under it so I have to press right click and it helps me understand where my mistake is, and if I spelled it wrong, it puts a red line under it" [*sic*](p. 157). Others are not as clear. Owston & Wideman (1997) observed the presence of revising and increased quality of writing, but the individual effects that contributed to the difference was not in the purview of their study.

### **Conclusion**

While it is well established in the literature that computers used in writing motivate students, it is not completely clear yet whether the computer can act as a guide in helping students construct their own knowledge about grammar, spelling, and punctuation. Further research on this topic is needed and can contribute to the body of knowledge in two main areas. It will provide teachers with current and practical knowledge of methodology for an issue that they face each day in the classroom. The knowledge gained could also guide administrators in their decisions about scarce technology funding by giving them hard data about the value of computers for learning.

### **Methodology**

#### *Participants*

Participants for this study will be third grade ESL students in a 260 student international American school in Beijing, China.

#### *Instruments*

In order to ascertain the affect of a word processor on L2 editing several instruments will be used:

- Students' writing will be assessed using the Six Traits Writing, which is already in use by the teachers. Work will only be assessed for sentence fluency and conventions. Sample rubric: [http://educationnorthwest.org/webfm\\_send/773](http://educationnorthwest.org/webfm_send/773)
- One grade appropriate passage with mistakes will be given to all students for correction following the study
- Appropriate interview questions will be designed during the study to be administered in the month after the study is completed

#### *Apparatus/Materials*

- Laptops enough for each child in the treatment group with Microsoft Word 2007
- Six Traits Writing editing rubric
- Passage with editing mistakes for post study exercise
- Post study interview questions

#### *Design*

There will be two groups of eight students (the complete number of ESL students) from each of two classes. Student writing will be assessed in August and March, then again in April. Interviews will be conducted with both teachers and students in April. In addition, students will be given a grade appropriate passage to correct.

#### *Data Analysis*

The pre/post, pencil/paper writing, and corrected passage of each student, each group, both genders, and both groups will be compared.

Student and teacher interviews will be analyzed for common themes and topics.

*Procedure*

At the beginning of the school year, 16 grade 3 ESL students will be randomly assigned to a control or experimental group. To equate the groups (Gay et al., 2009) the students from each group will be matched based on their ESL levels as determined by the ESL department. They will be taught writing by their own classroom teacher, however the two teachers use the same writing curriculum and will work closely to plan and implement the program. Over a six-month period, students in the control group will receive the same instruction as those in the experimental group, the difference being that the experimental group will be given a word processor to write.

The two grade three teachers, as well as two other teachers who do not know the students, will assess an initial sample of writing to obtain a benchmark editing level for each of the students. At the end of six-months, a second writing sample of the same genre will be assessed in order to determine if there is improvement in editing. One month later, a similar pen and paper, writing sample will be assessed and an interview conducted to determine the longevity and transferability of any learning gains. In addition, students will be given a grade appropriate passage with errors to correct. The teachers will also be interviewed.

*Assumptions*

It is assumed that the use of computers will be a motivating factor for students, and help to ease the cognitive load in writing.

*Limitations*

Students who are not assigned to use computers may have attitude problems, which could affect their writing. Students' technical abilities may impede their writing and will require some support. The two teachers may give different scaffolding to the students using computers, which

could interfere with the results. Additionally, over a six-month period the study may experience mortality.

### *Justification of the Design*

Although it is always recommended to use random sampling, it is unlikely that a researcher would gain wide access for this kind of research, and it would be very difficult to manage the data required for this type of study from a large sample. Additionally, according to Gay et al. (2009) research should be conducted according to the researcher's ability. As I am new to research, a small study is far more likely to be successful. Finally, creating randomly assigned control and experimental groups within two existing classrooms, creates the least disruption to learning.

### **Time Schedule**

	<b>August</b>	<b>September...</b>	<b>March</b>	<b>April</b>	<b>May</b>	<b>June</b>
Choose a familiar assessment tool in collaboration with teachers	<b>X</b> (early)					
Collect and Assess Writing Samples	<b>X</b>					
Match student for ESL levels	<b>X</b>					
Collect and Assess Writing Samples	<b>X</b>					
Execute Study		<b>X</b>				
Assess Post Writing Samples			<b>X</b>			
Assess pencil and paper writing sample, interview students and teachers, error correction activity				<b>X</b>		
Analyze Data					<b>X</b>	

Write Report		X	X	X	X	X
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### *Ethics*

Permission for the study will be sought from the Head of school as well as the elementary principal. Student consent will be sought from parents. Students will be advised that their participation is voluntary and that they may leave the study at any time. In addition, all participants and guardians will be assured of confidentiality.

### **Significance of the Proposal**

Writing is a universal practice around the world and remains a current focus in schools. While teachers are mandated to include writing instruction, they are often frustrated and discouraged in the process of teaching writing generally, and may be at a loss to know how to help their students improve. The increased presence of L2 learners in today's classroom adds an additional burden to the teaching of writing. Therefore, it is imperative that good research is available to teachers, providing them with proven methods to succeed in the task of teaching writing. While computers are widely accepted as adding motivation to a writing program, very little research has been done on the area of editing and L2 students; moreover, this small body of research has been unable to isolate specific variables to understand their affects. Therefore the aim of this research is to determine the usefulness of a word processor in L2 writing and editing, thus providing teachers with researched methodology, contributing to a dated body of knowledge on this subject, and providing directly related information to aid technology spending decisions.

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