The Effects of Word-Processors (CALL) on Iranian EFL University Students' Writing Achievements

Sepideh Masoodi[*]
Esmail Faghih[*]

Introduction

The potential of computers to support learning and teaching in almost all subject areas is now widely accepted. At all levels of education computers aid teachers to enrich their learning/teaching environment. In the field of language education, especially English as a second/foreign language (ESL/EFL) computer-assisted learning has acted as an indirect boost to enhance language proficiency. While there are controversies about the impact of computer on teaching and learning, it would seem appropriate to investigate the features of such resources which may have an influence on different learning settings and regarding various skills (Light, 1997).

The impact of computer on teaching and learning a language can be traced in all language skills. Some research on EFL/ESL methodology focus on teaching one or two of the English language components or skills by using computers, such as teaching vocabulary or speaking, while some others have focused on the English language proficiency in general. The skill which is much affected by the new technology is writing. Most of the research regarding the impact of computer on writing skills have been carried

[*] MA, Faculty Member, Arak University of Medical Sciences, Arak
[*] PhD. Faculty Member, Al-Zahra University

out making use of different kinds of word-processors. The role that word-processors have played to take away the labor of writing process should be highlighted here.

Computer and writing skills

Research on the possible effects of using computers for learning and teaching writing in a second/foreign language has not had clear results. In spite of the incongruities in the outcomes of the researches carried out in this respect, it seems that as a whole the positive aspects of employing computers for writing have overcome the possible negative effects.

Information technology offers the writers the tools necessary for preparing, organizing and presenting a text. Computers not only can be of great help in editing and setting layout, but also they can provide spell checking and thesaurus and even specialist tools such as grammar and reliability checkers (Seely, 1998). Brookes and Grundy (2000,111-2) classify writing activities done using computers as: guest authors – imitating a style, simultaneous writing, connecting texts–suggesting improvements in writing (word-processing, deleting and inserting; embolding), slimming down – producing an economical text, expressing a viewpoint, places, friends, special days – designer poems, experimenting with text, making macros – producing templates such as letter heads, planning a story, desktop publishing the purpose of which is to give writing the kind of visual impact that word-processors make possible.

According to Sergeant (2001) typing a text word by word can help students to remember words or syntactic structures; it can also improve spelling and may be more enjoyable than copying a text using pen and paper.

Key linguistic features can be made salient in CALL activities by being highlighted variously while they appear on the screen. The output produced by the learner can be reflected upon to find the possible errors/mistakes, and the learners will have opportunity to correct them (Chapelle, 1998).

CALL can also promote independent learning which is a highly valued goal in this age of the communicative approach, though the effectiveness of such programs depends greatly on teachers and how the learners are trained to use them (Jones, 2001). Gremmo and Riley (1995) comment, employing new technology has made an undeniable contribution to the development of self-directed language learning. According to Cresswell (2000), CALL applications have the advantage of promoting more self-directed, learner-centered context which enables the learners to monitor their learning and such self-monitoring can result in autonomy.

Word-processors and writing skills

Certain programs are used for computer-assisted language learning (CALL) that are really content-free utilities and are also used in a wide range of activities outside CALL. An outstanding program of this sort is a word-processing program (WP) which of course can be used to write anything, but becomes a part of a CALL activity if

used by the learner or native speaker child to write in the language s/he is learning.

Barrass (1995) argues that word-processing can help one's writing in all four stages of composition: thinking, planning, writing, and revising. He believes that they are used before and after writing as well as when one writes. Before writing it allows the writer to prepare a topic outline, on the screen, and then add material under relevant headings and s/he can rearrange them if necessary as s/he decides how to organize his or her work. As one writes a word-processor will perform the following: "automatically formats text; may provide a choice of fonts; inserts running headings and page numbers; may enable one to check spelling, syntax, and grammar; may provide advice on the choice of words and on the use of words, and may provide a thesaurus"(p.97). Celce-Murcia (1991) believes that text modifications need little effort while using the computer's word-processing capabilities since they occur immediately, so the learner's attention is more freely and more fully focused on textual meaning rather than on keeping track of isolated changes and rearrangements.

Hypotheses

The study described here was designed to investigate the role that word-processors namely "Word perfect" may play in promoting writing skills. The possible effects of the program on the learners' self-assessment skills and their awareness of formal language

elements were also inquired. The following research questions were posed:

1- Is there any significant difference in the final writing achievement level of those of the control and experimental groups?

2- Is there any significant difference between the control and experimental groups in handling formal language elements in writing?

3- Is there any significant in the development of the writing skills of the control and experimental groups?

4- Is there any significant difference between the self-assessment skills of the control and experimental groups?

To answer the research questions, four null hypotheses were formed:

Ho 1. There is no significant difference in the final writing achievement level of those of the control and experimental groups

Ho 2. There is no significant difference between the control and experimental groups in handling formal language elements in writing.

Ho 3. There is no significant difference in the development of the writing skills of the control and experimental groups.

Ho 4. There is no significant difference between the self-assessment skills of the control and experimental groups.

Method

The subjects participating in this study were 40 male and female undergraduate EFL students majoring in English literature at Arak University whose native language was Persian. The ages of the

participants ranged from 19 to 24 with an average of 21/1. All were third semester students and at the time of the experiment they were taking the "Advanced Writing" classes in two different groups. "Advanced Writing" is the third writing course in the curriculum which is offered with two credit hours per week and only those students who have successfully passed the first two writing courses are permitted to take it. Based on the results of their first written composition, the subjects were randomly assigned into two groups:

Group 1 (control group): This group consisted of 20 (4 male and 16 female) students, attending just traditional writing classes which met only once a week for a period of 90 minutes.

Group 2 (experimental group): This was the group of 20 (2 male and 18 female) students, attending both traditional writing classes and CALL classes. Their CALL classes were held once a week for about 60 minutes.

Both traditional and CALL classes began in February 2002 and continued till June 2002. Both classes were held for 11 sessions (excluding the sessions dedicated to the pretest and the posttest).

Instrumentation
Teaching material: Traditional material & CALL material

The core of the traditional material consisted of two books. The first textbook was *"Communication Through Writing"* edited by Margaret Pogemiller Coffey (1987). The latter textbook was " *Let's*

Write English" by George E.Wishon & Julia M. Burks (1990). Both the control and experimental groups shared the same traditional material as well as teacher's feedback provided on their compositions, which they were supposed to submit every session. The feedback included comments about the unity and organization of the text as well as marking vague sentences and underlining grammatical and mechanical mistakes/errors. The teacher gave alternatives for major errors but it was hardly possible to provide every learner with corrections on all of his/her errors. Altogether, the learners of both the control and experimental groups received feedback from their teachers on the 11 papers which they submitted to their instructors during 11 sessions (excluding the pretest and the posttest).

In addition to the traditional classes group 2, also attended CALL classes once a week for about 60 minutes each session. They were exposed to a program entitled " *WordPerfect, Office 2002, Professional*". Shirly Crow of LawNet, a network of law firm and legal department IT professionals, has claimed that " WordPerfect has always been and remains the clear choice for anyone who wants flexibility, control, sophistication, and up to date design elegance in word-processing software" (advertised on the CD package).

That is, the most important criterion for choosing a program for our CALL class was its qualitative and quantitative feedback value. The researchers' experiences both as a student and a teacher of English as well as the observations of other experienced teachers reveal that Iranian students even English majors have difficulty in

mastering "formal language elements". Another characteristic of "WordPerfect" is that it provided feedback while students were typing their previously written composition. The mistakes/errors were underlined in red and the learners could either make corrections at once or postpone it to after typing the whole text. Every time a learner repeated the error s/he was provided with a feedback.

The three main parts of the software which were used in the study were "*Grammatik*", "*Spell Checker*" and "*Dictionary*". Grammatik offered learners an explanation about the mistakes which were made. It also supplied the correct language forms for substituting the mistakes. Spell Checker examined the text for spelling mistakes. Oxford Learners Dictionary could be used both while and after typing the text.

Data elicitation instruments: Written composition & questionnaire

The first and the last compositions written by the subjects were regarded as the functional equivalents of a *pretest* and a *posttest*. The learners had no choice of topic in these tests. Each pretest or posttest composition was scored twice both holistically and analytically each by 2 raters. The holistic scoring of the compositions was carried out using TOEFL Written English Scoring Guide taken from TOEFL Sampler CD (1998) copied by Educational Testing Service (ETS) for Computer-based TOEFL Tests. The analytic scoring used in the study was adapted from Weir (1993) and consisted of 7 criteria each of which was subdivided into four

behavioral levels on a scale of 0-3. The tests were scored once more according to the mistakes/errors the learners had made in those 11 formal English language elements for which "WordPerfect" could provide feedback. Two especially developed questionnaires were also used as supplementary data elicitation instruments of the study. In order not to let the level of language proficiency in English affect the results of the answers provided by the subjects, both of the questionnaires were prepared in students' native language, Persian. They included items related to self-assessment skills and were prepared on the five point Likert Scale.

Data analysis

To analyze the data obtained from the written compositions and the questionnaires, the first step was to examine the consistency of inter and intra raters' scorings. In order to accomplish the inter-rater reliability, the correlations between the first and second rater for each topic were computed. The results are presented in table 1.To examine the intra-rater reliability, the correlation co-efficients between the first and the last topic for each rater were computed. The results are presented in Table 2.To answer the first question of the study and to examine the possible difference between the experimental and control groups in their final writing achievement level the mean scores of the analytic and holistic scoring on the last topic were used in an independent t-test analysis ($P \leq 05$, df = 38). The results of Univariate ANOVA based on total analytical grammar scores of the last topic were utilized to investigate the difference

between these groups in terms of their ability in handling formal language elements in their writing. To find the effect of different instructions on the development of writing skills of students in each group, a paired t-test was conducted. And the total scores of items relating to self-assessment skills in the questionnaires were computed to examine the difference between the self-assessment skills of both groups. These scores were converted to a standard scale of 100. To achieve this, an independent t-test was utilized.

Results

As indicated in tables 1 & 2, the correlation coefficients vary across topics, types of scoring procedure i.e. analytic and holistic, and within the raters. This lack of consistency suggests that there were differences among the raters either in terms of their understanding of the scoring criteria in analytic scoring or in the consistency with which they applied these criteria. Therefore, to obtain a more reliable scoring the mean scores of the subjects were used in the further analyses. The scores were also standardized on the scale of 100.

(Insert tables 1and 2 here)

The results of the independent t-test analysis as presented in the Table 3 (below) indicate that there was not a significant difference between the final writing achievement level of the experimental and control groups.

(Insert table 3 here)

The results imply that the feedback provided by computer and the one provided by the instructor had a similar effect on the final writing achievement level of the university students. However, it is worth mentioning that further pair-wise comparison of the means of the experimental and control groups (Table 3) reveals that subjects in the experimental group attained relatively higher scores than the students in the control group. The results of the ANOVA test also revealed a significant difference between the control and experimental groups in handling formal language elements in writing. In all categories, except pronoun-noun agreement, the mean scores of students in experimental group were higher than those of the students in the control group.

(Insert table 4 here)

Paired samples statistics showed that the writing skills of students in control group did not change significantly (.475, .591) during the course of instruction. However, the same conclusion could not be extended to the experimental group. Here, the difference between the first and the last compositions was significant (.000, .000).

The results of the group statistics as presented in Table 5 indicated that the difference between the two groups is not statistically significant i.e. using "WordPerfect" for typing compositions via computers had not made a profound effect on the self-assessment skills of the students of the experimental group compared with those in the control group.

(Insert table 5 here)

But the comparison of the mean scores of the students in the experimental and control groups that points to the higher mean score of those attending CALL classes indicates that working with computers and this specific software had made students more independent.

Discussion and implications

Using "WordPerfect" via computers did not make a great difference on the level of writing skills of the learners of these two groups at the end of the course of instruction. However the higher mean score of the experimental group might imply that computers were slightly more effective means of instruction for making progress in writing skills or to be more accurate, word-processors could bring a little positive change in writing environment. This difference in the scores might be attributed to the nature of the immediate feedback that "WordPerfect" made available for the students. While working with the program, any grammatical mistake/error became underlined and the learners/users were provided with alternatives and explanations of which they could get help to correct their error. The explanations could make them more aware of the correct structures of the language and the suggested replacement(s) could be an aid to improve their writing. The role of the dictionary presented by the software should not be ignored. The learners could see the words from the same root just by typing the word in the specific part. It can be said that in this way their repertoire of vocabulary items was increased and this indirectly

influenced the score they received in their written compositions. The role of "spell-checker" in helping students to remember the correct spellings and the positive effect it might have on the students' writing should also be considered. Another reason for the slight difference between the means of the two groups can be attributed to the improvement of the learners in the experimental group in handling the formal language elements which "WordPerfect" could provide feedback for. It means that their grammatical/ mechanical accuracy had influenced their writing positively compared with those attending just traditional classes. It should be mentioned here that since the two groups were not homogeneous and were randomly assigned to the control and experimental groups, the results might have been affected by such procedure. Perhaps, the same treatment with two homogeneous groups will bring about a significant difference.

The results revealed that the amount of grammatical /mechanical accuracy of the learners of the experimental group was significantly better than those in the control group. This can be attributed to the impact of "WordPerfect" in providing immediate feedback in those eleven categories. While working with computers and receiving such feedback the students became more aware of the mistakes they committed and in this way they were in a better position to remove them. Moreover, the software provided them with the correct forms and alternatives as well as explanations.

The results of the paired t-test (between the first topic and the last topic for each group) demonstrated that only in the experimental

group students experienced a greater change in terms of the development of their writing skills. The comparisons showed that these students obtained higher scores in the last topic. This significant increase in the final scores attests to the fact that employing technology in the language classes offers considerable benefits. It seems that by using computers the learners became more aware of those language areas in which they had difficulties. So, the difference might be attributed to the nature of the interaction between the learner and the program being used.

The results of the t-test revealed that there is no significant difference between the two groups in terms of their self-assessment skills. Therefore, it can be said that interaction with computers did not promote independence and autonomy significantly. However the higher mean scores of the experimental group may imply that the program could make the learners aware of those areas in which they had difficulties, functioning as an awareness-raising instrument for the learners to become more aware of their performance on their writing process. The immediate feedback could foster such awareness. Another reason might be attributed to their awareness toward their progress. While typing each composition they could grasp the amount of their mistakes/errors and the time needed for correcting their texts and their degree of development was indirectly shown to them. But the learners in the control group could not receive such feedback from their teachers about the quality of their writing. So, the learners of the experimental group were encouraged to generate internal feedback and assess their own ability.

Conclusion

Looking at the results of the study, it can be found that employing technological advancement can affect educational outcomes. The study indicated that using word-processors can affect learners' writing skills. The study also showed that the learners participating in CALL classes became more aware of the mistakes/errors they had in their compositions compared with those attending just traditional classes. The results of the analyses of the subjects' last compositions revealed that these learners had significant development in handling the formal language elements controlled by "WordPerfect". As the study revealed, self-assessment skills of the learners in CALL classes was higher than those in control group although it was not significant. Due to the limitations of the study, however, we cannot suggest clear applications but can conclude that several related issues are worthy of further investigation. Exploration of issues related to other groups of students, with different personality and attitudes, using different types of questionnaires and data elicitation instruments will undoubtedly lead to a better understanding of the effects of CALL on writing skills of EFL learners.

Appendix I

Formal Language Elements Scoring Guide

Formal language element	Number of errors	Score 0	Score 1	Score 2	Score 3

Subject-verb agreement				
Determiner-noun agreement				
Determiner usage				
Verb-adverb/verbs agreement				
Pronoun-noun agreement				
Adjective-noun agreement				
Verb forms				
Incomplete sentences				
Capitalization				
Word choice (from the same root)				
Spelling				
Total			Score:	

Adopted from: Weir, 1993

Table 1

Correlation across raters

Correlation between rater 1 and rater 2	Topic 1		Topic 2	
	Analytic	Holistic	Analytic	Holistic
	0.77	0.58	0.57	0.79

Table 2

Intra-rater reliability

	Analytic	Holistic
First rater	0.35	0.44
Second rater	0.51	0.32

Table 3

Independent t-test analysis

	GROUP	N	Mean	SD	T value	Sig.
Mean topic 2 analytic	Control	20	67.61	25.32	2.83	0.1
	Experimental	20	77.50	9.56		
Mean topic 2 Holistic	Control	20	63.75	16.05	0.19	0.66
	Experimental	20	80.00	13.35		

Table 4

Univariate ANOVA results, Dependent variable: Formal language elements

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Groups	7.64	1	7.64	35.78	.ooo
Formal	23.51	10	2.35	11.oo	.ooo

language elements					
GROUPS* FLE	3.75	10	.37	1.75	.066
Error	89.30	418	.21		
Total	3246.00	440			
Corrected Total	124.21	439			

Groups: Experimental and control

FLE: Formal language elements

Table 5

Group Statistics

	GROUP	N	Mean	SD	T- value	Sig
Total self assessment	Control	20	77.77	14.53		
	Experimental	20	84.09	11.87	0.88	0.35

References

Barrass, R. 1995. *Students Must Write: A Guide to Better Writing in Coursework and Examinations.* Routledge, London.

Brookes, A. and Grundy, P. 2000. *Beginning to Write: Writing Activities for Elementary and Intermediate Learners.* Cambridge University Press, Cambridge.

Celce-Murcia, M. 1991. *Teaching English as a Second or Foreign Language.* Newbury House, New York.

Chapelle, C.A. 1998. Multimedia CALL: Lessons to Be Learned from Research on Instructed SLA. *Language Learning and Technology.*2(1), 22-34.

Coffey, M. P. 1987.*Communication Through Writing.* Prentice Hall, New York.

Cresswell, A. 2000. Self-monitoring in Student Writing: Developing Learner Responsibility. *ELT Journal,* 54/3, 235-245.

Gremmo, M.J. and Riley, P. 1995. Autonomy, Self-direction and Self-access in Language Teaching and Learning: The History of an Idea. *System,* 23 (2), 151-164.

Jones, J.F. 2001. CALL and the Responsibilities of Teachers and Administrators. *ELT Journal,* 55/4, 360-367.

Light, P. 1997. Computers for Learning. *Journal of Child Psychology and Psychiatry,* 38,1-8.

Seely, J. 1998. *The Oxford Guide to Writing and Reading.* Oxford University Press, Oxford.

Sergeant, S. 2001. CALL Innovation in the ELT Curriculum. In D.R. Hall and A. Hewings (Eds.). *Innovation in English Language Teaching*. Routledge, London.

Weir, C. 1993. *Understanding and Developing Language Tests*. Prentice Hall, London.

Wishon, G.E. and Burks, J.M. 1990. Let's Write English. *American Book Company, New York.*