# Potential of E-feedback via Email in EFL Writing Classrooms

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## Abstract:

This study aims at employing e-feedback to promote level-one English as a foreign language (EFL) university students' writing skills. This e-feedback is provided via the word processor and email to develop motivated students who possess effective writing skills as well as strategies for planning, drafting, editing, and revising. The participants were 64 EFL students enrolled in level one at College of Languages and Translation, Al-Imam Muhammad Ibn Saud Islamic University (IMSIU) during the first semester of the academic year 1437-1438 H. Two intact classes were randomly selected for the study. One class representing the experimental group was taught by the researcher through a teaching strategy based on e-feedback. The other class receiving regular feedback on their writing by another instructor represented the control group. A pre-post test was employed to measure the experimental group and control group students' performance in writing before and after the treatment. Results showed that the experimental group students outperformed the control group students on the post-test in overall performance in writing as well as in each writing skill. Furthermore, the experimental group students achieved tangible progress in their overall performance in writing after the implementation of the proposed strategy as compared to their performance before the treatment. A significant conclusion is that providing effective e-feedback can provide a solid foundation for the successful teaching and learning of writing.

***Keywords:*** e-feedback, email, word processor,writing skills.

**Introduction:**

Writing is complex developmental skill of communicating ideas, thoughts, and feelings. Efficiency in writing allows learners to communicate their messages clearly and easily to a large number of audiences. As a recursive process, writing embraces a series of stages leading to a final piece of writing (Kim and Yoon, 2014). In addition, competence in writing reflects the learner's command of other language components and the mastery of several sub-skills. Meanwhile, improving writing skills for all higher-education students is a major concern of educators today. As a result, writing instruction has long been considered an essential component of an EFL curriculum. Because writing is central to language learners' success when they join university and into their careers, it is a centerpiece of plans to prepare them for the future (Adler-Kassner and O'Neill, 2010).

Students require versatile instruction in writing that incorporates effective strategies and techniques in order to become competent writers. In this process, the inclusion of Information and Communication Technology has become a common practice in education and language instruction (Cahyono and Mutiaraningrum, 2016). Hence, Computer medicated communication (CMC) is increasingly integrated into classrooms around the world at all levels of education, and it provides varied benefits in the writing classroom. This accelerated and continuous innovation in CMC technologies accentuates the significance of incorporating computers in second/foreign language (L2)

students' writing skills (Yilmaz, 2018). Therefore, language instructors have devised effective ways to incorporate CMC into their writing courses. The aim of this study is to employ e-feedback via the word processor and email to promote level-one EFL university students' writing skills.

The word processor provides several benefits in improving the writing process. Al-Olimat and AbuSeileek (2015) state that there is a recent orientation toward using the word processor in the teaching and learning process. The word processor has significant built-in tools such as spelling, grammar, and style checkers that empower learners to produce polished writing pieces free of errors. These editing features enable learners to make the necessary modifications and revisions while avoiding the repetitive and tiresome job of pen-and-paper recopying. Additionally, the recent and fast developments of computer-assisted tools such as proofing and tracking tools have boosted the role of the word processor in the learning process (Rahimpour, 2011).

Li and Cumming (2001) affirm that the salient features of the word processor reduce language learners' anxiety in writing classrooms by facilitating the routine, time-consuming work of editing a text several times through handwriting, especially for discourse level changes. Williams (2005) adds that writing on the computer screen is more enjoyable than writing on paper. It also makes learners feel more as proficient writers.

In the same context, there is a wide consensus on the potential of email as an asynchronous form of CMC in L2

teaching and learning. Warschauer, Shetzer, and Meloni (2000) refer to email as the mother of all internet applications. Al-Saleem (2011) states that email provides the most accessible computer tool to diverse people worldwide. It provides immediate e-feedback and allows learners to discuss and communicate directly with their instructors and peers regardless of distance and time. In particular, email supports teacher-student relationship (De Montes and Gonzales, 2000), develops students' writing skills (Brown and Dexter, 2002), triggers their reflection and mediation (Van Der Meij and Boersma, 2002), and fosters engagement in the learning process (Clingerman and Bernard, 2004). As Kim (2008) concludes, email has proven to be efficient, convenient, and cost-effective in different real-life situations and educational contexts.

The potential of the word processor and email in EFL writing classrooms has not been fully recognized by educators in Saudi EFL university classrooms. Therefore, the researcher employs a teaching strategy based on providing e-feedback via the word processor and email to improve level-one EFL university students' writing skills, an area not yet fully explored. This teaching strategy ensures continuous modeling of the writing process, increasing frequency of writing, and lengthening time of writing. Discussion is extended to the pedagogical implications of e-feedback in EFL writing classrooms.

**Problem & Questions of the Study**

The study problem was identified in level-one EFL students' weak writing skills that interfere with their overall

writing achievement. The problem of inadequate writing skills was documented through the students' performance on tests and instructor observations. Analysis of probable cause data reveals that the students are exposed to inconsistent teaching methods, and lack sufficient opportunities to practice writing. Traditional methods and approaches for teaching writing mainly require the students to write sentences using vocabulary and punctuation marks correctly. The students are given little guidance other than initial prompts and reminders to heed necessary conventions. In addition, the practice in various skills of writing is given a low-level priority due to the time constraints of teaching a full curriculum. Thus, the students are given opportunities to write only for a final product, and little emphasis is given to teaching the writing process and the improvement of specific writing skills.

Professional literature suggests a variety of causes including inconsistent modeling of the writing process and inability to synthesize writing skills. Several studies show that EFL learners, who study in institutions that use English as a medium of instruction, face severe problems in writing skills that hinder their academic progress (Al-Hazmi, 2006; Al-Samdani, 2010; Ezza, 2010; Javid and Umer 2014; Tahaineh, 2010). In most cases, teachers rarely use higher-level writing activities that require students to generate their own ideas in the writing process. Students lack practice in creating their own compositions in which they are required to think and analyze information, create answers, and use information for decision making in their writing. Clearly,

isolated writing skills need to be brought together so that students can synthesize them as a framework for their writing tasks. Khan (2011), for example, synthesized the problems of Saudi university undergraduates and mentioned that they faced several problems in spelling, grammar, structure, articles, vocabulary, and use of prefixes and suffixes.

Therefore, the study attempts to improve level-one EFL university students' writing skills through exploiting the potential of providing e-feedback via the word processor and email. In other words, the study addresses the following main question:

- What is the effectiveness of providing e-feedback via the word processor and email in improving level-one EFL university students' writing skills?

This main question is divided into the following two sub-questions:

1. What are the features of a teaching strategy to teach writing in the light of providing e-feedback via the word processor and email?
2. How far is the proposed strategy effective in developing the writing skills of level-one EFL university students' writing skills?

**Hypotheses of the Study**

Four hypotheses were tested in this study. The first two hypotheses compared the experimental group and control group students' mean scores on the post-test. The other two hypotheses compared the experimental group students' mean scores before and after the treatment.

Hypotheses comparing the experimental and control group mean scores on the post-test:

1. There is a statistically significant difference between the mean scores of the experimental group students exposed to a teaching strategy based on providing e-feedback via the word processor and email and the control group students receiving regular instruction on the post-test in overall performance in writing in favor of the experimental group students.
2. There are statistically significant differences between the mean scores of the experimental group students and the control group students on the post-test in each writing skill in favor of the experimental group students.

**Hypotheses comparing the experimental group students' mean scores before and after the treatment:**

3. There is a statistically significant difference between the experimental group students' mean scores on the pre-test and the post-test in overall writing performance in favor of the post-test.
4. There are statistically significant differences between the mean scores of the experimental group students' mean scores on the pre-test and the post-test in each writing skill in favor of the post-test.

**Literature Review**

The proliferation of computers and the internet has increased the use of CMC in the language classroom (Darrell, 2006). Therefore, CMC has become a common and popular medium in the L2 teaching and learning context due

its varied pedagogical possibilities and benefits. CMC refers to transfer of data via computers, for example text-based chats, electronic platforms, virtual learning environments, and email (Goertler, 2009; Levy, 2009). This study focuses on text-based CMC as a versatile form of language communication. In particular, e-feedback as a form of CMC is employed to improve learners' writing skills.

E-feedback refers to feedback in a digital form that is a hybrid of oral and written feedback and transmitted through the web (Hyland and Hyland, 2006; Tuzi, 2004). According to Al-Mahrooqi and Troudi (2014), this e-feedback is expected to develop learners' writing skills by scaffolding and boosting their learning. It also helps learners overcome their writing apprehension and have positive attitudes towards writing. Junining (2014) adds that e-feedback makes the writing process more personal, motivating, and manageable to language learners. In this study, e-feedback is defined as teachers' and peers' provision of written digital constructive response via the word processor and email to be accessed by learners at their convenience.

As for the word processor, Al-Olimat and AbuSeileek (2015) state that it represents an influential factor in the writing classroom. It also eliminates the problem of poor handwriting that irritates some language learners. A related benefit is that spelling and grammar checkers facilitate the process of checking and employing correct spelling and grammar. Furthermore, a computer screen is more accessible and visible to a group of learners than a piece of paper. Antoniadou (2009) adds that the word processor enables

learners to concentrate on appropriate structure, correct punctuation, spelling, vocabulary, grammar, word choice, and organization. Most importantly, the word processor supports individual and collaborative writing activities. It also allows language learners with less interest in writing to write freely through increasing their motivation and improving their confidence in writing tasks and activities.

A plethora of empirical studies has been conducted on the effect of the word processor on writing skills, writing ability, proficiency, achievement, and quality. For example, Li and Cumming (2001) conducted a longitudinal study by examining whether the word processor changed English as a second language (ESL) learners' writing processes over a period of time by comparing two groups: the word processor group and the pen-and-paper group. The two groups were supplied with seven comparable pairs of topic. Furthermore, think-aloud protocols were recorded in all sessions. The results were in favor of the word processor group in terms of a greater frequency of revisions made at the discourse and syntactic levels; higher scores for content on analytic ratings of the completed compositions; and more extensive evaluation of written texts in think-aloud verbal reports.

Thigpen (2003) examined the effect of computers on the quality and quantity of students' writing, the number of revisions made by the students, and their attitudes towards writing. Each student worked with a partner to write a story while learning the steps of the writing process. The students in the control group wrote with pen and paper, and the

students in the experimental group wrote on the computer. Results indicated that the students in the word processor group wrote better quality stories, wrote longer stories, made more revisions, and had a better overall attitude toward writing.

Al-Menei (2008) explored the effect of computer-assisted writing (CAW) on Saudi students' writing skill in English. The sample was divided into two groups: the experimental group students were taught writing via the computer while the control group students received regular instruction. The results revealed statistically significant differences between the mean scores of the experimental group and the control group on their post-test in favor of the experimental group students. In particular, CAW had a considerable effect on Saudi EFL students' writing ability in two areas of writing: paragraph writing and correcting grammar errors. The result did not reveal considerable differences between the two groups in correcting style errors.

Abu Seileek (2013) investigated the effect of computer-mediated corrective feedback types in an EFL intact class over time. The participants were English majors who were randomly assigned into three treatment conditions that gave and received computer-mediated corrective feedback while writing (track changes, word processor, and track changes and word processor) and one control group that neither gave nor received writing corrective feedback. Results showed a decrease in errors and feedback in the students' writing performance related to correcting 11 major

error types on immediate and delayed post-tests, indicating that there was a significant effect for feedback type in favor of the group that used a combination of track changes and the word processor. There was also a significant effect for the computer-mediated corrective feedback group over the control group students.

Hoomanfard and Meshkat (2015) investigated the differences in the cognitive processes employed in ESL writing on the computer, and with pen and paper. In doing so, 11 upper-intermediate, Persian-speaking ESL learners wrote texts in response to two International English Language Testing System (IELTS) writing tasks on the computer and with pen and paper. The Cognitive Processes Questionnaire (Weir, O'Sullivan, Yan, and Bax, 2007) and stimulated recall interviews were employed to collect data. The quantitative and qualitative analysis of the collected data indicated that the learners in the computerized condition spent less time on prewriting and planning, but they paused more often during the writing process for online planning. Furthermore, they evaluated and reviewed the text during the writing process. Longer text revision and a higher number of the rearrangements of sentences and ideas were other features of computerized writing. The average time spent on pre-writing and planning was 400 seconds in pen-and-paper condition, and 225 seconds in the computerized writing condition. In addition, the learners in the computerized writing condition reviewed their preceding sentences more often during the process of writing (74%). Although the learners reviewed their

produced sentences and paragraphs during writing (39%) in the pen-and-paper condition, the majority of their revisions were done after completing the whole text (61%). The learners in the computerized writing used copy and paste functions to reorder the sentences. However, the reordering of sentences rarely happened in the pen-and-paper condition. Furthermore, the scope of revisions was also different. The computerized writing condition led to longer text modifications with regard to both content and form items.

Al-Olimat and AbuSeileek (2015) used computer-mediated corrective feedback modes to develop EFL students' writing performance. The students were randomly divided into four groups, three experimental groups and a control group, with 18 students in each group. The three experimental groups received three modes of computer-mediated corrective feedback; teachers' feedback, students' feedback (peer feedback), and both types of feedback (i.e., teachers' and students' feedback). The control group students received computer-mediated communication without corrective feedback. Results indicated that there were statistically significant differences in favor of the experimental group students' mean scores, with the highest scores achieved by the students who received both teachers' and students' feedback.

Cheung (2016) compared the word processor and pen-and-paper writing modes among undergraduate students in Singapore. The researcher analyzed the students’ thinking processes, the quality of their written work, and their

perceptions of working with computers. Results showed the students' positive attitude towards working with computers. Furthermore, the word processor was effective in developing their quality of the student's writing in both technical aspects (content, organization, vocabulary, language use, and mechanics) and global aspects (setting macro rhetorical goal and ordering information in achieving the macro rhetorical goal).

Van Der Steen, Samuelson, and Thomson (2017) examined the effect of keyboard-based word processing on students with different working memory capacity in an academic writing course. A number of 54 graduate students wrote an essay by hand and another essay on the computer. Results showed the significant effect of the word processor on the qualitative and quantitative writing output. In addition, the students with higher working memory mean scores manifested higher writing complexity in using the computer keyboard, in comparison with the students with low working memory.

The use of email communication has also been successfully integrated into the writing classroom. Email is delivered in the form of plain text to one recipient; therefore, it diminishes the apprehension of appearing incompetent in front of others. As a result, learners become more open and creative in expressing their ideas and thoughts. They also express more diverse topics and develop ideas at a deeper level in their writings. This has profoundly altered the dynamics of interaction by creating a learning environment that is interactive, collaborative, and

student-centered (Warschauer, 1996). Another significant feature of email is related to time. As a form of asynchronous CMC communication, email allows time for in-depth analysis and critical reflection (Warschauer, 1997), as well as time for drafting and re-drafting replies. As such, email has been described as magnifying the power and immediacy of the written word.

Researchers highlight numerous advantages that make email communication suitable for a variety of instructional contexts. For example, email provides immediate and continuous support for learner needs (Cook-Sather and Mawr, 2007; Davenport, 2006). Meanwhile, email promotes learners' psychological comfort through intimacy in expression of personal ideas, opinions, and emotions in an interpersonal context (Clingerman and Bernard, 2004; Davenport, 2006). Thus, it fosters interpersonal skills, collegiality, insights into others' perspectives, and close relationships (Brown and Dexter, 2002; Grünberg and Armellini, 2004). Email also encourages learners' interest, enthusiasm, motivation, self-confidence, active participation, and anxiety decrease (Boxie, 2004; Cascio and Gasker, 2001; Overbaugh, 2002).

Findings of several studies indicate that email is one of the most useful tools integrated in language classrooms to improve students' writing skills. Li (2000) investigated the efficacy of integrating task-based email activities into a process-oriented ESL writing class. In particular, she examined the linguistic characteristics of 132 pieces of email writing by ESL students in tasks that differed in terms of

purpose, audience interaction, and task structure. The analysis focused on the linguistic features of the students' email writing at different levels, i.e. syntactic complexity, lexical complexity, and grammatical accuracy. Results showed significant syntactic, lexical, and grammatical differences in the students' email writing of the different tasks. Specifically, in email tasks involving audience interaction, the students tended to produce syntactically and lexically more complex texts, and in tasks which allowed the students self-selection of topics and content, they also tended to use more complex sentences and richer and more diverse vocabulary.

Davenport (2006) found that both students and preservice teachers showed positive outcomes in their writing program by means of email communication. Preservice teachers were partnered with second graders and communicated via email with regard to writing projects. Results indicated increased development of the students' writing skills. In addition, the students' motivation, self-esteem, enthusiasm, and self-confidence were improved. There was also improvement in preservice teachers' knowledge of teaching writing.

Shang (2007) examined the effects of using email on EFL writing performance in aspects of syntactic complexity, grammatical accuracy, and lexical density. The participants were 40 EFL students enrolled in an intermediate reading class at a university in Taiwan. Results revealed that the students made improvements in syntactic complexity and grammatical accuracy, but not in lexical

density. The students' self-reports revealed that email writing improved their learning and attitudes.

Seliem and Ahmed (2009) explored the potential of e-feedback for student teachers and their university lecturers in an EFL essay writing class. Eighty student teachers of English and seven essay writing lecturers exchanged emails. All the student teachers completed the questionnaire. A number of 14 student teachers and 7 essay writing lecturers were interviewed to indicate the effectiveness of e-feedback as a pedagogic practice in the essay writing course. Results showed that the student teachers perceived the lecturers' e-feedback as impacting their revision more than oral feedback. E-feedback was seen as a new pedagogic practice that was generally effective in providing a positive learning environment different from the physical rigid classroom environment. Similarly, email encouraged the students' responsibility for their own written work, facilitated peer and teacher collaboration, increased student participation and collaboration, and gave thorough and constructive feedback to the students' writing electronically.

Al-Saleem (2011) investigated the impact of a cross-cultural email exchange program to enhance EFL undergraduate students' writing skill. The students practiced basic writing skills in the classroom for one semester through the use of email. Then, they communicated with American students. The researcher collected the students' background information and conducted an observation on how they composed their emails. Results indicated that communicating with native English speakers online enabled

the students to achieve more authentic English language competency. This promoted the students' sense of achievement with regard to their overall English language learning in general and writing skill in particular. Even low-performance students became more involved in enjoying writing and improved their self-confidence.

Janfaza, Shahsavari, and Soori (2014) examined the impact of email on improving EFL students' writing skills. The participants were 42 pre-intermediate Iranian EFL students who were randomly assigned into an experimental group and a control group. Each group included 21 participants. The treatment lasted for 3 weeks, 3 sessions a week. The students in the experimental group used email for sending their assignments. These students were in contact with their teacher via email and asked writing questions. In contrast, the students in the control group received traditional writing instruction. Results revealed that the students in the experimental group performed significantly better in writing than the control group students.

Farshi and Safa (2015) compared the effects of two types of corrective feedback on EFL learners' writing skill. Thirty five advanced learners in three groups participated in this study. Structures of written texts were taught in all three classes during 14 sessions of treatment. In each session, a related topic was given, and the learners were asked to write about it. In class A, the learners had to deliver their assignments to the teacher in the classroom. Then, the teacher wrote corrective notes on their papers and returned their papers the next session. In class B, the

learners had to write their assignments on their electronic instruments. After that, they sent written tasks via email to the teacher, who sent the e-feedback on their writing via email. In class C, as control group, no corrective feedback was given on the learners' written tasks. Moreover, in class C, the learners were free to deliver their writings in class or by email. Results showed that both treatments were effective since the scores of both experimental groups were significantly higher than the scores of control group. In addition, e-feedback was more effective than traditional feedback because scores of the learners in group B (e-feedback) were significantly higher than class C (traditional feedback).

The previous studies analyzed the features and functions of e-feedback provided via the word processor and email and indicated consensus on the numerous benefits of these tools in the ESL/EFL context. It can be concluded that literature supports employing the word processor and email to improve ESL/EFL students' writing skills.

***Method & Procedure***

This part describes the participants and the design of the study. In addition, it presents the procedure followed by the researcher in teaching writing to the experimental group students through the proposed teaching strategy.

*Participants*

Participants in this study were 64 EFL students enrolled in level-one EFL writing classes at College of Languages and Translation, IMSIU during the first semester of the

academic year 1437-1438 H. Two intact classes were randomly selected; one class (31 students) was taught by the researcher through a teaching strategy based on e-feedback via the word processor and email. The other class (33 students) received regular writing feedback by another instructor and represented the control group.

During the first week of the class, the researcher used a semi-structured questionnaire to gather information about the students' backgrounds. Results showed that all the students (i.e., 100%) had used email for personal communication purposes, 88% of the students used the word processor for different academic purposes, and 75 % of them ranked their typing ability as good. However, only 32% of the students ranked their writing ability in English as fair. Almost all the students were familiar with communicating using email.

***Design of the Study***

The quasi-experimental design called the pre-post-test control group/experimental group design was employed in this study. It is a pre-post-test control group/experimental group design in which two intact classes were randomly assigned as either an experimental group (a class of 31 students) or a control group (a class of 33 students).

***Teaching strategy***

Through integrating the word processor and email, the researcher employed a variety of activities to provide e-feedback to the experimental group students. The teaching strategy was designed in a way that allowed for extended authentic writing. Throughout practicing the writing

process, the students' practiced writing skills that were stressed and emphasized equally. Hence, they focused on the clarity of content and organization of ideas in the first stages of writing (i.e. prewriting, drafting, and revising). Then, in the later stage of editing, they focused on matters of form of their writing (i.e., grammar and mechanics). Moreover, the students talked about their writing and listened to each other's writing throughout the writing process.

The regular class teaching followed a hybrid format of face-to-face learning and discussion on the one hand, and individual email communication on the other hand. The researcher taught the experimental group students for 14 weeks (3 hours per week). The students received instruction in a process-oriented writing context. Specifically, the students wrote paragraphs while practicing the writing processes of brainstorming, outlining, drafting, revising, and editing. They learned to practice identifying and writing the basic components of a paragraph. They also practiced writing a well-developed, coherent paragraph.

A computer lab at College of Languages and Translation, IMSIU, provided a suitable teaching setting for the study. The computer lab offered an effective means for the students to interact with one another and with the researcher as they constructed their writing pieces. The use of a computer lab also allowed the whole class to practice writing on the computer and receive e-feedback. The researcher was tolerant of student talk in the computer lab.

All this enhanced the students' power as writers to produce texts without the added frustration of arduous re-copying.

The word processor was employed in the teaching strategy to allow rapid alteration and manipulation of the text, helping the students sustain the mental images they were trying to capture while experimenting with language. The word processor allowed multiple copies to be printed for reading in class. It also helped to foster revision and facilitated the task of re-copying as many drafts as possible till each student reached his final draft.

The email was presented to the students as part of the course requirements. The researcher told the students that they would submit their writing assignments by email. The following step was getting the students' email addresses and including them in one group. This made it easy for the researcher to send the same message (e.g. including instructions) to all the students, and at the same time storing all the students' emails in one place, which facilitated retrieving students' paragraphs and responding to them immediately. On the students' part, they sent their writing pieces to their researcher via email to obtain e-feedback on them. This email exchange process lasted for a whole semester (14 weeks). Email allowed the researcher to reply directly to the students while conserving the sender's entire original text. This facilitated dialogue in a way similar to conversation but with the advantage that each participant was able to decide independently on the pace and their own rhythm.

The researcher scheduled feedback times via email for the students twice a week. He also responded when a student sent an inquiry about any issue related to the course material or the writing assignments. Thus, email exchange was frequent. In addition, e-feedback was of both corrective and constructive nature, and helped in reshaping the students' ideas. This procedure ensured that the students received the needed feedback without worry or apprehension because it took place in a nonthreatening, nonjudgmental environment.

The researcher encouraged the students to work collaboratively in the computer lab. They relied on one another for help with spelling and word processing functions. The help that the students provided one another redirected some of the demands on the researcher's attention, enabling him to focus on the students' other queries and problems. For the researcher, feedback comments were automatically stored for later retrieval, allowing him to print out the transcripts for in-class discussion. The researcher used this database of transcripts to increase the students' autonomy in correcting errors and in reflecting on their writing.

As for the control group students, they received regular writing instruction with the regular method for feedback provision. The students used pen and paper in writing about a certain topic. This was followed by the instructor's reading and correcting each student's mistakes. The students were then asked to correct the mistakes and rewrite one final draft of their paragraphs.

## Results

Results of the study are presented by relating them to the study hypotheses. First of all, a comparison between the experimental and control groups on the pre-test was conducted using t-tests for independent samples to examine if there were any statistically significant differences between the two groups before starting the treatment. The following table shows that there is no statistically significant difference between the experimental and control groups on the pre-test in overall performance in writing.

Table 1

*t-test results of the pre-test comparing the experimental group and control group students in overall performance in writing*

| Group | N | M | S.D. | D.F. | t-value | Significance level |
|---|---|---|---|---|---|---|
| Experimental | 31 | 12.40 | 3.15 | 62 | 0.07 | Not significant at 0.05 level |
| Control | 33 | 12.47 | 3.07 | | | |

As shown in table 1 and through comparing the estimated t- value (0.07) for the two groups on the pre-test to the statistical t-value at 0.05 level, it was found that the estimated t- value was not statistically significant. Thus, it can be concluded that the two groups were almost at the same level of performance in writing, and therefore any variance between the two groups that may occur after the implementation of the proposed teaching strategy can be attributed to it.

In the same way, independent samples t- tests for the differences between the experimental and control groups on

the pre-test were conducted with respect to the students' performance in each writing skill, see table (2).

Table 2

*t- test results of the pre-test comparing the performance of the experimental group and control group students in each writing skill*

| Item | Pre-test | N. of cases | Mean | S.D. | D.F. | t-value | Significance level |
|---|---|---|---|---|---|---|---|
| 1- Following proper paragraph format | Exp. | 31 | 1.97 | 0.59 | 62 | 0.19 | Not significant at 0.05 level |
| | Cont. | 33 | 1.99 | 0.54 | 62 | | |
| 2- Writing the topic sentence | Exp. | 31 | 2.14 | 0.62 | 62 | 0.59 | Not significant at 0.05 level |
| | Cont. | 33 | 2.29 | 0.81 | 62 | | |
| 3- Developing supporting sentences | Exp. | 31 | 1.85 | 0.67 | 62 | 0.36 | Not significant at 0.05 level |
| | Cont. | 33 | 1.79 | 0.46 | 62 | | |
| 4- Writing a process paragraph | Exp. | 31 | 1.33 | 0.57 | 62 | 0.10 | Not significant at 0.05 level |
| | Cont. | 33 | 1.22 | 0.47 | 62 | | |
| 5- Writing the concluding sentence | Exp. | 31 | 1.28 | 0.51 | 62 | 0.23 | Not significant at 0.05 level |
| | Cont. | 33 | 1.25 | 0.58 | 62 | | |
| 6- Using spatial order to organize a description | Exp. | 31 | 1.16 | 0.36 | 62 | 0.46 | Not significant at 0.05 level |
| | Cont. | 33 | 1.17 | 0.37 | 62 | | |
| 7- Creating coherent paragraph order | Exp. | 31 | 1.23 | 0.43 | 62 | 0.67 | Not significant at 0.05 level |
| | Cont. | 33 | 1.15 | 0.34 | 62 | | |
| 8- Using time order words and phrases | Exp. | 31 | 1.51 | 0.54 | 62 | 0.20 | Not significant at 0.05 level |
| | Cont. | 33 | 1.54 | 052 | 62 | | |

Table (2) shows that there are no statistically significant differences in writing skills between the mean scores of the

experimental and control groups on the pre-test. The two groups were approximately at the same level of performance in writing at the beginning of the experiment. It can also be noticed from the previous table that the mean scores of both groups are low.

The next part presents the results as related to the research four hypotheses.

***Hypothesis One***

There is a statistically significant difference between the mean scores of the experimental group students exposed to a teaching strategy based on providing e-feedback via the word processor and email and the control group students receiving regular instruction on the post-test in overall performance in writing in favor of the experimental group students.

To test this hypothesis, a t- test for independent samples was used to compare the mean scores of the two groups on the post-test. The results of the t-test proved to be statistically consistent with the hypothesis, see table 3.

Table 3

*t- test results of the post-test comparing the experimental group and control group students in overall performance in writing*

| Group | N | M | S.D. | D.F. | t-value | Significance Level | Effect Size |
|---|---|---|---|---|---|---|---|
| Experimental | 31 | 26.02 | 1.42 | 62 | 10.16 | Significant at 0.01 level) | 5.72 |
| Control | 33 | 16.36 | 2.47 | | | | Large |

Table 3 shows that the estimated t- value (10.16) was statistically significant at 0.01 level. There was a

statistically significant difference between the experimental and control groups on the post-test in overall performance in writing in favor of the experimental group students. Moreover, in order to make sure that the results obtained from the t- test were reliable and to measure the effectiveness of the proposed teaching strategy on the experimental group students' overall performance in writing, its effect size was calculated according to Dunlap's formula (1994).

As shown in table 3, the calculated effect size value was (5.72). Hence, the proposed teaching strategy had a large effect on the experimental group students' overall performance on the post-test as compared to that of the control group students receiving regular instruction of writing.

***Hypothesis Two***

There are statistically significant differences between the mean scores of the experimental group and the control group on the post-test in each writing skill in favor of the experimental group students.

To test the above hypothesis, a t-test for independent samples was calculated, and the results are shown in table (4) below.

Table 4

*t- test results of the post- test comparing the experimental group and control group students in each writing skill*

| Item | Post-test | N. of cases | Mean | S.D. | D.F. | t-value | Significance level | Effect size |
|---|---|---|---|---|---|---|---|---|
| 1- Following proper paragraph format | Exp. | 31 | 3.87 | 0.44 | 62 | 3.60 | Significant at 0.01 level | 1.34 |
| | Cont. | 33 | 2.46 | 0.63 | | | | Large |
| 2- Writing the topic sentence | Exp. | 31 | 3.50 | 0.49 | 62 | 4.06 | Significant at 0.01 level | 1.59 |
| | Cont. | 33 | 2.01 | 0.81 | | | | Large |
| 3- Developing supporting sentences | Exp. | 31 | 3.07 | 0.26 | 62 | 3.64 | Significant at 0.01 level | 1.05 |
| | Cont. | 33 | 2.39 | 0.70 | | | | Large |
| 4- Writing a process paragraph | Exp. | 31 | 3.03 | 0.42 | 62 | 4.16 | Significant at 0.01 level | 1.37 |
| | Cont. | 33 | 1.59 | 0.61 | | | | Large |
| 5- Writing the concluding sentence | Exp. | 31 | 2.91 | 0.38 | 62 | 3.09 | Significant at 0.01 level | 1.49 |
| | Cont. | 33 | 1.94 | 0.81 | | | | Large |
| 6- Using spatial order to organize a description | Exp. | 31 | 3.16 | 0.36 | 62 | 8.61 | Significant at 0.01 level | 2.38 |
| | Cont. | 33 | 1.82 | 0.73 | | | | Large |
| 7- Creating coherent paragraph order | Exp. | 31 | 2.99 | 0.42 | 62 | 5.02 | Significant at 0.01 level | 1.72 |
| | Cont. | 33 | 1.40 | 0.61 | | | | Large |
| 8- Using time order words and phrases | Exp. | 31 | 3.49 | 0.50 | 62 | 3.04 | Significant at 0.01 level | 0.83 |
| | Cont. | 33 | 2.07 | 0.67 | | | | Large |

Table 4 shows that there were statistically significant differences at 0.01 level between the mean scores of the experimental and control groups on the post-test in each writing skill in favor of the experimental group students. As for the effect size, values shown in table 4 reveal that the proposed teaching strategy had a large effect on

experimental group students' writing skills on the post-test as compared to those of the control group receiving regular instruction.

***Hypothesis Three***

There is a statistically significant difference between the mean scores of the experimental group students on the pre-test and the post-test in overall writing performance in favor of the post-test.

To test the above hypothesis, a t-test for paired samples was calculated and the results are shown in table (5) below.

Table 5

*t- test results comparing the pre-test vs. the post-test in the overall mean scores of the experimental group in writing*

| Test | N | M | S.D. | D.F. | t- value | Significance level | Effect Size |
|---|---|---|---|---|---|---|---|
| Post-test | 31 | 26.02 | 1.33 | 30 | 21.97 | Significant at 0.01 level | 6.86 |
| Pre-test | | 12.47 | 7.512 | | | | Large |

According to table (5), t-value = 21.97. There is a statistically significant difference at 0.01 between the overall mean scores of the experimental group students on the pre-test and the post-test in favor of the post-test score. These result proved to be statistically consistent with the third hypothesis. Therefore, the third hypothesis was confirmed. In addition, the estimated effect size value (6.86) shown in table (5) indicated that the proposed teaching strategy had a large effect on the experimental group students' overall performance in writing on the post-test as compared to their overall performance on the pre-test.

***Hypothesis Four***

There are statistically significant differences between the mean scores of the experimental group students on the pre-test and the post-test in each writing skill in favor of the post-test.

To test the above hypothesis, a t-test for independent samples was calculated and the results are shown in table (6) below.

Table 6

*t- test results comparing the pre-test vs. the post-test in each writing skill of the experimental group students*

| Item | Pre-test versus Post-test Scores | Mean | S.D. | D.F. | t- value | Significance level | Effect size |
|---|---|---|---|---|---|---|---|
| 1- Following proper paragraph format | Pre- test | 1.97 | 0.59 | 30 | 17.79 | Significant at 0.01 level | 5.51 |
| | Post-test | 3.87 | 0.44 | | | | Large |
| 2- Writing the topic sentence | Pre- test | 2.14 | 0.62 | 30 | 18.82 | Significant at 0.01 level | 5.90 |
| | Post-test | 3.50 | 0.50 | | | | Large |
| 3- Developing supporting sentences | Pre- test | 1.85 | 0.67 | 30 | 10.90 | Significant at 0.01 level | 3.42 |
| | Post-test | 3.07 | 0.25 | | | | Large |
| 4- Writing a process paragraph | Pre- test | 1.33 | 0.57 | 30 | 16.11 | Significant at 0.01 level | 5.04 |
| | Post-test | 3.03 | 0.42 | | | | Large |
| 5- Writing the concluding sentence | Pre- test | 1.28 | 0.51 | 30 | 17.22 | Significant at 0.01 level | 5.38 |
| | Post-test | 2.91 | 0.39 | | | | Large |
| 6- Using spatial order to organize a description | Pre- test | 1.16 | 0.36 | 30 | 26.42 | Significant at 0.01 level | 9.01 |
| | Post-test | 3.16 | 0.37 | | | | Very large |
| 7- Creating coherent paragraph order | Pre- test | 1.23 | 0.43 | 30 | 21.45 | Significant at 0.01 level | 6.71 |
| | Post-test | 2.99 | 0.42 | | | | Very large |
| 8- Using time order words and | Pre- test | 1.51 | 0.54 | 30 | 19.95 | Significant at 0.01 level | 6.24 |
| | Post- | 3.49 | 0.53 | | | | Very large |

| Item | Pre-test versus Post-test Scores | Mean | S.D. | D.F. | t- value | Significance level | Effect size |
|---|---|---|---|---|---|---|---|
| phrases | test | | | | | | |

According to table 6, there were statistically significant differences at 0.01 level between the mean scores of the experimental group students' writing skills on the pre-post test in favor of the post-test scores. Moreover, the effect size value was large for each writing skill on the posttest.

Discussion

The four hypotheses of the study were supported by the results. The experimental group outperformed the control group on the post-test in overall performance in writing as well as in each writing skill. Furthermore, the experimental group students achieved tangible progress in their overall performance in writing after the implementation of the proposed teaching strategy as compared to their performance before the treatment. Hence, these positive results of the study proved the effectiveness of providing e-feedback via the word processor and email in improving the writing skills of level-one students at College of Languages & Translation, IMSIU.

This registered progress in the experimental group students' performance might generally be attributed to the teaching strategy and the study setting. Providing e-feedback to students was a well-received and helpful pedagogic intervention for the experimental group students. First, the teaching strategy supported increased student participation with respect to increasing percentage of student talk versus instructor talk. Thus, e-feedback reduced the role of the teacher in the learning process, and increased

the amount of student participation and the time they actually spent in writing. This encouraged the students' responsibility for their own written work. In addition, there was a shift in the direction of student talk; it was more directed to other students rather than toward the instructor. Hudson and Bruckman (2002) stress the same idea that using CMC for practicing the target language promotes a decrease in instructor utterances in favor of active student participation.

A related advantage of the teaching strategy was ensuring equality of student participation as each student was given the opportunity to present his piece of writing in the classroom as well as discussing the e-feedback they received with the instructor and colleagues. Dunlap's formula (1994) provides similar results that computer-assisted class discussion can serve as an empowering tool to help all students participate in activities and overcome social differences and personal characteristics such as shyness or the dominance of individual students. Thus, CMC represents an environment that is favorable to shy students who typically defer to more talkative, outgoing students in live classroom contexts (Meskill, 2002).

E-feedback had other instructional and assessment characteristics that were plausible to the experimental group students. These include individualizing writing processes, making the students feel that their writing has a value, promoting their reflection and autonomous learning. El-Koumy (2004) asserts that these characteristics enhance students' confidence in their own ability to learn, helps the

instructor adapt instruction to better meet students' needs, provides a forum for sharing ideas and assessing students' literacy skills, using writing and reading for genuine communication and increasing opportunities for interaction between students and their instructors. A similar feature of e-feedback is reducing the anxiety related to receiving regular feedback. These results are supported by Hussin, Abdullah, Ismail, and Yoke (2015) who found a positive relation between students' writing performance and improvement on writing anxiety level via using CMC tools.

Another benefit for e-feedback was overcoming the students' grammatical and lexical mistakes. It also underscored the mechanics of writing including spelling and punctuation rules. These results are line with Seilem and Ahmed's study (2009) that e-feedback enhances students' lexical and grammatical proficiency, as well as performance in punctuation and spelling. In addition, receiving multiple instances of e-feedback and detailed comments encouraged the students to re-shape their writing pieces and revise more in terms of mechanics and technicalities of writing. In addition, teaching writing using e-feedback promotes students' positive interactivity in learning sentence grammar (Yunus, Nordin, Salehi, Embi, and Salehi, 2013). It is also stated that e-feedback improves students’ writing by providing them the opportunity to brainstorm and organize their ideas before writing, learning new vocabulary items, and overcoming spelling errors via spell-check features (Bani-Hani, Al-Sobh, and Abu-Melhim, 2014).

Finally, the teaching strategy empowered the students through providing them with the luxury of time to construct, review and reflect on their writing pieces. The students communicated with their instructor as well as colleagues inside and outside the writing classroom. This result is in harmony with Meskill and Anthony's idea (2007) that CMC provides learners with time to consult tools such as language textbooks, dictionaries, and encyclopedias to obtain the required information for their writings.

A significant feature in the study setting was that the writing classes were conducted entirely in the computer lab. Hence, the computer, as a tool for collaborative writing, furnished a context for cooperation and collaboration among the students. Collaborative work at the computer created a new social organization that affected the students' interactional patterns. E-feedback also provided a positive learning environment different from the physical rigid classroom environment. Results indicated that the students worked closely with their instructor and received tailored e-feedback when needed. Consequently, they became more aware of the writing skills they needed to construct meaning and were able to recognize and appreciate quality writing. In the same vein, Huang (2018) confirms that computer-supported collaboration functions on the basis of “groupware”, thus providing students with an advanced level of information sharing, coordination, and navigation. This also promotes social connectivity through equal participation that is ensured by means of this digital learning environment.

This registered progress in the experimental group students' performance is also related to the specific features of the word processor and email. For example, the word processor enhanced the students' empowerment and autonomy – two concepts that are stressed by educators as crucial for effective learning to take place. Volman (2005) supports these results by stating that the word processor helps students to learn according to their individual speed. Accordingly, they enjoy more autonomy, empowerment and flexibility in doing out their writing tasks

Another important feature of the word processor is allowing for remarkable adjustments in the revising and editing stages of the writing process. Meanwhile, the changes the students made, which ranged from addition and deletion to more substantial revision, allowed them to attend to higher order thinking. Therefore, the students were able to write well-organized paragraphs and were engaged in thorough revision of their writing. These results receive support from Hartley, Sotto, and Pennebaker (2003) that there are significant differences between the average letter length, the number of paragraphs written, and the number of sentences used by students who utilize the word processor and those who do not. Figueredo and Varnhagen (2006) also emphasize the role of the word processor in teaching writing and helping students correct mistakes with the aid of spelling and grammar checkers.

As for email, it facilitated authentic communication for the students together with sufficient time to think and write their messages and assignments, as well as reflecting on their

instructor's feedback. In addition, the students were provided with immediate e-feedback in the form of visual language that they discussed and reflected on. Consequently, email provided the students with the opportunity to ask more questions and seek more information. Kupelian (2001) affirms that this advantage reduces anxiety that students feel in face-to-face communication. Doherty and Mayer (2003) add that email communication between the instructor and the students provides a new space – new in scope, location, time, and mode – in which relationships can be built.

Another significant characteristic of email was allowing the students to practice writing by facilitating communication with their instructor and colleagues. It fostered the immediate exchange of ideas and provided the students with the opportunity to communicate with real people and authentic materials. Liu and Sadler (2003) refer to the same advantage that these cultivated social relationships between the students and their instructor result in collaborative and meaningful human interactions. Khalsi (2012) substantiates that language complexities produced in online learning environment help students generate ideas, opinions, and viewpoints that are meaningfully correlated with knowledge construction. Cahyono and Mutiaraningrum (2016) add that frequent participation in online-based writing positively correlates to higher levels of knowledge construction through urging students to be active learners who work collaboratively to search for online information to support their ideas.

## Conclusions

The present study provides evidence for the potential of e-feedback in effective teaching of writing. A number of conclusions for classroom practice emerge from the results of this study. The first conclusion is the crucial need for integrating recent innovations and communication technologies into the language curriculum. This conclusion goes in line with Leu, Kinzer, Coiro, and Cammack's study (2004) that CMC empowers EFL students and develops their communicative abilities in the language classroom. Liu, Liu, and Hwang (2011) add that computers play a significant role in the context of language learning because of the ease in learning and using them, as well as measuring their impact. A related conclusion is that teachers need to encourage their students to use computers to write and assess their writing. This conclusion is supported by Shermis and Burstein (2013) who highlight the increased endeavors to develop computer-based systems for writing assessment and instruction. As Cahyono and Mutiaraningrum (2016) mention, the use of internet-based techniques has become a common practice in teaching writing.

Another conclusion is that teaching writing based on e-feedback shapes students' writing in myriad ways. Overall, e-feedback improves students' writing quality and quantity, scaffolds active and independent learning, stimulates students' learning, enhances flexibility in the learning context, and promotes students' confidence. In particular, e-feedback plays a crucial role in improving and

enhancing the quality of students' written pieces. Thus, this study goes in accordance with Seliem and Ahmed's study (2009) in recommending the use of e-feedback as a solution to help both teachers and students overcome the feedback-related challenges and improve students' proficiency in writing classrooms.

Alongside, it is concluded that providing e-feedback via the word processor and email is pedagogically effective in EFL writing courses. These text-based CMC tools have a crucial role in EFL writing and represent powerful tools for learning and improving students' writing skills. Van Leeuwen and Gabriel (2007) support this conclusion by stating that the word processor and email are tools that support a wide range of writing activities in classrooms.

It is also concluded that it is most beneficial if e-feedback is frequent, timely, sufficient, and sufficiently detailed. E-feedback should be linked to the purpose of the assessment task and criteria. It should be understandable and relevant to the students' level of proficiency. It should also focus on learning rather than marks by relating explicitly to future work and tasks (Gibbs and Simpson, 2004). A related conclusion is the need for teachers' and students' training in effective use of e-feedback in writing classrooms to achieve the best writing quality. According to Tuzi (2004), most advantages of e-feedback depend strongly on the quality of instruction and training the students get before engaging in peer and e-feedback activities. Students who receive training develop better quality responses, which contain more specific suggestions for improving a text.

Another conclusion is that email seems appealing and appropriate for students in the current age of information technology revolution. It provides students with the tools to interact with their instructor and colleagues beyond the traditional restrictions of time and place. Meskill and Anthony (2007) affirm the same idea that when learning a new language with CMC, the time and affective constraints of classroom interaction are absent. Thus, email as a form of internet-based teaching of writing is regarded as the solution to many problems in writing instruction such as time limitation (Aliweh, 2011; Moloudi, 2011) and lack of motivation (Erkan and Saban, 2011; Gupta and Wondemariam, 2011). These conclusions are supported by Cahyono and Mutiaraningrum (2016) that internet-based teaching of writing should become a widespread practice in the context of EFL writing instruction.

A further conclusion is that learning EFL writing has become increasingly social as the word processor is integrated in the language classroom. For example, students' talk and reflection foster collaboration in this social setting and work as a catalyst in the process of knowledge construction and sharing. This conclusion is supported by Van Leeuwen and Gabriel (2007) that the word processor facilitates the process of meaning construction as students and teachers interact within the context of the process writing approach.

By the same token, using email empowers students to be active, responsible, and motivated to communicate and promote their language learning. In a context free of peer pressure and modeling, students create, revise, and edit their writing assignment, then send it at their own pace. This

conclusion is consistent with Sabieh's study (2002) that using email in the writing classroom makes students feel less peer pressure and enjoy more privacy and freedom, which eventually leads them to be more active learners.

A final conclusion is that the shift to a collaborative, computer-based writing instruction is reflected in the teachers' philosophy of teaching and instructional practices. This conclusion adheres to Labbo's idea (2006) that the teacher becomes a facilitator, moderator, and guide in this collaborative learning community. Therefore, teachers should be aware of the challenges they might face before or during the use of the word processor and email. These findings along with those of other studies can deepen our understanding of the cognitive processes of EFL writing which can benefit EFL teachers, curriculum developers, and test developers.

Although writing instruction and assessment through e-feedback provides enormous increments to students' writing, incorporating e-feedback in writing instruction largely depends on how instructors arrange the writing course. In this process, the instructor's role is vital, especially for learners who are novice to online-based learning. As a result, teachers should furnish appropriate conditions to encourage the inclusion of e-feedback in the teaching and learning of writing processes. Future research might explore the effective strategies, techniques and activities for encouraging instructors to employ e-feedback in writing instruction in addition to motivating them to integrate online-based tools (such as email and the word processor) in writing classrooms.

## References

Abu Seileek, A. F. (2013). Using track changes and word processor to provide corrective feedback to learners in writing: Corrective feedback to learners in writing. *Journal of Computer Assisted Learning*, 29(4), 319 - 333.

Adler-Kassner, L. & O'Neill, P. (2010). *Reframing writing assessment to improve teaching and learning*. Logan, UT: Utah State University Press.

Al-Hazmi, S. (2006). Writing Reflection: Perceptions of Arab EFL Learners. *South Asian Language Review*, XVI(2), 36 - 52.

Aliweh, A. M. (2011). The effect of electronic portfolios on promoting Egyptian EFL college students' writing competence and autonomy. *Asian EFL Journal*, 13(3), 90 - 132.

Al-Mahrooqi, R. & Troudi, S. (2014). *Using Technology in Foreign Language Teaching*. Cambridge Scholars Publishing.

Al-Menei, A. (2008). *An investigation of the effect of computer assisted writing instruction on EFL Saudi learners' ability*. Unpublished Master Thesis, King Saud University, Riyadh, KSA.

Al-Olimat, S. I. & Abu Seileek, A. F. (2015). Using Computer-Mediated Corrective Feedback Modes in Developing Students' Writing Performance. *Teaching English with Technology*, 15(3), 3 - 30.

Al-Saleem B. (2011). The Impact of the Cross-cultural E-mail Exchange Program to Enhance the EFL Undergraduate

Jordanian Students' Writing Skill. *Educational Research*, 2(6), 1193 - 1198.

Al-Samdani, H. A. (2010). The Relationship between Saudi EFL Students' Writing Competence, L1 Writing Proficiency, and Self-regulation. *European Journal of Social Sciences*, 16(1), 53 - 63.

Antoniadou, M. (2009). Teaching English with the Word Processor. *ISSUES*, 23, 14 - 17.

Bani-Hani, N. A., Al-Sobh, M. A. & Abu-Melhim, A. R. H. (2014). Utilizing Face-book groups in teaching writing: Jordanian EFL students' perceptions and attitudes. *International Journal of English Linguistics*, 4(5), 27 - 34.

Boxie, P. (2004). Making a cyber literacy connection from the storage room to the college room. *Read Horizons*, 45(2), 127 – 138.

Brown, R. & Dexter, S. (2002). E-mentors: Connecting caring adults and kids through e-mail. *Tech Trends*, 36(6), 60 – 63.

Cahyono, B. Y. & Mutiaraningrum, I. (2016). Indonesian EFL Teachers' Familiarity with and Opinion on the Internet-Based Teaching of Writing. *English Language Teaching*, 9(1), 199 - 208.

Cascio, T. & Gasker, J. (2001). Everyone has a shining side: Computer-mediated mentoring in social work education. *Journal of Social Work Education*, 37(2), 283 – 293.

Cheung, Y. L. (2016). A Comparative Study of Paper-and-Pen Versus Computer Delivered Assessment Modes on

Students' Writing Quality: A Singapore Study. *The Asia-Pacific Education Researcher,* 25(1), 23 – 33.

Clingerman, T. L. & Bernard, J. M. (2004). An investigation of the use of e-mail as a supplemental modality for clinical supervision. *Counselor Education and Supervision*, 44(2), 82 - 95.

Cook-Sather, A. & Mawr, B. (2007). Direct links: Using e-mail to connect pre-service teachers, experienced teachers, and high school students within an undergraduate teacher preparation program. *Journal of Technology and Teacher Education*, 15(1), 11 – 37.

Darrell, H. (2006). A look into the nature of computer-mediated writing: Does the use of computers in the second language writing class foster greater improvement in writing skills than traditional pen and paper writing? *Chiba University of Commerce Review*, 44(1), 33 – 51.

Davenport, N. A. (2006). Connecting pre-service teachers with students: Using email to build skills for teaching writing. *Journal of Reading Education*, 31(2), 13 - 19.

De Montes, L. E. & Gonzales, C. L. (2000). Been there, done that: Reaching teachers through distance education. *Journal of Technology and Teacher Education*, 8(4), 351 - 371.

Doherty, C. & Mayer, D. (2003). E-mail as a "contact zone" for teacher-student relationships. *Journal of Adolescent and Adult Literacy*, 4(2), 592 - 600.

Dunlap, W. (1994). Generalizing the common language effect size indicator to bipartite normal correlations. *Psychological Bulletin.* 116(3), 509 - 511.

El-Koumy, A. (2004). Language performance assessment: Current trends in theory and research. Retrieved on August 22, 2018 from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2365667.

Erkan, D. Y. & Saban, A. I. (2011). Writing performance relative to writing apprehension, self-efficacy in writing, and attitudes towards writing: A correlation study in Turkish tertiary-level EFL. *Asian EFL Journal*, 13(5), 163 - 191.

Ezza, E. (2010). Arab EFL learners' writing dilemma at tertiary level. *English Language Teaching*, 3(4), 33 - 39.

Farshi, S. & Safa, S. (2015).The effect of two types of corrective feedback on EFL learners' writing skill. *Advances in Language and Literary Studies*, 6 (1), 26 - 30.

Figueredo, L. & Varnhagen, C. K. (2006). Spelling and grammar checkers: Are they intrusive? *British Journal of Educational Technology*, 37, 721 - 732.

Gibbs, G. & Simpson, C. (2004). Conditions under which assessment supports student learning. *Learning and Teaching in Higher Education*, 1(1), 3 - 31.

Goertler, S. (2009). Using computer-mediated communication (CMC) in language teaching. *Die Unterrichtspraxis,* 42(1), 74 – 87.

Grünberg, J. & Armellini, A. (2004). Teacher collegiality and electronic communication: A study of the collaborative uses of email by secondary school teachers in Uruguay. *British Journal of Educational Technology*, 35(5), 597 - 606.

Gupta, D. & Woldemariam, G. S. (2011). The influence of motivation and attitudes on writing strategy use of undergraduate EFL students: Quantitative and qualitative perspectives. *Asian EFL Journal*, 13(2), 34 - 89.

Hartley, J., Sotto, E. & Pennebaker, J. (2003). Speaking versus typing: A case-study of the effects of using voice recognition software on academic correspondence. *British Journal of Educational Technology*, 34(1), 141 - 151.

Hoomanfard, M. H. & Meshkat, M. (2015). Writing on a Computer and Using Paper and Pencil: Is there any Difference in the Internal Cognitive Processes? *GEMA Online Journal of Language Studies*, 15(2), 17 - 31.

Huang, X. (2018). Improving Communicative Competence through Synchronous Communication in Computer-Supported Collaborative Learning Environments: A Systematic Review. *Education Sciences*, 8(15), 1 - 18.

Hudson, J. M. & Bruckman, A. S. (2002). The creation of an Internet-based SLA community. *Computer Assisted Language Learning*, 15 (2), 109 - 134.

Hussin, S., Abdullah, M. Y., Ismail, N. & Yoke, S. K. (2015). The Effects of CMC Applications on ESL Writing Anxiety among Postgraduate Students. *English Language Teaching*, 8(9), 167 - 172.

Hyland, K. & Hyland, F. (2006). Feedback on second language students' writing. *Language Teaching*, 39(6), 83 - 101.

Janfaza, A., Shahsavari, K. & Soori, A. (2014). The impact of using email on improving the writing skills among Iranian students. *Advances in Language and Literary Studies*, 5(5), 75 - 79.

Javid, C. Z. & Umer, M. (2014). Saudi EFL learners‟ writing problems: a move towards solution. Proceeding of the Global Summit on Education GSE 2014 (pp. 164 - 180). Kuala Lumpur, Malaysia: WorldConferences.net.

Junining, E. (2014). A Critique on Giving Feedback for English as a Foreign Language (EFL) Students' Writing. *Asian Journal of Education and E-Learning*, 2 (1), 31 - 34.

Khalsi, I. (2012). The effect of language complexity and group size on knowledge construction: Implications for online learning. *Applied Research on English Language*, 2(1), 69 - 76.

Khan, I. A. (2011). Learning difficulties in English: Diagnosis and pedagogy in Saudi Arabia. *Educational Research*, 2(7), 1248 - 1257.

Kim, C. (2008). Using email to enable e3 (effective, efficient, and engaging) learning. *Distance Education*, 29(2), 187 – 198.

Kim, Y. & Yoon, H. (2014). The Use of L1 as a Writing Strategy in L2 Writing Tasks. *GEMA Online Journal of Language Studies*, 14(3), 33 - 50.

Kupelian, M. (2001). The use of e-mail in the L2 classroom: An overview. Second Language Learning and Teaching. Retrieved on July 15, 2018, from http://www.usq.edu.au/opacs/cllt/sllt/1-1/Kupelian01.htm

Labbo, L. (2006). Literacy pedagogy and computer technologies: Toward solving the puzzle of current and future classroom practices. *Australian Journal of Language and Literacy*, 29(3), 199 – 209.

Leu, D. J., Kinzer, C., Coiro, J. & Cammack, D. (2004). Toward a theory of new literacies emerging from the Internet and other information and communication technologies. In R. Ruddell & N. Unrau (Eds.), *Theoretical models and processes of reading*. Newark, DE: International Reading Association, 1570- 1613.

Levy, M. (2009). Technologies in use for second language learning. *The Modern Language Journal.* 93(1), 769 – 782.

Li, J. & Cumming, A. (2001). Word Processing and Second Language Writing: A Longitudinal Case Study. *International Journal of English Studies*, 1(2), 127 - 152.

Li, Y. (2000). Linguistic characteristics of ESL writing in task-based e-mail activities. *System*, 28(2), 229 - 245.

Liu, G., Liu, Z. H. & Hwang, G. J. (2011). Developing multi-dimensional evaluation criteria for English learning websites with university students and professors. *Computers & Education*, 56(3), 65 – 79.

Liu, J. & Sadler, R. W. (2003). The effect and affect of peer review in electronic versus traditional modes on L2

writing. *Journal of English for Academic Purposes*. 2(2), 193 - 227.

Meskill, C. (2002). *Teaching and Learning in Real Time: Media, Technologies, and Language Acquisition*. Athelstan, Houston, TX.

Meskill, C. & Anthony, N. (2007). Form-focused Communicative Practice via CMC: What Language Learners Say. *CALICO Journal*, 25(1), 69 - 90.

Moloudi, M. (2011). Online and face-to-face peer review: Measures of implementation in ESl writing classes. *Asian EFL Journal*, 52(1), 42 - 23.

Overbaugh, R. C. (2002). Undergraduate education majors' discourse on an electronic mailing list. *Journal of Research on Technology in Education*, 35(1), 117 - 138.

Rahimpour, M. (2011). Computer assisted language learning (CALL). *International Journal of Instructional Technology & Distance Learning*, 8(1), 3 - 9.

Sabieh, C. (2002). *The Influence of E-mail on Language Learning: A Positive Impact. Paper presented at the 22nd Symposium*, Annual Center for Developing English Language Symposium, Cairo, Egypt.

Seliem, S. & Ahmed, A. (2009). *Missing: Electronic Feedback in Egyptian EFL Essay Writing Classes*. Paper presented at the Centre for Developing English Language Teaching (CDELT) Conference (Cairo, Egypt).

Shang, H. (2007). An exploratory study of e-mail application on FL writing performance. *Computer Assisted Language Learning*, 20(1), 79 - 96.

Shermis, M. D. & Burstein, J. (2013). *Handbook of automated essay evaluation: Current applications and future directions*. New York: Routledge.

Tahaineh, Y. S. (2010). Arab EFL university students' errors in the use of prepositions. MJAL, 2(1), 76 - 112.

Thigpen, A. K. (2003). *The Impact of computers on the writing processes of first-grade students: An action research study*. MA Thesis. Valdosta, GA : Valdosta State University.

Tuzi, F. (2004). The impact of e-feedback on the revisions of L2 writers in an academic writing course. *Computers and Composition*, 21(2), 217 - 235.

Van Der Meij, H. & Boersma, K. (2002). Email use in elementary school: An analysis of exchange patterns and content. *British Journal of Educational Technology*, 33(2), 189 - 200.

Van Der Steen, S., Samuelson, D. & Thomson, J. M. (2017). The Effect of Keyboard-Based Word Processing on Students with Different Working Memory Capacity during the Process of Academic Writing. *Written Communication*, 34(3), 280 - 305.

Van Leeuwen, C. & Gabriel, M. (2007). Beginning to write with word processing: Integrating writing process and technology in a primary classroom. *Reading Teacher*, 60(5), 420 - 429.

Volman, M. (2005). A variety of roles for a new type of teacher Educational technology and the teaching profession. *Teaching and Teacher Education*, 21(1), 15 – 31.

Warschauer, M. (1996). Computer-assisted language learning: an introduction. In S. Fotos (Ed.), *Multimedia language teaching* (pp. 3 - 20). Tokyo: Logos International.

Warschauer, M. (1997). Computer mediated collaborative learning. Theory and practice. *The Modern Language Journal*, 81(6), 470 - 481.

Warschauer, M., Shetzer, H. & Meloni, C. (2000). *Internet for English teaching*. Alexandria, VA: TESOL Publications.

Weir, C., O'Sullivan, B., Yan, J. & Bax, S. (2007). Does the Computer Make a Difference? Reaction of Candidates to a Computer-Based Versus a Traditional Handwritten Form of the IELTS Writing Component: Effects and Impact. *IELTS Research Report*, 7(6), 1 - 37.

Williams, T. (2005). Leading double lives: Literacy and technology in and out of school. *Journal of Adolescent and Adult Literacy*, 48(7), 702 - 706.

Yilmaz, A. (2018). Computers in Reading and Writing Skills through the Motivational Lens: Snagit™, Screencast and E-Mail Services. *Contemporary Educational Technology*, 9(3), 264 - 283.

Yunus, M. M., Nordin, N., Salehi, H., Embi, M. A. & Salehi, Z. (2013). The use of information and communication technology (ICT) in teaching ESL writing skills. *English Language Teaching*, 6(7), 1 - 8.