Traditional and computer mediated l2 learning among ESL learners: A comparative study of e-mail and paper writing

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ABSTRACT
Current study examined the effects of using emails on the improvement of writing performance of ESL learners in terms of syntactical complexity, lexical complexity and grammatical accuracy. Subjects in present study were ESL learners at a language institute in Pakistan. Linguistic analysis of the writing samples of learners was executed by the application of two computerized text analysis programs, i.e. “wordsmith tools” (Scott, 1996) and “word perfect 10”. By applying mixed method of research, the study results showed that L2 learners improved syntactic and lexical complexity of their writing through email based writing activities than their in-class writing activities. However, they made more errors in terms of grammar accuracy while corresponding through email. Results from students’ self-report revealed that email based learning approach could help students to learn and enhance their English writing skills while generating enthusiasm, learner autonomy and engagement alongside.

Introduction
English writing skill of students plays a vital role in their academic period. Academic writings are representative and reflection of learners’ ability and competence of knowledge regarding a given subject. Many language institutions offer different courses with a purpose to improve English language skills of the learners and in those courses all the four language skills are practiced in a language classroom. In order to improve all of the language skills various language activities are implemented by a language teacher by employing diverse tools. These tools are important in providing students with more practice and facilitating them in escalating their language expertise and proficiency. According to Rehman (1999) English in the multilingual social order of Pakistan has gained preeminence over all Pakistani languages and is employed as a second language. In Pakistan, English is a compulsory subject taught from the first grade up to the bachelor’s degree curriculum comprising of fourteen years and fifteen to sixteen years education in general education and professional education respectively. The only compulsory language course taught during this academic time span is English. Moreover, it rests as the language of instruction in professional education at the tertiary level whereas in general education Urdu generally plays that role in context of Pakistan. In Pakistan, different tools like; charts, diagrams, pictures, and newspapers, etc. are brought into play to put students in practice and consequently to enhance their writing skills. These are the traditional tools which are being used since long in a language classroom. On the other hand, there are also used some ICT tools like; multimedia, audio visual aids, computers, and overhead projectors being used. The use of the above mentioned tools (both ICT and traditional ones) depends on the status of a given institution in terms whether it is a private or a public one. In private language institutions, mostly traditional language tools are exercised and paper- pen writing is generally done. ICT tools are, more often than not, used in public institutions especially in universities where teachers are competent enough to make use of such tools and organize special activities with respect to each language skill. So, Pakistan is found at a very initial stage in terms of bringing ICT tools in practice in language institutions. For example, there is The Virtual University in Pakistan which is the first university based entirely on modern Information and Communication technology for promoting distance and e-learning. Another institution is HEC (Higher Education Commission) where Computer Assisted Language Learning (CALL) subcommittee is working in order to enhance autonomous and collaborative language learning through CALL (HEC, 2010). This subcommittee helps teachers in making use of electronic communication in order to support language learning. Teachers are trained under the project of National Academy of Higher Education (NAHE) by making them familiar with ICT tools and new technology Unlike government language institutions, the condition and progress of private language institutions in Pakistan is not satisfactory in the sense that there is no availability of competent language teachers and technology to be used for the enhancement of language learning level of students. Moreover, in private language institutions, generally the students are from Urdu (national) language background and have not experienced formal instruction in English for a long time. These students are put into the category of Arts studies. That’s why, in current study a private language institution is taken where an experiment about the use of ICT tools is organized with a purpose of evaluation of its value in students’ writing skills in particular and language learning in general. Warsi, J. (2004), described the problematic areas of English language teaching conditions in Pakistan by giving a solution that by changing the policy of language classes from using traditional tools towards ICT tools may make learning and
teaching of English language a success in the country. This study also highlighted the aspect of making the language institutions equipped with new technology. In present research, students’ writing samples are judged in two mediums: an e-mail writing outside the class and in-class traditional writing. Students took part enthusiastically in the activity/experiment as they had not practiced any e-mail writing activities before and they were habitual of doing paper-pen class writing. These email writing samples of students were then compared to their in-class writings where no ICT tools were used. In Pakistan, such writing activities are mostly not performed by language teachers in a class and the activities used by them are found having no aspect of increasing motivation and enthusiasm in learners. Email is selected as a Computer mediated communication in the context of Pakistan as the students normally use this tool (computer) outside the class as well to interact with their friends. Although computer is not used in their language class but it becomes easy to take computer as an ICT tool outside the class and be used for increasing their writing practice through various interactions like chatting and email writing etc. It helps students by taking them away from the monotonous environment of class writing and rendering them autonomy and self-confidence without the supervision of teachers and increases their ability of writing through an enjoyable interaction. The rationale for present study is to examine the usefulness of computer mediated writing among the students and the consequent increase in their writing ability. This research also carries the purpose of making language teachers aware of usefulness of such tools so that they may implement them for their students. This study is imperative for both language teachers and students. For teachers, it is a good idea to be acquainted with the good outcomes of using computer in order to augment students’ writing skills while students, through this study, may experience the use of computers for their writing skills as an innovative practice.

Objective of the Study

Taking into consideration the Pakistani situation, where generally paper-pen based (traditional method) writing activities are conducted thus making the writing process a monotonous activity for the students having no interest for it. The objective of the present study is:

➢ To investigate into linguistic characteristics of language learners e-mail and paper-pen writing performance regarding syntactical intricacy, grammatical accuracy and lexical compactness.
➢ To compare students’ writing performance in two different medium and environments: in-class paper-pen writing and an outside class e-mail interaction.
➢ To know students’ opinion and experiences of using email in language learning process.

Literature Review

Asynchronous Communication

Email is the most popular form among different modes of CMC (Levy, 1997). Various reports make us aware of the benefits of incorporating email based activities into language course. Wang (1993) draw a comparison between the communication of ESL learners’ dialogue journals, written both as emails and conventional ones, and found larger quantity of text in the samples written through email. He also reported the employment of more language functions in email samples. A progress in students’ linguistic precision as well as augment of fresh lexis and structures was found by Van Handle and Corl (1998) in an email exchange experiment on two German classes in America.

Email has also been reported as a tool for L2 students to write in dialogue journals with language instructors (Wang, 1993). Warschauer, (1995a, b) has discussed email in different possible modes of writing activity in L2 acquisition perspective; class mailing lists, bulletin boards, class newsgroups etc. Prolific exchange of opinion, asynchronous discussion via email can result in the form of improvement of L2 proficiency of L2 learners (Hellebrandt, 1999; Shetzer & Warschauer, 2000).

There exist numerous studies concentrating on linguistic characteristics of writing production via email. An examination of varied linguistic characteristics of 132 mail samples of ESL learners in terms of purpose, audience interaction, and task structure was made by Li (2000). Li found that learners made efforts to generate syntactically and lexically more composite language. However, an interesting trade-off effect was observed between the linguistic complexity and grammatical accuracy in the students’ email writing.

Methodology

Subjects

Subjects (sample) in the study, under discussion, were 15 ESL students doing English language course at an institute of British National College, Multan, Pakistan. The sample comprised of 15 subjects (males: 10, females: 5) with a mean age of 28 years. Demographic information about subjects was assembled through a pre-research semi-structured questionnaire distributed in their English language course. Ethnographic information comprised of students’ age, sex, education, medium of education, writing ability, typing ability, use of word processor and experience of using email etc.

Research Site

In the institution under observation for present research, apart from English language course, there were also different other courses being taught to students like; textile designing, accounting, master in English, GRE, IELTS, and TOFEL and a total of 20 language teachers were taking language classes there. Job doing students were enrolled mostly in evening classes for taking English language course. It had been since one month that the subjects were enrolled in the given institution to take language classes where all four language skills were being practiced.

Data Collection and Analysis

Questionnaire results exhibited that students had jobs during the daytime and 6 were studying in a university, while they all had exposure to English as a language of formal instruction for an average of 12 years by the time they started their English language course. 10 students were from Urdu (national language) medium academic background whereas only 5 were from English medium academic background. Out of 15 students, 13 were science students while 2 were from arts group. In a self-assessing manner, 8 L2 learners thought their English writing skill was poor while other 7 termed their ability as good. 13 learners claimed of having already employed word processor while 14 had experienced using e-mail for personal communication purposes. 12 subjects reported this very experience as their first stance of using email for formal and learning rationale. It seemed that with certain exceptions, a good level of computer knowledge had already been acquired by the ESL learners under consideration, so in order to make them engaged with email did not cause a big mechanical problem to researchers.
Writing Activities for Different Mediums

In current experimental research, all 15 students were given two writing activities, each in a different mode of expression and in different medium. One writing activity was given in the class during their language course (for control group), while the other one was given outside the class related to email writing (for experimental group). For in-class medium of writing activity, researchers asked the students to write a personal story comprising their experience of first day at college. This activity was just like a personal, narrative, essay writing which is mostly used by language teachers in order to execute it in a traditional language class. For that activity, students were given 40 minutes to complete their writing. After their class writing, same group of students was given an e-mail writing activity, which was done outside the class in pairs. For that, researchers introduced a topic which was “Co-education in Pakistan” and asked the students to play the part of either the supporter or the challenger of the given divisive subject by sending e-mails to each other. This activity was like an argumentative essay where language learners formed their own opinion on a given topic and developed an argument. ESL learners then, by deciding among themselves, chose a role that they had to play. For that writing activity, they were instructed to send emails to each other as much as possible during a time span of one week. The researchers got all the mailing addresses of students along with their names in pairs from the language teacher. The researchers also gave their own mailing addresses to the language teacher so that the students, while they were exchanging mails with each other, sent one copy to researchers simultaneously. In this way, the researchers became enabled to obtain data for analysis. For both writing activities, the same subjects group was used.

Writing Samples

Students’ writing samples of both in-class and e-mail writings were obtained which consisted of a total fifteen in-class writing and twenty email writing. Out of 15 students, only 5 students had made email exchanges more than once, thus making entire data base comprising of a whole of 35 pieces of email samples.

Students’ and Language Teachers’ Interview

The data was also collected in the form of interviews from both language teachers who conducted the class and email writing activities, and language students who took part in those activities. In this interview, greater part of the questions investigated subjects’ experience and opinions about email and class writing. These interviews were recorded and transcribed afterwards for the purpose of analysis.

Analytical Procedure

Writing Samples

Computerized text analysis programs were employed with the purpose of analyzing ESL learners’ in class and email writing samples through objective measurements. Linguistic features of the text regarding syntactic complexity, lexical complexity and grammatical accuracy were analyzed, which operationally characterized the ESL students’ writing performance on the e-mail tasks. Analysis made use of two methods in order to evaluate the written samples at each of the above mentioned linguistic levels. In order to assess the syntactic complexity following steps were followed: (1) average sentence length, obtained by calculating the average number of words per sentence in a given text; and (2) the ratio of subordinated structures, which was measured by calculating the ratio of the number of subordinated structures to the combination of subordinated structures and coordinated structures in a piece of writing. Two procedures were followed to evaluate lexical complexity: (1) lexical diversity, which was calculated by calculating the number of various words including both content and function words divided by the total number of words in a given text; while (2) lexical density was calculated by having the number of lexical items excluding function words divided by the total number of words in a given piece of writing. Same way, two ways for assessing grammatical accuracy were employed: (1) the ratio of number of grammatical errors to the total number of sentences in a piece of writing; and (2) the ratio of types of grammatical errors to the total number of sentences in a piece of writing. Linguistic analysis was executed by the application of two computerized text analysis programs, i.e. “wordsmith tools” (Scott, 1996) and “word perfect 10”. In “wordsmith tools”, two programs, “wordlist” and “concord” were chosen to be applied. Syntactic complexity analysis in terms of average sentence length was carried out through application of Wordlist while the Concord program was applied in order to assess the amount of subordinate and coordinate constituents for calculating ratio of subordination. The lexical analysis in terms of lexical diversity and density was executed through Wordlist as the program offers statistic of type/token ratio while Word Perfect 10 was used in order to analyze grammatical accuracy of the text. For that purpose, all the text was put into it and gave a default option of “student composition” for analyzing students’ text. For that purpose, Grammatik tool was used in word perfect in which Grammatik flags gave us information about the types and number of grammatical errors.

Interviews Analysis

A short open-ended questionnaire interview guide was prepared to conduct an interview. This interview was then analyzed by calculating the technique of frequency with respect to each question. Following basic questions were asked from the language teacher:

Q.1. What ICT tools are used in your institution and by these tools what types of skills are mostly improved?
Q.2. What is the time period of a writing class and what tools have been used for it in your institute?
Q.3. What is your opinion about the use of computers for writing skills?

Questions that were asked from students included:

Q.1. How much time you used computer for communication in your daily life and where?
Q.2. What difficulty you experienced while using e-mail as writing activity and how would you encourage this computer related activity for future language courses?
Q.3. What types of errors and mistakes are pointed out by teachers in your weekly class writing?

Results

Quantitative Analysis

Comparisons of Students’ Writing Performance in Class Writing and E-mail Writing

By focusing on writing performance with respect to three below given linguistic characteristics (syntactic complexity, lexical complexity and grammatical accuracy) in two different mediums of writing (in-class & e-mail writing), following comparative results were produced:

Syntactic complexity is derived from students’ writing in terms of average sentence length and ratio of subordination.
Average sentence length and ratio of subordination is obtained by using given formula:

- Average sentence length = average number of words/sentence.
- Ratio of subordination = ratio of number of subordinated structures to the combination of coordinated and subordinated structures.

In students’ class writing, average sentence length was 17.30 (Mean=1.15) and total e-mail writing was 19.17 (Mean=1.28) as shown in Table 1. While ratio of subordinate structures for in-class activity was found to be 0.0493 (Mean=0.033) and for email writing was 0.473 (Mean=0.032). As shown in Table 1, however, the mean score for e-mail writing was higher than that of in-class writing which indicates that students produce more complex sentences in their e-mail writing as compared to their in-class ones.

Lexical complexity in students’ writings was obtained in terms of lexical diversity and lexical density by using the formula as follows:

- Lexical diversity = number of different lexical and function words (types) x 100/total number of tokens.
- Lexical density = number of different lexical words x 100/total number of tokens.

For lexical diversity, the value of total in-class writing was 24.44 (Mean=1.63) while that for email writing was found to be 28.26 (Mean=1.88). With regard to lexical density, the value of total in-class writing was calculated as 42.14 (Mean=2.81) and for e-mail writing the obtained value was 45.16 (Mean=3.01) as shown in Table 1. The given values exhibited that there was a consistently higher level of lexical complexity in terms of both lexical diversity and lexical density in students’ e-mail writing, especially lexical density that corresponded to richer vocabulary present in email samples than in class writing.

Grammatical accuracy in terms of number and types of grammatical errors was calculated as:

- Number of grammatical errors = number of grammatical errors/total number of sentences.
- Types of grammatical errors = number of types of grammatical errors/total number of sentences.

The number of grammatical errors for in-class writing was 1.58 (Mean=0.11) and for e-mail writing was 1.40 (Mean=0.09), while the value for types of grammatical errors for in-class writing was 0.22 (Mean=0.01) and for e-mail writing was 0.18 (Mean=0.01). This was to say that students produced more grammatical errors in their class writing than in e-mail writing.

Qualitative Analysis

An interview was taken from a language teacher who conducted writing activities and from seven (out of fifteen) students on the basis of some open ended questionnaire.

Interview from Language Teacher

(a) ICT Tools and Language Skills

Language teacher was asked about the different ICT tools used in a language classroom and for language skills where most of ICT tools are used. He told that different tools like; Multimedia, audio visual aids, computers with wireless network, audio cassettes, and overhead projectors were used in the given institution. Mostly spoken and listening skills were improved and these ICT tools were mostly used for developing those skills.

(b) Writing Tools and Time Period of a Writing Class

Teacher was asked about the writing tools used in the class and the time period of each writing class. Teacher told that writing class was taken only for one day for a period of about 40 minutes. For class writing, students were given topics, for that language teacher introduced a topic and then there was 10 minutes on-going discussion between teacher and students, in which the teacher checked the knowledge of students about the topic and vocabulary. After that, students had to write on same topic for 30 minutes. In this way, the total time period for each writing class was 40 minutes. Moreover, charts, diagrams, and graphs were given to the students to look at and describe them in form of writing. For outside class writing work, students were given topics on which they had to present in class by using power point presentations. For that purpose, language learners searched information either on the college computer or on their personal computer. Teacher told that there were only three computers with wireless network in the institution being used by the students who did not have the facility of computer at home or did not afford to go at net café. They were also assigned writing homework in which students were supposed to take an interview of different people on some issue and then write a report on it. For that, they used word processor and got the printed copy of that. Furthermore, teacher told that as such no e-mail activity had been conducted before this very stance.

(c) Opinion of a Language Teacher for Computer Use

Language Teacher was asked about his opinion for using computers in a language class particularly for writing skills. Teacher was of the view that computer could play a significant role for writing skills but only for those students who either had the facility of computers at home or could manage to go to net cafés. In class room, computer writing activity was not possible in view of limited number of computers. That did not mean that computers should not be used in a language class, they should be, but it needed financial resources to manage all.

Interview from Students

(a) Computer Communication:

Students were asked about their communication through computers in daily life. 9 students used computers for chatting and sent e-mail to their friends 2-3 days in a week, while 6 students used computers for formal academic writing purposes like; assignments, power point presentation etc but could not make intensive use of computers due to the lack of time. Although all the students had computers at home, only 6 students had to use computers at net cafés where there high net speed was available.

(b) Experience of Using e-mails and Opinions for its Future Use

Students were asked about their experiences of using e-mails and their opinion in terms of carrying out such activities for the future language learning. On the whole, 12 students had good experience of using e-mail for writing communication and they emphasized the use of computer for learning English writing while 3 of them did not have good experience. Students described different difficulties they faced; among these difficulties, 3 students mentioned electricity problem, net speed, and time management, while 2 other students faced difficulty relevant to each typing speed, and non-serious attitude from their peers. Among these students, all the students wanted to use computers for such writing activities not only inside but also outside the class because they thought that in this way they could be able to experience their mistakes and errors properly themselves which would help them improve their writing skill. As on computers, when they did typing, it highlighted their spelling mistakes and they could learn more vocabulary as well.
They said that computers must be the part of a language class specially for writing class where they had more time to think about and increase their searching ability on net. They said that government should open more institutions for English language courses andequip them all with computer labs. 13 students were agreed to have in-class writing rather than the writing given as home assignment. They said that they had no time for writing outside the language class as they also had to attend their academic classes in colleges and universities and had to give time to their business and job as well. 12 students did not use dictionary or any other language source while engaged in e-mail writing and used their own views on the topic while 3 students used dictionary for vocabulary and the attend their academic classes in colleges and universites and time for writing outside the language class as they also had to writing given as home assignment. They said that they had no

(c) Teacher’s Feedback for Students Writing

Students were asked about the feedback of teacher for their writing. They told that when they wrote, next day teacher pointed out and discussed their writing errors and mistakes in the class verbally and then returned their writing papers so that they might look at their mistakes and avoid them for the next time. 12 students’ mistakes and errors were relevant to grammar, while 3 students had mistakes and errors relevant to vocabulary, coherence and knowledge regarding topic, as pointed out by their language teacher.

Discussion

Research question 1: which medium of writing is more successful for learning English writing?

Results shown in the above descriptive analysis highlight the fact that learners were found producing syntactically and lexically more multifaceted speech in their e-mail writing than in their in-class traditional writing. On the other hand, students’ text showed relatively more grammatical accuracy in their class writing (narrative) than in e-mail writing (persuasive). By comparing the results of two mediums of writing (in-class traditional writing & e-mail writing), it is argued that overall, persuasive (e-mail) writing was more effective and be the source of learning English writing than that of narrative (in-class) writing. This finding also demonstrated that persuasive writing had not balanced the improvement of linguistic complexity and accuracy in English writing skill of English language learners when compared to their skill of narrative writing as earlier shown by the research results of Li. Y, (2000). Li findings showed that persuasive writing had not balanced the development of both linguistic complexity and accuracy when compared to narrative writing of her subjects (p. 239)

Research Question 2: Are syntactic complexity, grammatical accuracy, and lexical complexity affected by email?

Analyzed data for e-mail writing indicated that students made more improvement for lexical complexity which means students used more diverse and richer vocabulary. They made use of dictionaries, thesaurus, and internet sources in order to get more information and vocabulary. After lexical complexity, next linguistic category is syntactic complexity which showed that students wrote more sentences that could be due to non-restriction of time; they had enough time to think about and write accordingly, unlike class writing where students had to complete their writing within fixed timing (40 minutes). Among these three linguistic characteristics, grammatical accuracy was found less relevant than other two linguistic characteristics in email writing. This judgment pointed at the significance of the trade off effects that existed between complexity and accuracy in measuring performance on L2 learning (Foster and Skehan, 1996).

Research question 3: What are the experiences and opinion of students and language teacher about the importance of email in terms of learning English writing?

The general discovery from the interview of teacher and student showed that the time period for conducting writing activity was too short for students to think properly and plan well for what they were going to write about. The other factor being that institution was not equipped with computer labs. While considering the given constraint, language teacher was willing to conduct writing activities by using computers. On the other hand, most of the students used e-mails and chats to communicate with their friends or relatives and almost all the students had computer facility at home but there was no significant use of e-mails in academic writing where there were more chances of experiencing errors and mistakes themselves to improve English writing skill. Results showed that despite having more difficulties relevant to electricity, slow net speed, and time management; email based activities were still a good experience for most of the students. As most of the students were doing job, consequently it was difficult for them to manage time for such activity. These difficulties were more crucial than

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<th>E-mail Writing</th>
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<td>Types of grammatical errors</td>
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Table 1. Comparisons of Students’ Writing Performance in Class Writing and E-mail Writing
those of typing speed and non-serious attitude of peers which showed students’ motivation of using e-mail in the case whether their peers responded to them or not as it was their first experience of using e-mail for informal English language writing. Results also showed that students liked to engage in an informal writing rather than formal class writing. Most of the students did not consult dictionary or any other source and shared their own ideas and views in an informal way. Observations also indicated that students usually found out more grammatical errors in their class writing as compared to vocabulary. It was evident from the Table 1 as well that students produced more grammatical errors in their class writing rather than e-mail writing, which means, that they felt more comfortable by using informal way of written communication rather than formal, traditional, class writing.

Conclusion and recommendation

The study demonstrated that the nature of the email application might promote sentence and lexical complexity, but not grammatical accuracy. By comparing these two writings, email writing seemed promoting more syntactic and lexical complexity, but not grammatical accuracy. There was a great sense of enthusiasm among the students to engage in email activity despite all the problem and difficulties they faced while using email. Game-types writing activities should be included in language classes to increase the interest of students, also competitions can be held by making groups of students. It showed that there was no trend in language institutions in Pakistan to incorporate computers based activities in students’ writing. There was also found scarcity of government language institutions with well-equipped computer labs. Government should open more language institutions set with all new technology. UPS should be used in all computer labs in order to avoid power breakage. Teachers should have knowledge of weak language areas of students and the contents of language courses should be made accordingly. It is also recommended that teachers should arrange the students in such a class where all the students have different levels of proficiency regarding the same skill. Teacher should arrange them in pairs in a way that one student who has good proficiency in writing skills works with another student having relatively poor writing skills. In this way, students will learn from their writing. Language teachers should design a course by incorporating computer and other ICT tools so that students’ interest can be developed towards better English writing.

These findings get enough support from the current arguments regarding the autonomy of ESL learners learning with various computer based activities. It is claimed that when ESL learners were more autonomous and controlled their own learning, they would exhibit improved performance (O’Malley & Chamot, 1990; Oxford, 1990).

Limitations and future research

Though the results of the current research are found to be chiefly affirmative and encouraging, a number of limitations have been noted by the researchers, themselves. First, the subjects of present study were only 15 ESL students and the writing samples were in small number. Second, the number of tasks given in each writing activity was limited.

In future research, it is suggested that the experiment with two groups should be carried out involving more than one task in two different mediums of writing by involving more students and also using more linguistic characteristics like coherence and discourse features etc.

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