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Degree of Master of Arts in Teaching English as a Foreign Language
(TEFL)

**The Influence of Blogging on EFL Learners'
Writing Fluency, Accuracy and Complexity**

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be accepted in partial fulfillment for the requirements of the degree of

M. A. in TEFL

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Abstract

Weblog is a new arrival as an educational technology due to which we can create different types of activities and projects which are motivating and authentic for the 21st century students. Therefore, blog use may offer a helpful tool for teaching foreign language writing. Thus, this research reports on the effects of blogging on students' writing performance.

It focuses on three aspects of writing, i.e. writing fluency, accuracy and complexity, and thus compares and contrasts results between and within groups. Twenty five pre intermediate Armenian students participated in the study. The comparison group (n=13) did their writing assignments as homework based on paper and the experimental group (n=12) accomplished the writing assignments by using a blog software.

Based on the analysis of students' written work, the findings suggest that blogging had little effect on students writing fluency, accuracy and complexity. The latter means that there was statistically no significant difference found for both within and between group comparisons. However, based on the questionnaire and interview results, the study supports the previous research done in the field reporting that blogging has the potential of becoming a motivating and productive pedagogical tool for enhancing writing skills.

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Chapter 1: Introduction

Weblog is a new arrival as an educational technology due to which we can create different types of activities and projects which are motivating and authentic for the 21st century students. Internet, along with its harmful effects, has brought about many advantages in language teaching practice (e.g. Arslan & Aysel, 2010; Duffy, 2006; Bartlett-Bragg, 2003). Computers are no more perceived as tools for writing but have changed the writing process, products, and the contexts in which people write (Grabill & Hicks 2005; Glewa & Bogan, 2007).

In recent history of language education technologies for language learning and teaching purposes appear to be emerging and growing rapidly. Moreover, researchers mention the fact that computer mediated language learning has become extremely popular in the past few years and is emerging in language education by changing the language learning practices (Smith, 2008).

Furthermore, there are several and different types of technologies, such as Wikis, Google services, blogs, podcasts, Twitter and others that can and are being used by different populations for different purposes (Murray & Hourigan, 2008). Before using those technologies in education, there are several issues which need to be taken into consideration when finding ways of applying different technologies in a distinct academic language learning context (Richardson, 2010). One of the factors to be taken into account is the awareness of creating meaningful contexts for the specific kinds of activities or tasks that could be best taught via technology (Murray, 2007; Richardson, 2010).

As has been mentioned above, extensive amount of research indicate the role and importance of integrating computer technologies in language education; according to the literature reviewed the role of technology is crucial in education, moreover, scholars point out

that technologies provide learners a medium to practice their language skills in a more interesting and motivating way (Hicks 2003; Hyland, 2003, cited in Wang 2009).

With online technologies teachers provide opportunities for the students to develop their digital literacy (Grabill & Hicks, 2005) while at the same time students strengthen their writing skills (Witte, 2007). One of those technologies that provides students real context of using the language is *blogging*. The use of blogs, as a teaching and learning tool, is relatively new and is gaining popularity (Pinkman, 2005, cited in Nadzrah, Latif, Ya'acob, 2010). Blogs are becoming more and more useful in education, particularly in language teaching due to the efforts of teachers who are experimenting with it (Krause, 2005).

1.1. Significance of the Problem

Extensive amount of research indicate that students show little interest in classroom writing activities and assignments (Witte, 2007). On the other hand, to solve this problem, computer technology, Internet and web-based resources are now gradually being equipped in many schools and have the potential to offer teachers and learners vast resources and opportunities for language teaching and learning. Maximum benefit from these resources can only be achieved through teachers' use of technology in developing materials for the language classroom.

The results of this study may be useful in finding out students' attitudes towards using blogs and the reasons behind these attitudes. The study and its results might also suggest better ways of developing writing skills and equipping instructors with new skills and strategies of how to implement blogging in their classroom as a means of developing writing skills.

Finally, since many universities and schools in Armenia are not yet aware of this technology and its applicability to language teaching, the study might provide some forms of

guidance to language programs throughout the country that want to pursue a similar path in the future.

1.2. Significance of the Study

Few of the studies in the literature have examined the role blogs might play in teaching writing to EFL students, and few studies, if any report quantitative results as to the writing fluency, accuracy or complexity benefits of blogging. According to Fellner & Apple (2006), there are almost no blog-related studies that present quantitative results on the effects of blogging on students writing fluency, accuracy and complexity. To this end, this paper presents results from a ten week language program on the effects of blogging on students' writing skills. More specifically, it will present results on the comparative effectiveness of blog- and paper-based writing, as well as students' attitude towards blogging as a tool for enhancing writing fluency, accuracy and complexity.

1.3. Research Questions

This study was guided by the following research questions:

- *Is there an impact of blogging on students' overtime improvement of writing fluency, accuracy and complexity, when they write in their blogs vs. on paper?*
- *Is there a difference in the students' writing fluency, accuracy, complexity when they write in their blogs vs. on paper?*
- *What is the students' attitude towards the use of blogs for improving their writing fluency, accuracy and complexity skills?*

1.4. The Structure of the Thesis

This thesis includes four more chapters:

Chapter 2: In this chapter the definitions of the research variables, i.e. *blogs*, *writing fluency* and *writing accuracy* will be given, and related literature will be discussed to gain understanding of the literature in the field of blogging and writing through blogging.

Chapter 3: In this chapter the methodology of this research, i.e. research design, participants, procedure, instrumentation will be described.

Chapter 4: The aim of this chapter is to provide quantitative and qualitative data analysis, collected from data collection to draw us closer to the final results of the current research, i.e. to provide answers to the proposed research questions.

Chapter 5: In this chapter the summary of the findings from the data collection will be provided, as well as the answers for the proposed research questions will be addressed. The limitations of the study and the recommendations for further research can be found in this chapter.

Chapter 2: Literature Review

2.1. Blogging as a Tool for Teaching

In the past few years, with the spread of computer technologies, blogs have become popular (Fellner & Apple 2006; Yang 2009; Murray & Hourigan 2008). According to Armstrong and Retterer (2008) “weblogs were born of the Internet and began rather quietly during the late 1990s. The term *weblog* was coined in 1997, but a few months later, in the spring of 1998, Peter Merholz used the shorter version, “blog,” by breaking the word weblog into the phrase “we blog” (p. 234).

Thus, the word *blog* is the short version of “*Weblog*” and is defined as one of the internet applications which offer virtual writing spaces, as well as online journaling where the readers can post comments and the authors can reply to them (Wu, 2006; Andergrassen 2009; Arslan & Aysel, 2010; Utecht, 2007; Drexler, Dawson & Ferdig 2007; Glewa & Bogan, 2007; Weiler, 2003).

Wang suggests the following definition for blogging:

“Weblogs, a thriving information sharing mechanism, have particularly stood out among asynchronous communication platforms in recent years. Weblogs (also called web logs or blogs) can be defined as a news- and journal-sharing platform, on which bloggers freely share their postings with readers from around the world” (Wang, 2009, p. 30).

Educator Richardson (2010), and the “evangelist” for the use of Weblogs, RSS, Wikis and other Internet applications in education defines Weblogs as: “an easily created, easily updateable Web site that allows an author (authors) to publish instantly to the Internet from any Internet connection” (p. 17).

Cameron & Anderson (2006) gave the following definition for blogging:

“one can think of a blog as a Web based, multi-media publishing system, that is very low cost (often free), very easy to use, customizable in terms of look and feel, content, target audience and hyperlinked to other content spread across the Internet”

Thus, blogging is one of the internet applications that allows teachers to teach writing in a new way (Arslan & Aysel, 2010, Farmer & Bartlett-Bragg, 2005) and provides students with the opportunity of practicing the language (Armstrong, 2010). The literature suggests that there are many advantages of teaching writing through blogging (Bloch 2007, cited in Arslan & Aysel 2010; Throne & Payne 2005; Wang, 2007) as well as for enhancing writing fluency, accuracy and complexity through blogging (Wu, 2006; Al-Fadda & Al-Yahya, 2010). Before developing the topic it is important to consider what writing in general is and what skills and components writing involves, as well as to find out the effective ways of teaching writing.

2.2. Teaching Writing

Writing in general is viewed as a mental and physical act; it is a process of thinking and composing (Nunan, 2003; Brown, 2001). Similarly, Murray, Hourigan and Jeanneau (2007) characterize writing as a “multifaceted task which requires proficiency in several areas of skill and knowledge” (p. 13). Thus, learning how to write in a foreign language is one of the most challenging aspects of foreign language learning. There are different beliefs about how students learn to write, as well as different ways of teaching second language (L2) writing. Writing is considered one of the language skills which needs a lot of practice, time and efforts (Armstrong, 2010, Oxford, 2006).

Ken Hyland (2009) suggests the following aspects that are usually focused on in L2 writing: language structure, text functions, themes or topics, creative expression, composing process, content, genre and contexts of writing.

There are several reasons to teach writing to EFL students; however teachers need to think carefully about the purpose of the specific writing tasks that they assign in the foreign language (Reichelt, 2001; Armstrong, 2010). Teachers need to ask themselves why they want their students write, i.e. whether they want their students write in order to polish up their language skills, or whether students write to learn the art of writing itself, or maybe improve their self-expression or text analyzing skills? These are issues that need to be taken into consideration when developing a writing task. Thus, according to Silva & Matsuda (2001), the various features of second language (L2) writing examined by researchers are divided into nine categories: overall quality, linguistic accuracy, syntactic complexity, lexical features, content, mechanics, coherence and discourse features, fluency, and revision.

The empirical studies focused on in this section are works that examine foreign language writing from different angles. Most of the research discussed in this section uses relatively large sample sizes and report both qualitative and quantitative results.

A study by Kuiken & Vedder (2007) was conducted among 84 Dutch university students of Italian and 75 students of French to investigate the effect of cognitive task complexity on written performance in L2 with respect to accuracy, syntactic complexity and lexical variation at different levels of language proficiency. Two writing tasks were assigned to the learners in which cognitive complexity was manipulated. Students had to write a letter where varying number of requirements had to be taken into account, six in the complex and three in the non-complex condition. The letter had to consist of minimum 150 words and there was a time limit of 40 minutes per task and use of a dictionary was allowed. The study was set up as a repeated measures design, in which all participants performed a complex and a non-complex task. The effect of task complexity on writing proficiency for accuracy and lexical variation was

investigated by using more specific measures regarding the type of errors made by the students and the frequency band of the words students used in their texts. The results obtained from data collection revealed that both students of Italian and French produced fewer lexical errors in the complex task. This means that the overall increase of accuracy in the complex condition is mainly due to a decrease of lexical errors. The students of French, however, made significantly more appropriateness and other errors, but also fewer orthography errors in the complex task than in the non-complex one, whereas for Italian no differences were found.

Another study reported by Wigglesworth & Storch (2009) aimed at comparing the writing scripts produced by learners working in pairs with those of learners working individually on a number of measures to identify whether there were any differences in terms of the accuracy, fluency or complexity of the scripts produced. Overall 114 students participated in the study on a voluntary basis. Forty-eight pairs of learners completed the writing task (argumentative essay) and further group of 48 learners completed the same task individually. There was a time limit for both the pairs (60 minutes) and the individuals (40 minutes). According to the results of the study, in terms of fluency collaborative writing does not result in longer texts. Concerning complexity, there were no statistically significant differences between the texts produced by the pairs and those produced by individuals. However, measures for accuracy produced different picture, pairs performed significantly better than individuals. Thus, the results of the study reported by Wigglesworth & Storch (2009) show that collaboration does not result in longer texts or more complex language, however does lead to the production of accurate texts.

Reichelt (2001) reviews 32 studies regarding writing in a foreign language and the relationships between various pedagogical practices and the students' written production. Four studies investigated the effect of explicit grammar instruction on students' writing with varying

results, e.g. Frantzen (1995, cited in Reichelt, 2001) found no clear overall advantage in writing for students who received explicit grammar instruction. Overall, 44 students participated in the study. In the treatment group students received ten to fifteen minute grammar review, as well as wrote in-class essays on which their errors were corrected, as well as five out-of-class essays, on which the errors were not corrected but were indicated for the students to correct themselves. The comparison group did not receive any kind of grammar review; the incorrect forms were indicated, however no corrections were provided. The results showed improvement in both groups in terms of tense, aspect; however they showed decrease of accuracy.

On the other hand, another study conducted by Calk (1997, cited in Reichelt, 2001) shows positive results of grammar instruction. However, one shortcoming of the study was that there was no comparison group, thus no strong claims can be made saying that the reason for improvement was the grammar instruction but not over time practice.

As can be seen, the studies discussed above on foreign language writing report different results of writing improvement depending on different factors (task type, task complexity, computer use, grammar instruction, classroom activities, etc.). However, there was no study to present results on the effects of blogging on the students writing fluency, accuracy and complexity. Thus, this research was conducted to find out the impact of blogging how to improve writing fluency accuracy and complexity, for that reason it was important to review some studies and see the potential factors that could have an impact on foreign language writing improvement.

2.3. Teaching Writing and Technology

Usually students' writing improvement is measured through the increased use of formal features such as relative clauses or the 'syntactic complexity' of texts (Ken Hyland 2009).

However according to Hyland (2009), syntactic complexity and grammatical accuracy are not the features of writing improvement, there are cases when the students construct accurate sentences but are unable to produce appropriate written texts. “Writing tasks should not simply emphasize formal accuracy and discrete aspects of language, but be situated in meaningful contexts with authentic purposes (Hyland, 2009, p.27)”. On the whole, besides accuracy and fluency there are other aspects of writing proficiency which are not less important for the language learners and teachers to consider. They are often achieved through more practice and focus.

Many teachers of foreign languages state that their students need more practice of writing than they are usually exposed to. In addition Drexler, Dawson, and Ferdig (2006) point out that there is a need for more focus on the students’ writing skills. The same was reported by *the National Commission on Writing 2006*, which suggested that there is a need for doubling the amount of time students spend on writing by assigning more writing tasks which would be held both inside and outside of the classroom. Another survey by *National Commission on Writing* (Lenhart, Smith, & Macgill 2008, cited in Armstrong, 2010) reports that 93% of teenagers say that they write for their own personal pleasure and 86% believe that writing is important for their future success.

On the other hand, students oftentimes get easily bored of the writing tasks that they are usually being assigned. To avoid this problem, teachers may involve technology in the process of writing to motivate students to write often. Technology has had a massive impact in L2 classrooms over the last decade or so and writing instruction now makes considerable use of computer technologies.

Baudrand-Aertker (1992, cited in Armstrong, 2010) suggests that developing writing skills via technology changes the attitude among the students about their writing. Technology helps teachers provide opportunities for students to experiment the language, i.e. to try expressing more complex thoughts and language structures. The latter is considered to be one of the cornerstones of developing good writing skills (Armstrong, 2010).

In addition, Grabill and Hicks (2005) suggest that the process of teaching writing in technological environment is different from that of carried out on paper. In this respect research has provided mixed results. According to Snyder (1993, cited in Richards, 2009) it is assumed that the flexibility that computer technologies provide is supposed to encourage students to write more, and with more care, than with traditional methods (paper, pens, books, desks, and chalkboards). Moreover, he goes on saying that writing with computers improved the student writing products as well as students' attitudes toward writing. However, other studies such as Gerrard (1989, cited in Richards 2009) reported that there is a little difference between computer-based and paper based writing assignments.

Some other studies (Armstrong, 2010; Armstrong & Retterer, 2008) suggest that in order to develop good writing skills in students it is important to provide more practice and opportunities for writing without grades. The latter can be easily and meaningfully done with the integration of computer technologies in the process of writing (Armstrong 2010). In their recent case study on blogging and L2 writing where one of the research questions was to find out whether students write more for graded or ungraded assignments, Armstrong and Retterer (2008) reported that students, despite having no minimal length imposed and no evaluative measure attached to the blog writing tasks, produced more words in the ungraded assignments. However, some other studies done previously, such as Chastain (1990, cited in Armstrong and Retterer,

2008) found that the total number of words in the graded compositions was higher than those of the ungraded compositions.

To this end, researchers suggested using blogs and blogging for academic purposes and to help teachers overcome the difficulties that they may encounter while teaching writing (Drexler, Dawson, Richard, Ferdig, 2006). As has been mentioned above blogging is perceived to be one of the online technologies that is thought to be effective in teaching writing. A lot of research on blogging (Hourigan & Murray 2005, Oxford, 2006) showed the benefits of applying weblogs to aid development in L2 writing (Wang, 2009).

With blogs, teachers do not seem to have the problem of assigning frequent writing tasks. Blogging has changed the writing purposes and the nature of the writing assignments, which provides ways of getting students motivated and to get them actually writing. Students are not concerned with the mistakes they are going to hand in on a paper, which is scary and stressful for them. They write in their blogs just because they like blogging (Armstrong, 2010).

In the studies discussed above, and in the related literature there are few if any studies that focused specifically on the blogging benefits and foreign language writing (Fellner & Apple, 2006). In this research I aim to compare and see the difference of several blog-based and paper-based assignments in terms of writing fluency, accuracy and complexity. To have a better understanding of writing fluency, accuracy and complexity, some definitions and explanations are provided below.

2.3.1. Writing Fluency

In some studies writing fluency has been defined as the rate and length of speech produced in a limited amount of time (Lennon, 1990; Wolfe-Quintero et al., 1998, cited in Armstrong, 2010).

Wolfe-Quintero (1998) defined fluency as:

“...the processing of language in real time (Schmidt, 1992, cited in Wolfe-Quintero, 1998) with a focus on the primacy of meaning (Foster & Skehan, 1996, cited in Wolfe-Quintero, 1998); hence it is related to the production pressures that a language user faces while communicating a message in either writing or speech (Wolfe-Quintero, 1998).” According to Wolfe-Quintero (1998), “fluency can also involve the appropriate use of routines, whether the routine is a pragmatic formula (House, 1996, cited in Wolfe-Quintero, 1998), or an automatized chunk of language (Ellis, 1996, cited in Wolfe-Quintero, 1998).

Brown (1994, cited in Fellner & Apple, 2006) defines fluency as “saying or writing flow of language for a short period of time without any self- or other correction at all” (Fellner & Apple, 2006, p. 19).

Fellner and Apple (2006) define writing fluency as “the number of words produced in a specific time frame, together with lexical frequency, irrespective of spelling and content, provided that the writer’s meaning is readily understandable” (p. 19). Thus, for this study I will go with the definition suggested by Fellner and Apple (2006) and regard writing fluency as the number of words produced in a written product, irrespective of spelling and content, as long as the meaning is comprehensible without any difficulty.

2.3.2. Writing Accuracy

Another aspect that needs special attention when evaluating writing in general is the accuracy of written language (Fellner and Apple, 2006). Wolfe-Quintero (1998) defined accuracy as the appropriacy of discourse moves in a specific context. Whereas, Foster and Skehan (1996, cited in Wolfe-Quintero, 1998) defined accuracy as “freedom from error, which can be measured by an analysis of target-like use, taking into account both the contexts and uses

of the structure in question” (Pica, 1983, cited in Wolfe-Quintero, p. 33). Larsen-Freeman (2006) regards accuracy as the proportion of error-free units in a context. Thus, it can be assumed that the writing accuracy is one’s ability to produce a written or oral language in communication free from errors (Armstrong 2010).

2.3.3. Writing Complexity

Complexity in writing is considered an important construct since the development of complexity in writing characterizes learners’ overall development in the target language (Lu, 2010). Complexity is regarded as the capacity to use more advanced language which also may involve a greater willingness to take risks, and use fewer controlled language subsystems (Ellis, 2009). According to Wolfe-Quintero, Ingaki and Kim (1998) one of the measures of assessing linguistic, also writing performance is complexity. According to Kuiken & Vedder (2007), the validity of measuring complexity by frequency is doubtful “because of the lack of a fixed delimiter as found in ratio measures” (p. 267). Different measures have been developed and proposed by scholars for measuring complexity, however, most of the studies seek to quantify either the length of production units, i.e. clauses, T-units and sentences or the amount of embedding or subordination or amount of coordination, etc. However, three measures have proven to increase linearly with respect to proficiency level: the number of clauses per T-unit, the number of dependent clauses per T-unit and the number of dependent clauses per total number of clauses (Kuiken & Vedder 2007, p. 267).

2.3.4. Advantages of Integrating Blogging in Education

There are many reasons to use blogs for educational purposes. Blogs add a new writing platform for the students which is more flexible and stimulate the process of collective brainstorming as well as creativity and mentally challenging process (Smith, 2008). Smith

(2008), goes on saying that blogs encourage “free and open expression, promotion of the author, and interactive engagement with an audience” (Smith, 2008, p. 40).

However, it is interesting to notice what Williams (2004) reports on the integration of blogs into education. He reports that “there is not a lot of refereed published material on the subject of blogs in general, let alone work that focuses specifically on blogs in education. Combined searches on ProQuest, EBSCO and Gale yielded only 30 results in peer reviewed scholarly journals, and the bulk of these are focusing on the influence of blogging on journalism and reporting” (Williams, 2004, p. 234).

Richardson (2010) suggests a broad range of activities that can be done with blogs for educational purposes. He emphasizes the different blog types, i.e. journal-type blog, class blog, shared blog, or students’ own blog that can be created for academic purposes. In all the above mentioned contexts blogs can be used to assign students complete their writing assignments, create blog portfolio (where students may include samples of their writing), as well as express their opinions, write comments, complete different projects, etc. (Richardson, 2010).

Here are some of the advantages that blogging has in language teaching practice:

Blogs are viewed as advanced tools which can offer writing practice to students in a simple interactive way (Wu, 2006; Arslan & Aysel, 2010) as well as provide real audience both inside and outside of the classroom (Grabill & Hicks, 2005; Utecht, 2007). Moreover, blogs are believed to foster students’ sense of ownership and engagement; they promote reflection and social interaction, personal growth, as well as critical thinking (Campbell 2003, cited in Arslan & Aysel, 2010; Drexler, Dawson & Ferdig, 2007; Glewa & Bogan, 2007; Murray, Hourigan, & Jeanneau, 2007, Richardson, 2010).

The use of blog raises students' awareness of having a real audience (Arslan & Aysel, 2010). Thus, the learners are motivated to write and bring into being a better product (Arslan & Aysel, 2010).

Blogging also helps the learners communicate with the teacher more often i.e. contributes to interaction between the teacher and the learner (Arslan & Aysel, 2010; Utecht, 2007; Smith, 2008). In addition to this idea, Utecht (2007) suggests that blogs are not just about writing, but about interaction through conversation.

With blogs, students are learning to read more critically and reflect on what they read, as well as to write more clearly (Richardson 2010). Richardson (2006, cited in Chen, Liu, Shih et al., 2011) also pointed out some other advantages of using blogs in education, such as how blogs can break all the limitation of classroom walls and offer students more possibilities to connect with the world outside of the classroom.

Blogs are believed to be powerful tools to build collaborative writing in and outside of the classroom. They give a real life experience, an opportunity to express oneself in a free and meaningful way which gives students the feeling that it's not just writing for classroom purposes, it's writing for a real audience and about any topic (Drexler, Dawson, Richard, Ferdig, 2006, Ducate & Lomicka, 2008, Glewa & Bogan, 2007).

Finally, "blogs are highly adaptable generic production tools and thus provide great flexibility regarding their format and intended use. In terms of practicality, blogs provide teachers with an efficient and cost-effective tool which, if employed appropriately, present learners with an alternative means of (self-) expression in the online medium" (Murray & Hourigan, 2008, p. 95).

2.3.5. Disadvantages of Integrating Blogging in Education

However, blogging may have some negative impacts on both the learners and the teachers (Wrede, 2003 cited in Ward & Sharjah, 2007). One of the shortcomings that blogs may have is that blogs are more time consuming from the teachers' perspective (Utecht, 2007).

Another concern for the negative impact of blogging is mentioned in Richardson (2010). The latter concerns the fact that teenagers, or young learners may divulge too much of themselves online (Richardson, 2009). However, Richardson does not view this as a big problem, arguing that blogging for educational or classroom purposes is not about journaling. He then goes on by saying that for the classroom purposes it is important to distinguish between the terms "blogging" and "journaling". Blogging, according to Richardson (2010, p. 20), is "a genre that engages students and adults in a process of thinking in words, not simply an accounting of the day's events or feelings".

The next disadvantage of blogs is that since it is on world wide web (www) we cannot be sure that our students are protected from the "bad" people and "bad things" happening on www all the time (Utecht, 2007; Ward & Sharjah 2007).

Another problem with blogs is that it may harm students' writing skills that may be developed from activities completed through blogs (Wu, 2006). Hammersly (2003, cited in Ward and Sharjah 2007) reports that there have been many cases when students used abbreviated or slang words in their writing such as *BTW* (by the way) *cuz* (because) and *U* (you).

Finally, according to Wu (2006), blogs may sometimes be risky for teaching purposes. He is concerned that students may receive criticism for their written products that may sometimes be unproductive, harmful or even offensive (Wu, 2006).

2.3.6. Summary of previous research on the relationship of blogging and writing

A number of studies on blogging and L2 writing have examined different aspects of language learning and the influence of blogging. The question of whether there is a direct relationship between blogging and writing has been an issue of controversial studies. However, the majority of studies report positive results.

Many blog related studies document the advantages and the benefits of applying weblogs to enhance L2 writing proficiency (Wang, 2009). From the literature review, many studies show the possible relationship between blogging and writing, as well as the development of writing skills through blogging (Liu & Chang, 2010, cited in Chen, Liu, Shih et al., 2011).

Some authors, such as Dubber (2002, cited in Wang, 2009) view blogs as an emerging tool in teaching writing. She stated that blogging has an interactive nature, as well as increasing prevalence. Campbell (2003, cited in Wang, 2009) highlights the idea of blogs being a medium for more frequent verbal interaction and exchange in L2.

Other evidence of blog-related studies can be found in Hourigan and Murray (2008). This paper includes a pilot study on the potential of blogs in SLA, where the learners were given a great deal of flexibility in terms of content and expression, thus the study was to reveal students' performance on blogging.

A study done by Fellner and Apple (2006) reports quantitative results as to the fluency benefits of blogging. The paper presents results from a seven-day intensive CALL- based EFL program implemented at a four-year private university in western Japan in September 2004. According to the study blogging improved students' writing fluency: they more than tripled students writing output, while at the same time improving their lexical frequency levels.

A case study, done by Armstrong and Retterer 2008, which aimed to find out whether students write more using blogs than in a traditional method. The study reported that students did write a significant amount, however, because there was no comparison group performing the same assignments in a more traditional manner, i.e. paper-based writing, the authors do not make strong claims saying that students wrote more due to the use of blogs.

Other studies cited in Armstrong and Retterer 2008, such as Daiute (1986), Huffaker (2004), Lohnes (2003) and Pennington (2003) reported that students write more and are highly motivated when doing blog-related assignments. More specifically, Pennington (2003, cited in Armstrong and Retterer 2008), mentions that “students working in a computer medium tended to write less self-consciously and were more engaged in the process, which resulted in greater involvement with the task and ultimately led the student to write for longer periods of time and produce longer texts (p. 243).

Another study conducted in the School of Foreign Languages at Karadeniz Technical University, Turkey, which was a quasi-experimental study regarding the effect of blog writing instruction on students’ writing performance. Fifty intermediate students participated in the study. The findings report that the students using blog software in their writing courses outperformed those who received only in-class writing instruction.

Another interesting finding is reported by Drexler, Dawson and Ferdig (2006). In their study which examined a K-12/university blogging collaboration between teachers and third grade students the authors highlighted several interesting findings. One of them is as follows: there was a difference between blog writing assignments and the traditional classroom writing activities. Another interesting finding that was reported in the same study was that the quantity and quality of the students writing increased when implementing blog-related studies.

Nadzrah, Latif and Ya'acob (2010) discuss the potential use of blogs for language learning and documents a study which aimed to examine the effectiveness of integrating the use of blogs in the ESL classrooms which involved low proficiency students. The main purpose of the study was to experiment the effectiveness of using blogs in improving the students' abilities in important areas such as reading, writing, critical thinking and discussion skills. The results of the study report on the students' attitudes toward blog writing. According to the action research, the majority of students thought blog could be useful to practice their writing skills in English and that they learnt to write better in English via blogs. Students felt that they are expressing their ideas more freely and creatively through blogs.

Miyazoe and Anderson (2010) investigated three different online writing tools in an EFL context: forums, blogs, and wikis. To analyze the data a *textalyser* analysis was applied to students' blog posts to see possible changes in lexical density, syllables, words per sentence etc. The analysis indicated that the students' vocabulary became much richer over the course of two semesters in the blogs, as well as higher level of vocabulary and more complex sentences were identified in the students' writing.

2.3.7. Summary of Related Literature

Many blog related studies document the advantages and the benefits of applying weblogs to enhance L2 writing proficiency (Wang, 2009). Blogging promotes students to express their ideas more freely and creatively, also it enables students for more frequent verbal interaction and exchange in L2. Thus, this review of related literature revealed that the integration of blogging is still in its beginning stages and has not yet been fully acknowledged and accepted by teachers. Researchers differed in their findings as to whether blogging improves students writing skills (Utecht, 2007; Ward & Sharjah 2007). However, the majority of researchers (Miyazoe and

Anderson, 2010; Nadzrah, Latif and Ya'acob, 2010; Armstrong and Retterer 2008; Daiute, 1986; Huffaker, 2004; Lohnes, 2003; Pennington, 2003) reported enhanced student achievement through using blogs in L2 writing.

Thus, this study adds to the growing body of research on the effect of blogging on improving second language writing in terms of fluency, accuracy and complexity, as well as find out students' attitudes towards using blogs.

Chapter 3: Methodology

3.1. Introduction

This chapter presents the setting in which the study was conducted, identifying the participants of the study, the instruments for data collection and the data collection and analysis procedures. Thus, the purpose of this chapter is to provide detailed description of the methodology applied in the current study, i.e. the educational context of the study, the participants of the study, the materials, the instruments used for data collection and data analysis, as well as the research procedure.

This research is quasi-experimental by its design because the participants of the research have not been randomly assigned to the comparison and experimental groups. Also, a mixed methodology, i.e. both qualitative and quantitative methods for data collection and analysis was conducted.

3.2. Restatement of the Research Questions

The research questions of the current study, based on the problems stated in the literature review, are as follows:

- *Is there an impact of blogging on students' overtime improvement of writing fluency, accuracy and complexity, when they write in their blogs vs. on paper?*
- *Is there a difference in students' writing fluency, accuracy, complexity when they write in their blogs vs. on paper?*
- *What is the students' attitude towards the use of blogs for improving their writing fluency, accuracy and complexity skills?*

For the first and second research questions non-directional null hypothesis were taken:

- *There is no impact of blogging on students' overtime improvement of writing fluency, accuracy and complexity, when they write in their blogs vs. on paper?*
- *There is no difference in students' writing fluency, accuracy, complexity when they write in their blogs vs. on paper?*

For the second question the attitudinal questionnaire and interview answers will be analyzed. Two types of data will be collected (qualitative and quantitative), thus directing the study towards mixed method research.

3.3. Operational Definitions of the Terms

The current study aims at comparing three different types of writing. In order to determine whether there are any differences in the students writing fluency, accuracy and complexity in the students' writing assignments, as well as in the pre- and post tests we need to characterize the method by which they are going to be calculated. Thus, the main unit by which the above mentioned variables are going to be calculated is the ***T-unit***. Hunt (1965, p. 21) defined a T-unit, or Minimal Terminal Unit, as one that “is grammatically capable of being considered a sentence.”

For the data obtained from the pretest, posttest and the writing assignments, as with most studies on writing, the main unit of the analysis was the T-unit. The latter is defined as “a main clause and any subordinate clauses attached” (Hunt, 1965, cited in Armstrong, 2010, p. 693).

Thus, the data was analyzed first by calculating the length of each composition in words (using the computer word count function) and then dividing the written work into T units and clauses (for complexity) and then identifying the number of complex clauses. Later SPSS was used for both between and within group comparisons.

The fluency of the students' writing was determined using the ratio of the number of t-units per total number of words produced (Wolfe-Quintero et al., 1998, cited in Armstrong, 2010). The same source was used to obtain information on the measures of accuracy and complexity. Thus, accuracy was measured using the ratios of error-free T-units (EFT), error-free T-units per T-unit (EFT/T), and complexity was measured using clauses per T-unit (C/T).

T-unit: minimal terminal unit, which is grammatically capable of being considered a sentence (Hunt, 1965).

Fluency: defined as the rate and length of speech produced in a limited amount of time (Lennon, 1990; Wolfe-Quintero et al., 1998, cited in Armstrong, 2010).

Accuracy: defined as “freedom from error, which can be measured by an analysis of target-like use, taking into account both the contexts and uses of the structure in question” (Pica, 1983, cited in Wolfe-Quintero, p. 33).

Complexity: refers to the use of simple and complex clauses produced in a written language.

3.4. Educational Context

This research was carried out in the Experimental English Classes (EEC) organized by the Department of English Programs (DEP) at the American University of Armenia (AUA). The duration of the EEC courses is usually ten weeks, thus the current study was carried out in the scopes of the EEC classes. The classes met twice a week, one hour per session.

3.5. Participants

Overall, 25 students participated in the study. 19 students participated in the pretest and posttest, and only 12 students (experimental group) participated in the questionnaire. Six participants of the research agreed to be interviewed, and the assignments of 25 participants was

analyzed. The reason for having only nineteen students participating in the pre- and post tests, is that all the 25 students were present for the pre-test, however only 19 students took part in the post-test. All of the participants were Armenian students studying English as a foreign language in the Experimental English Classes organized by the Department of English Programs at the American University of Armenia. The participants were mixed gender students; their age ranged from 8 to 14. The level of English language proficiency of all the participants was (communication 1) lower intermediate determined on the basis of English as a Foreign Language (EFL) placement test, which the students took before being admitted to the AUA EEC program.

The teacher of both focus and comparison groups was the researcher herself who is currently pursuing a Masters degree in TEFL at the American University of Armenia.

3.6. Materials

The textbook used for both groups (focus and experimental) was “New Parade 4” by Herrera, M., & Zanetta, T. (2000), which is accompanied by a workbook. However, the data collection for this research, as well as the treatment applied in the experimental group did not depend on the textbook.

3.7. Instrumentation

For the purposes of this research both qualitative and quantitative data will be collected. The quantitative data will be collected through:

- Pretest (a composition writing task not aligned with the course objectives)
- Posttest (a composition writing task not aligned with the course objectives)
- Five writing assignments
- Questionnaire

The qualitative data will be collected through:

- semi-structured interview
- Questionnaire

3.7.1. Pre- and post tests

To answer the first research question (concerning students writing fluency, accuracy and complexity across the time), both (experimental and comparison) groups were given *pre test* which was a composition writing task not aligned with the course objectives. The aim of the pretest was to determine students' writing skills in terms of fluency, accuracy and complexity.

At the end of the course, i.e. in the tenth week, both (experimental and comparison) were given a *post test*, again, a proficiency test, not aligned with the course objectives, which was a composition writing task as well. The aim of the post test was to determine whether there is any difference in the students writing fluency, accuracy and complexity depending on whether they write on paper or in blogs (see Appendices A and B).

3.7.2. Writing assignments

To answer the second research question, the five writing assignments which were different/varied composition writing tasks, (see Appendices C-G) were assigned both in the focus and comparison groups. The writing tasks were chosen by the researcher, i.e. the teacher herself and were discussed with the thesis supervisor and reader. The first writing task (About myself) assigned to the students was similar to the topic students covered in the first unit called "All about us", the theme of the unit was about oneself and one's family. The second writing assignment (My best vacation ever) was also similar to the second unit's theme. The unit was called "Last Weekend" and it aimed to have the students talk about what one did in the past; to talk about common weekend and daily activities, to order events in sequence etc. The third

writing assignment was taken and adopted from “English in Mind 2” student’s book. Students were supposed to write an e-mail to a penfriend. The last two writing assignments, i.e. four and five were also aligned with the topics covered during the course. The fourth writing assignment was “My favorite food” and the topic of the unit was “Let's Eat”. The fifth assignment was “Staying Healthy” and the unit being covered in that period was “Your Health”, thus the main topic of the class discussion was health and safety.

In the experimental group the writing tasks were done in the group blog site, where each student had his or her own page, and in the comparison group the writing assignments were paper-based. All five assignments were analyzed and compared in terms of students’ writing fluency, accuracy and complexity.

3.7.3. Questionnaire and Interview

To answer the last research question, as well as to gain indirect evidence for the *improvement of the students’ writing fluency, accuracy and complexity*, both, qualitative and quantitative data was collected through a questionnaire and semi-structured interview. The aim of the third research question also was to evaluate students’ experience on using blogs and its effectiveness as a tool for encouraging and developing students writing skills.

Both the questionnaire and the interview were administered only in the experimental group since the comparison group did not have any exposure to blogs. The *questionnaire* consisted of fifteen items. Twelve items in the questionnaire were close-ended questions and only 3 items were open ended. Taking into consideration participants’ age and proficiency level, the questionnaire was translated into Armenian. The questionnaire was based on a five-point *Likert* scale ranging from “*Strongly agree*” to “*Strongly disagree*” except three open-ended (see Appendix H) response type items. The items in the questionnaire were adapted and developed

from the references, as well as from the questionnaires applied in similar studies. Before administering the questionnaire, the latter was revised by the thesis supervisor and the reader. When the necessary corrections were made, the questionnaires were ready for distribution among the participants of the study. The close-ended items of the questionnaire were piloted in a mini-study of a smaller scale on ten EFL learners, and all the items were validated by the thesis supervisor and the thesis reader. The administration of the questionnaire took about 15 minutes.

Interview was the next instrument used to obtain data. The interview questions were structured parallel to the sections in the questionnaire. The interviewees were chosen on the voluntary basis. Six interviewees were selected based on maximum variation sampling, which is a type of purposive sampling. According to Hoepfl (1997, p. 52), maximum variation sampling “yields detailed description of each case, in addition to identifying shared patterns that cut across cases”. Factors used in stratifying interview candidates were 1) students who hate writing 2) students who like blogging 3) students who like writing on paper. Thus, efforts were made to select interviewees that represent different types of learners. Ages of the interviewees ranged from 8 to 14.

The format of the interview was open-ended and semi-structured. It consisted of eight questions, which were selected and developed from the questionnaire, as well as the field notes taken during the course based on the students’ attitude towards blogging and their daily impressions of the different features of blogging as a task. The interviewees were not limited in their answers, i.e. they were encouraged to go deeper into the questions and give more details. The administration of the interview took about 10 minutes. It was conducted in Armenian and was recorded for further analysis.

3.8. Procedure

3.8.1. Pretest

At the beginning of the course the students of both experimental and comparison groups were given a pretest which, as has been mentioned above, was a composition writing task. Students were asked to write a composition on the topic not related but similar of what they were to write throughout the course. The pretest of both focus and comparison groups was carried out on paper and after the completion of the task was collected by the researcher. The next step was the analysis of the students' pretest in terms of writing fluency, accuracy and complexity (Appendix A).

3.8.2. Procedure and treatment

As the participants were pre-intermediate (communication 1) level students and since they were exposed to blogs for the first time in their life, as well as in the interests of time-effectiveness, the researcher, i.e. the teacher herself set up a class blog to which the students accessed with the given username and password. Next, the participants were distributed handouts where they could find basic instructions of how to create a new blog post and publish it on line.

At first, students were given time to explore the class blog website by themselves at home and then post one or two blog posts about them, their hobbies, favorite sports, etc., in one word on the topic of their choosing. The latter was done to give students' general understanding of what blogs are.

Then, throughout the course students were assigned five writing tasks; as has been mentioned above in the experimental group they were blog based and in the comparison group they were based on paper (see Appendices C-G). Every time students received their assignments and had to do it as homework. No treatment was provided in the comparison group, the tasks

were carried out the way students used to do. The instructions for all the tasks in both groups were the same. Students were required to write five compositions on the assigned topics, which were not related but similar to the topics they were covering throughout the course. The topics were the same for both focus and comparison groups. All of the tasks were assigned as homework. (see figures 1 and 2 below for samples of students' blog posts)

Figure 1: The class blog procedure

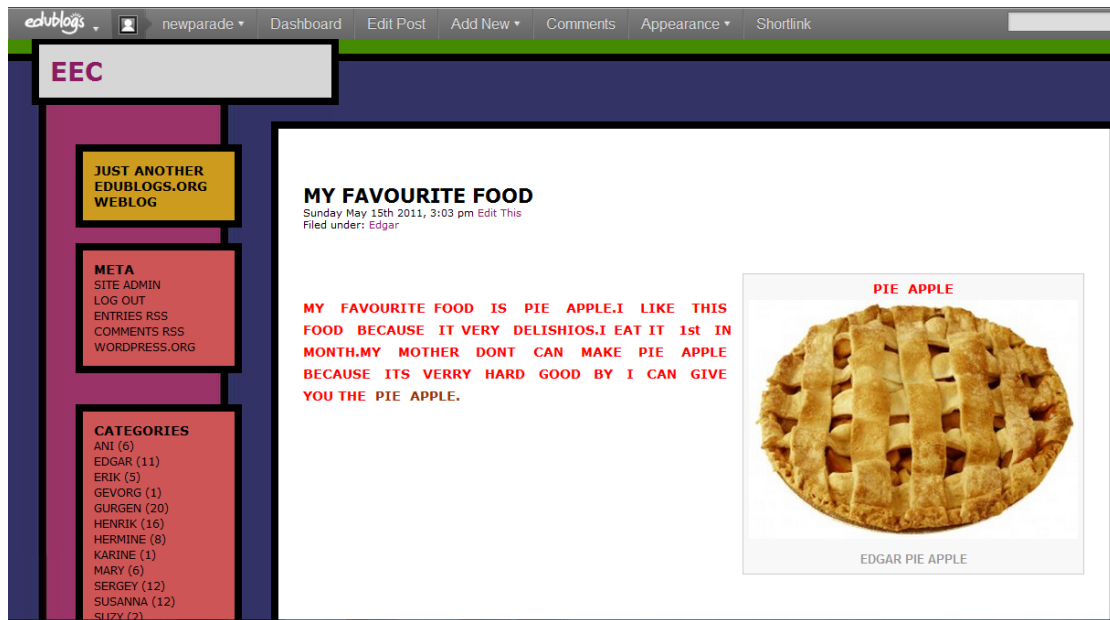
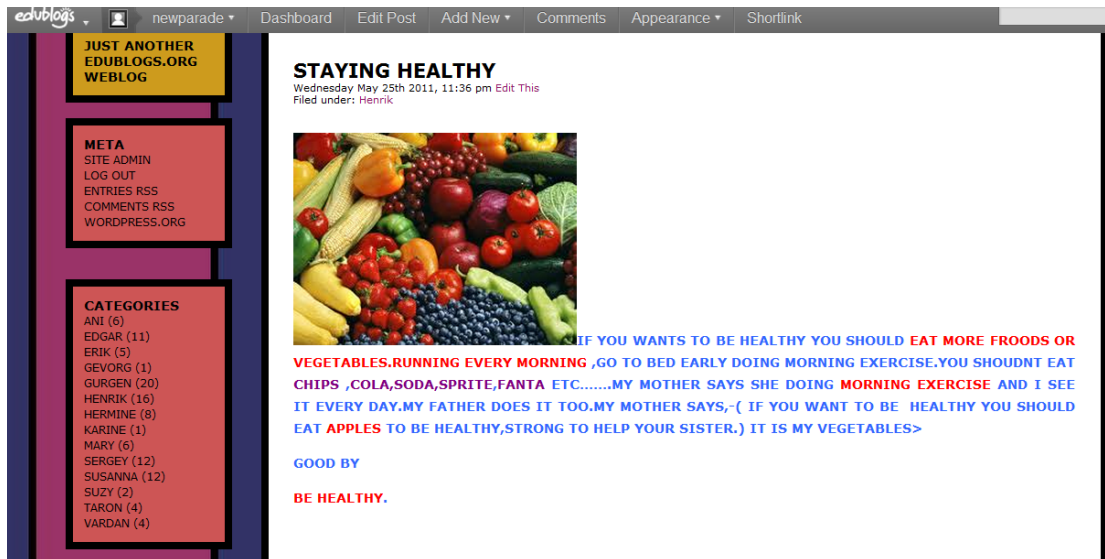


Figure 2: Blog entry sample



Blogging and the paper based assignments designed by the researcher were the main but not the only writing activities that students were assigned during the course; there were other short writing activities as well which were mainly done in the students' workbook to meet the syllabus requirements. As the activities were based on the main textbook used in the course (New Parade 4, Workbook), thus they were the same in both focus and comparison groups.

An analysis of the students' writing fluency, accuracy and complexity, for both blog and paper assignments, was done after the assignments were accomplished. The blog products were printed to make it easier to analyze, and the paper products were collected from the students.

3.8.3. Posttest

The posttest was administered at the end of the course, specifically in the tenth week. The students of both focus and comparison groups were assigned paper based writing tasks, similar to the ones they had for the pretest. After the administration of the posttest the writing assignments

were collected for further analysis, again, to be analyzed in terms of fluency, accuracy and complexity.

3.8.4. Data collection

After the administration of the posttest, questionnaires were distributed to the EEC students at the end of their lesson. After the completion of the questionnaires, the participants were asked to be interviewed on a voluntary basis, most of the participants wanted to be interviewed, however only 7 of them were asked to be interviewed based on purposive sampling mentioned above.

The interview was conducted *face-to-face*.

The paper assignments, as well as the pretests and posttests were collected from the students after each assignment. The blog assignments, as has been mentioned above, were printed to make it easier to analyze.

3.8.5. Data Analysis Procedure

All the items in the questionnaire were analyzed using the Statistical Packages for Social Sciences (SPSS) Version 16, except for three open-ended response items in the questionnaire and all (eight) interview questions. These five items were analyzed through categorization of the responses. For every item statistically analyzed, frequencies and percentages were calculated. The qualitative data obtained from the interview, as well as three open-ended response items in the questionnaire was analyzed descriptively. The data collected from the pre- and post test was analyzed using Mann-Whitney U test, which is used to make between group comparisons. The second test used for the analysis of the pre- and post-test was Wilcoxon Signed Ranks test, the latter is used to make within group comparisons. In order to analyze the data obtain from the assignments, a between group comparison was made again by applying a Mann-Whitney U test.

The quantitative data obtained from the close-ended items in the questionnaire was analyzed with the help of SPSS software. The qualitative data both in the questionnaire and the interview was analyzed descriptively.

In the next chapter, the data analysis procedures and the results will be discussed in detail.

Chapter 4: Results

The aim of this chapter is to provide quantitative and qualitative data analysis, collected from data collection to draw us closer to the final goal of the current research, i.e. to provide answers to the proposed research questions.

4.1. Analysis of Pre- and Post-tests

In order to determine whether there were any identifiable differences in the pre and post-test compositions completed by the learners of experimental group and those completed by the learners of comparison group, the compositions were analyzed for fluency, complexity and accuracy. This was done by calculating the length of each composition in words (using the computer word count function) and then dividing the written work into T-units and clauses (for complexity) and then identifying the number of complex clauses.

Fluency was measured in terms of average number of words and T-units per text. Accuracy was measured by overall units expressed in terms of the proportion of error-free T-units of all T-units (EFT/T). All errors in spelling and punctuation were ignored. A further measure used was complexity which was measured through proportion of clauses per T-unit (Wolfe-Quintero et al., 1998)

Thus, to provide answer to the first research question of whether *there is any difference in the students writing fluency, accuracy and complexity, depending on whether they write on blogs or on paper* the pre-test and post-test results were analyzed quantitatively through the statistical package of social sciences (SPSS software, version 16). Two sets of scores were obtained from each group to compare the results of pre- and post-tests in terms of fluency, accuracy and complexity to see which group showed higher performance.

In order to compare the test results of the two groups the non-parametric 2 independent samples Mann Whitney's U test was applied. The latter is applied in case of small sample sizes and thus compares the average ranks by showing whether there is a significant difference between the ranks of the two groups or not.

Table 1
Mann-Whitney Tests

Measures of fluency

Ranks				
	Group	N	Mean Rank	Sum of Ranks
<i>Pre-test</i>	Experimental	10	10.60	106.00
	Comparison	9	9.33	84.00
	Total	19		
<i>Post-test</i>	Experimental	10	9.60	96.00
	Comparison	9	10.44	94.00
	Total	19		

Table 2
Mann-Whitney Test Statistics

TEST STATISTICS^b		
	Pre-test	Post-test
Mann-Whitney U	39.000	41.000
Z	-.490	-.327
Asymp. Sig. (2-tailed)	.624	.744
Exact Sig. [2*(1-tailed Sig.)]	.661 ^a	.780 ^a

- a. Not corrected for ties
- b. Grouping Variable group

According to the pre-test comparison between groups through Mann-Whitney U test the probability value $p = .661$, which is not less than .05. This means there is no significant

difference on average in performances of both groups in terms of fluency during the pre-test. Mann-Whitney U test for between groups comparison in post-test shows probability value $p = .780$, which is again not less than $.05$. Thus, the results of post-test do not as well significantly differ from group to group.

Table 3
Mann-Whitney Tests

Measures of accuracy

Ranks				
	Group	N	Mean Rank	Sum of Ranks
<i>Pre-test</i>	Experimental	10	10.95	109.50
	Comparison	9	8.94	80.50
	Total	19		
<i>Post-test</i>	Experimental	10	11.35	113.50
	Comparison	9	8.50	76.50
	Total	19		

Table 4
Mann-Whitney Test Statistics

TEST STATISTICS^b		
	Pre-test	Post-test
Mann-Whitney U	35.500	31.500
Z	-.777	-1.107
Asymp. Sig. (2-tailed)	.437	.268
Exact Sig. [2*(1-tailed Sig.)]	.447 ^a	.278 ^a

- a. Not corrected for ties
- b. Grouping Variable group

Table 4 of Mann-U test shows the statistical analysis for writing accuracy (see Table 4, Test statistics). According to the pre-test comparison between groups through Mann-Whitney U test the probability value $p = .447$, which is not less than $.05$. This means there is no significant difference on average in performances of both groups in terms of accuracy during the pre-test. Mann-Whitney U test for between groups comparison in post-test shows probability value $p = .278$, which is again not less than $.05$. Thus, the results of post-test as well do not significantly differ from group to group.

The same statistics was observed on the third measure, i.e. complexity. The results obtained for the writing complexity were similar to those of writing accuracy, only with some differences in the numbers (see Table 6, Test statistics). According to the pre-test and post-test comparison between groups through Mann-Whitney U test the probability value $p = .720$ for both pre- and post test within group comparisons, which is not less than $.05$. This means there is no significant difference on average in performances of both groups in terms of complexity during the pre- and post-tests.

Table 5
Mann-Whitney Tests

Measures of complexity

Ranks				
	Group	N	Mean Rank	Sum of Ranks
<i>Pre-test</i>	Experimental	10	10.45	104.50
	Comparison	9	9.50	85.50
	Total	19		
<i>Post-test</i>	Experimental	10	10.50	105.00
	Comparison	9	9.44	85.00
	Total	19		

Table 6
Mann-Whitney Test Statistics

TEST STATISTICS^b		
	Pre-test	Post-test
Mann-Whitney U	40.500	40.000
Z	-.368	-.409
Asymp. Sig. (2-tailed)	.713	.683
Exact Sig. [2*(1-tailed Sig.)]	.720 ^a	.720 ^a

- a. Not corrected for ties
- b. Grouping Variable group

In order to obtain statistical results for within group comparisons of pre- and post tests for both experimental and comparison groups non-parametric Wilcoxon Signed Ranks test has been applied, since the sample sizes are small (less than 30). Wilcoxon Signed Ranks test is used when comparing two related samples or repeated measurements on a single sample to assess whether their population means differ or not. The same is true for within group comparison of post-test of both (experimental and comparison) groups.

Table 7
Wilcoxon Signed Ranks Tests for fluency

RANKS^d							
		N		Mean Rank		Sum of Ranks	
Posttest		Experime ntal Group	Compariso n Group	Experimental Group	Comparis on Group	Experimenta l Group	Compariso n Group
– pretest	Negative Ranks	9 ^a	6 ^a	5.33	5.83	48.00	35.00
	Positive Ranks	1 ^b	3 ^b	7.00	3.33	7.00	10.00
	Ties	0 ^c	0 ^c				
	Total	10	9				

- a. posttest < pretest
- b. posttest > pretest
- c. posttest = pretest
group (experimental; comparison)

Table 8

Test statistics

TEST STATISTICS^b		
Posttest – pretest	Experimental Group	Comparison Group
Z	-2.090 ^a	-1.481 ^a
Asymp.Sig. (2-tailed)	.037	.139

a. based on negative ranks

b. group (experimental; comparison)

The Wilcoxon Signed Ranks test, which evaluated the within group difference between medians for pre- and post- tests in terms of fluency, is significant $z = -2.090$ for pre- and post test comparison for the experimental group, and $z = -1.481$ for the comparison group. The probability value for the experimental group is .037 which is less than .05 ($p < .05$). That is, the results indicate significant difference in the participants' performance in terms of fluency in favor of the post test. The same cannot be said about the comparison group where the significance level of p is .139 which means $p > .05$, thus, there is no significant difference in the participants pre and post-test results in terms of fluency.

“What the probability values do not tell us is the degree to which the two variables are associated with one another” (Pallant, 2007, p.207). Thus, one of the ways to evaluate the importance of the findings is to calculate the effect size. The effect size “is a set of statistics that indicates the relative magnitude of the differences between means” (Tabachnick & Fidell in Pallant, 2007, pp. 207-208). The effect size for this test to be calculated is as follows, we should divide the z value by the square root of N ($r = Z/\text{square root of } N$, where N is the total number of the cases).

The effect size of Wilcoxon Signed Ranks test for the fluency in the experimental group is as follows:

$$r = \frac{2.09}{\sqrt{20}} = 0.467$$

The effect size (r) for the fluency in pre-test and post of the experimental group is equal to 0.467, which means that according to Cohan's (1988) criteria there was statistically significant difference and more than moderate, however, less than large size effect.

Table 9

Wilcoxon Signed Ranks Tests for accuracy

RANKS^d							
		N		Mean Rank		Sum of Ranks	
Posttest – pretest		Experimental Group	Comparison Group	Experimental Group	Comparison Group	Experimental Group	Comparison Group
	Negative Ranks	6 ^a	4 ^a	5.83	5.25	35.00	21.00
	Positive Ranks	4 ^b	4 ^b	5.00	3.75	20.00	15.00
	Ties	0 ^c	1 ^c				
	Total	10	9				

- a. posttest < pretest
- b. posttest > pretest
- c. posttest = pretest

group (experimental; comparison)

Table 10
Test statistics

TEST STATISTICS^b		
	Posttest – pretest	
	Experimental Group	Comparison Group
Z	-.764 ^a	-.420 ^a
Asymp.Sig. (2-tailed)	.445	.674

- a. based on negative ranks
- b. group (experimental; comparison)

The Wilcoxon Signed Ranks test results for accuracy and complexity do not show any significant difference of pre- and post tests results experimental and comparison groups (see tables 10 and 12)

Table 11

Wilcoxon Signed Ranks Tests for complexity

RANKS^d							
		N		Mean Rank		Sum of Ranks	
Posttest -pretest		Experimenta l Group	Comparison Group	Experime ntal Group	Compariso n Group	Experimenta l Group	Compariso n Group
	Negative Ranks	6 ^a	6 ^a	4.00	4.50	24.00	27.00
	Positive Ranks	4 ^b	3 ^b	7.75	6.00	31.00	18.00
	Ties	0 ^c	0 ^c				
	Total	10	9				

d. posttest < pretest

e. posttest > pretest

f. posttest = pretest

group (experimental; comparison)

Table 12

Test statistics

TEST STATISTICS^b		
	Posttest – pretest	
	Experimental Group	Comparison Group
Z	-.357 ^a	-.533 ^a
Asymp.Sig. (2-tailed)	.721	.594

c. based on negative ranks

d. group (experimental; comparison)

Thus, the statistical analysis reveals that there is no impact of blogging on students' overtime improvement of writing fluency, accuracy and complexity, when they write in their blogs vs. on paper.

4.2. Writing Assignments

In this section the writing assignments of the participants is analyzed. Participants of both experimental and comparison groups were assigned five writing assignments throughout the ten-week-course. All of the assignments were assigned as homework after covering certain topic once a week, skipping the first week of the classes as well as the last week for some organizational purposes.

The format of the writing assignments were the same for both groups with one difference that in the experimental group it was carried out in the blog site and in the comparison group it was done on paper. Here is the summary of the writing task types as well as the average word counts.

Table 13

Blog entry & paper assignments word counts

	<i>Assignment 1 Composition</i>		<i>Assignment 2 Composition</i>		<i>Assignment 3 Responding to an e-mail</i>		<i>Assignment 4 Composition</i>		<i>Assignment 5 Composition</i>	
	<i>“About Myself”</i>		<i>“My best vacation ever”</i>		<i>“An e-mail to Mary”</i>		<i>“My favorite food”</i>		<i>“Staying Healthy”</i>	
	<i>Exper.</i>	<i>Compar.</i>	<i>Exper.</i>	<i>Compar</i>	<i>Exper.</i>	<i>Compar</i>	<i>Exper.</i>	<i>Compar</i>	<i>Exper.</i>	<i>Compar</i>
<i>Total words</i>	812	502	653	279	690	284	367	296	604	209
<i>Avg per Ss</i>	90	71	65	47	99	57	46	33	60	34

In order to answer the second research question, i.e. *Is there a difference in students' writing fluency, accuracy, complexity when they write in their blogs vs. on paper?* In order to find out whether there was any statistically significant difference between the experimental and comparison groups for each assignment taken separately a Mann Whitney U-test was applied. The tables below show the statistics of the comparisons for all the five assignments across the groups (see tables 14-23).