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Developing writing competence in translating ESP texts through blogging in a flipped classroom

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Abstract

In this paper, we aim to verify whether Flipped Classroom and blogging promote writing competence in specialised English. To do this, we implemented an experiment with learners from the Specialised Translation (English) course, in the fourth academic year of the BA in Translation and Interpretation during the year 2019–2020. This didactic experience consisted of the creation of a blog by learners with their tasks, which consisted of some translations from English into Spanish and text composition in English. To assess this experience, two questionnaires were made: a diagnostic survey to ascertain learners' knowledge related to the acquisition of written competence in English through blogging within the framework of Flipped Classroom, and a final survey to analyse the progress. The results found that a combination of blogging and Flipped Classroom are valid instruments for the development and consolidation of the composition of texts in English.

Keywords: Blogging, English for specific purposes, flipped classroom, specialised translation, writing competence

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1. Introduction

Relevant research has been published (Contreras Olivera, 2017; Juarez Cruz, 2012; Laverde, 2015; Lázaro et al., 2009; Lluminquiga Suntaxi, 2020; Martín-Monje, 2010; Ruipérez et al., 2011) whose determining objectives were to investigate the quality of written competence in the English language using various Web 2.0 tools. Although a considerable amount of empirical research on blogging has been published in university educational contexts (Fithriani et al., 2019; Sauro & Sundmark, 2018; Wu, 2015; Yakut & Aydin, 2017), it is important to mention research on blogging in the teaching of English in compulsory secondary education. Consistent with this article, it is pertinent to highlight the works of Author (2016, 2017, 2019), who investigates whether blogging improves written skills in English for specific purposes in professional training.

Author (2016) analysed blogging in the teaching of English in the subject, design, and furnishing. The quantitative results indicated a notable improvement on the part of the students participating in this experiment. In the same experiment, Author (2017) investigated, through a qualitative study, whether blogging improved written competence. The data implied that there was no notable improvement, but, on the contrary, there was an improvement in the acquisition of specialised vocabulary and reading comprehension in specialised English. Finally, Author (2019) explored blogging in the teaching of English for specific purposes as a tool to promote written competence in the specialty of Tourist Accommodation Management, in a Project-Based Learning environment. The results were positive, implying a substantial improvement on the part of the participating students. On the other hand, regarding blogging in a PBL environment, Sa'diyah and Cahyono (2019) researched, in a university context, written competence in English through a quasi-experimental design. The results showed that the students participating in the experimental group obtained better results than the students in the control group.

Even though the Flipped Classroom has been used above all as a resource in teaching, for example, foreign languages (Alakrash & Abdul Razak, 2021; Calle-Martínez, 2020; Martínez-Salas, 2019), numerous references have also been published about the Flipped Classroom in other different disciplines (Lafragüeta Mateu, 2020; Reinoso-González and Hechenleiter-Carvallo, 2020). Sánchez Fernández (2017) analysed the potential of the Flipped Classroom in the teaching of English in Secondary Education with an emphasis on attention to diversity. The author concluded that an eclectic approach should be used in education, not delegating all to ICT.

Considering the Flipped Classroom and Cooperative Learning, Osa-Pradas (2019) proposes the use of these active methodologies to promote in the subject, English, both productive skills (oral production, written production) and receptive skills (oral comprehension, reading comprehension), also betting on linguistic and digital competence, as well as learning to learn. While, on the one hand, Almeida Espinoza (2020) tried to demonstrate, through a quasi-experimental investigation, that the use of the Flipped Classroom could help English students to improve their level of oral expression. The results of this research showed that the students in the experimental group significantly improved their speaking skills compared to the control group. On the other hand, Flores and Hestefanni (2018) explored the Flipped Classroom as a tool to promote reading proficiency in English.

In addition to language learning through the various linguistic skills that make up communicative competence, lexical competence (Monteros Altamirano, 2016) in the Flipped Classroom is also a key element during the learning process of the English language (Khan & Hameed, 2021; Seyyedrezaei et al., 2022; Teo et al., 2022). Monteros Altamirano (2016), through a quasi-experimental investigation, sought to investigate whether the students of the Equinoctial Technological University improved their lexical competence in English using the Flipped classroom as support of the active methodology. To all these references discussed here, it would be pertinent to add three very recent investigations (Chen, 2021;

Chicaiza Chango, 2019; Feria Llerena, 2018; Martínez-Salas, 2019) that explored the potential of the Flipped Classroom as a methodology to help English students improve their grammatical competence.

Regarding written production skills in English in a Flipped Classroom environment (Calle-Martínez, 2020), it should be mentioned that, to date, there are very few empirical investigations focused on determining whether students improve their level of written expression according to the theoretical postulates of the Flipped Classroom (Adhami & Taghizadeh, 2022; Bahari & Gholami, 2022; Elmoisheer & Elsawy, 2022). This work aims to confirm whether the students of the Faculty of Translation of the University of Murcia improved their competence in written production in specialised English through blogging in a Flipped classroom environment. Therefore, the fact that there is very little research in this area makes this present research acquire relevant value in the field of Web 2.0 in a Flipped Classroom environment.

Finally, in coherence with the thematic line of this work, which focuses on the written composition in English for specific purposes through blogging in a Flipped Classroom environment in the field of specialised Translation, it is pertinent here to highlight Antón Ramírez's (2017) research, who sought to determine the effectiveness of a telephoning course integrated into the Flipped Classroom methodology through the virtual Moodle platform and, therefore, this experimentation was developed in distance mode. The students participating in this experiment were enrolled in the second year of the Higher Degree in Administration and Finance. The author concludes that it seems possible to implement the Flipped Classroom through the Moodle platform since it encourages communicative competence in English for Specific Purposes through the practice of role-plays, that is, authentic and communicative tasks that involve meaningful learning for students.

1.1. Purpose of study

This paper aims to research the written production and translation of texts written in English for Specific Purposes (IFE), using blogging in a Flipped Classroom environment. The theme of this research is, without a doubt, of great relevance given the limited empirical research in this area at the university level. First of all, there will be a brief description of the state of the art around web 2.0 and, particularly, blogging as a tool to promote written production in English. Below is an update of the empirical research on blogging and Flipped classrooms in IFE teaching. Subsequently, we proceed to the methodology of the experiment, finally reaching some results with a critical discussion of the same and ending with positive conclusions regarding the improvement of written production as well as the translation of IFE texts through blogging in a Flipped Classroom environment.

2. Materials and methods

2.1. Participants

The didactic experience was implemented in the classroom with 24 university students, divided into groups, in the subject, Specialised Translation (English), in the fourth year of the degree in Translation and Interpreting, in the academic year 2019/2020.

2.2. Data collection instrument

The research at hand is based on the case study method. It followed a quantitative and qualitative design to explore whether Flipped Classroom and blogging promote writing competence in specialised English. The didactic experience was implemented in the classroom. The stages of the didactic experiment are developed below in Course development.

2.2.1. Course development

In carrying out this study, different types of materials were used with which to structure a sequence of tasks that would allow quantifying the competence of the students concerning the contents. These didactic materials were located in the virtual classroom in the resources folder of the different subjects, separated by units and consisting of: scientific articles, tutorial videos, and links to web pages. The sequence of tasks was as follows:

- Initial diagnostics
- English-Spanish translation practice in groups
- Composition practice of texts in English at the end of the study of each textual typology
- Final diagnosis (in contrast to the initial one)
- Co-evaluation

2.2.2. Initial diagnosis

The survey was divided into two parts. The first related to the definition of blogging and the second to blogging and Flipped Classroom as ways to enhance the development of writing skills in English. In the definition of blogging, students were asked if they knew of ways to improve their writing skills in English using this tool.

2.3. Analysis

2.3.1. English-Spanish translation practices

To study the quality of translation practice (English-Spanish), students' translations were compared with those of reference employing a series of evaluation metrics. The first metrics to be introduced were Precision and Exhaustivity. To calculate Precision, the number of common words was divided by the number of words in the reference translation. Translations are considered good if the results are high, so the best translations are those with the highest results. Another metric that was used is the WER. This method considers differences such as substitutions, insertions, or deletions. In this case, the lower the index, the better the result. But the most used metric is the BLEU This method (Eq. 1) calculates how many *n*-grams overlap between the student and reference translations. This metric is based on the hypothesis that the greater the number of *n*-grams that overlap between the students' and reference translations, the better the translations are performed. The formula that calculates 'BLEU' is the following:

$$\text{BLEU} = \left(1, \frac{\text{number of words in MT}}{\text{number of words in ref}}\right) \prod_{i=1}^{4} \quad \text{precision}_i \tag{1}$$

To obtain the results of the evaluation metrics, a computer program was developed by Juan Manuel Dato Ruiz (qualified computer technician), taking into account the evaluation metrics explained above written in Python language, which calculates 'WER', 'BLEU', 'Precision' and 'Recall' from the information entered in a file. The file recognised a heading, followed by different text segments that corresponded to the original, the students' translation, and the reference translation, for comparison. The code calculated each function by combining the students' translations with the reference translations, generating another table format file that was sent directly to a spreadsheet. The program calculated the mean, taking into account the mentioned metrics (Eq. 2) and applying the following formula: generating another table format file that was sent directly to a spreadsheet. The program calculated the mean, taking into account the mentioned metrics (Eq. 2) and applying the following formula:

$$\text{Metrics Mean} = \frac{(3 \cdot (1 - W) + 1 \cdot B + 1 \cdot P + 1 \cdot R) \cdot 10}{6} \quad (2)$$

2.3.2. English-Spanish translation practices

For the evaluation of these practices, the following were used: the *Z* test, evaluation of the errors that Spaniards make when writing English, and analysis of the easability.

2.3.2.1. The Z tests

In our study, we will mainly use a type of statistical test that is commonly called the *Z* test. The *Z* density function (or *Z* test) is the primitive function that calculates the area of the normal distribution. Since all distribution functions enclose an area equal to 1, their primitives calculate probabilities. The normal distribution (or Gaussian Bell) is the function that the central limit theorem attributes to all random samples of finite mean and variance when the size becomes significant. The density function *Z* describes the probability of finding a value less than a specific value. In addition, if *P* (*Z* ≤ *a*) can be determined then the value of *P* (*Z* > *a*) can also be determined.

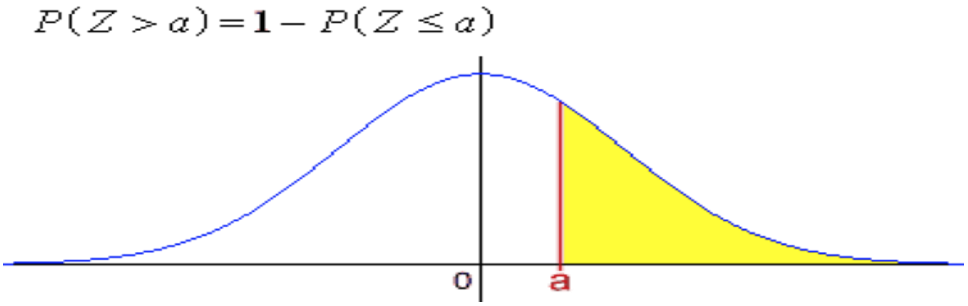

Figure 1
Density Function

For our study with the *Z* test, we will be interested in answering a question: Given a random sample that is probably governed by a normal distribution, could we incorporate a specific value as long as it is not too large?
For example, after rolling a normal die 21 times, we contrast those rolls with the previous question and ask what the probability is that the following values were too high for our model, obtaining the following results:

Table 1
Probability That the Following Values Were Too High for Our Model

%	Roll	%	Roll
100.00	1	0.16	5
100.00	2	0.00	6
96.54	3	0.00	7
50.00	4	-	-

As the table shows, it is possible to guess that 1 and 2 are small enough to be integrated into the model, but after 5 or 6 it is not possible to ensure that these values are normally valid. Therefore, this measure serves to indicate when a value is too high to accept it within what we normally consider low.

Evaluation of the text under the errors that Spaniards make when writing in English Coh-Metrix will be used in the present work. Coh-Metrix is a computer tool that produces indices of the linguistic and discursive representations of a text, and these values are used in very different ways to investigate the cohesion of the explicit text and the coherence of the mental representation of the same (Graesser et al., 2003, pp. 82–98). By cohesion we mean the characteristics of an explicit text that play a role in helping the reader to connect ideas in the text mentally. Coherence is defined in this area as the interaction between linguistic representations and representations of knowledge. When the focus is on the text, the coherence matches the characteristics of the text that can contribute to the coherence of the mental representation.

According to the studies by Reid (1988), Spaniards write in English using longer sentences than usual and use more pronouns (which in Coh-Metrix corresponds to the DESSL index). According to McClure (1991, pp. 141–154), Spaniards use more nouns (WRDNOUN) and make use of more lexical overgeneralisations (hyperonyms: WRDHYPn, WRDHIPv, WRDHYPnv), while Connor (1984) observes a much more frequent use of causal connectives (CNCaus) and additive (CNCAdd). Silva (1993) reached the same conclusion as Reid (1988) regarding the length of sentences in English produced by Spaniards and the use of more pronouns. Subsequent studies using Coh-Metrix (Crossley, Louwerse, et al., 2007; Crossley & McNamara, 2008; McCarthy et al., 2007) reached the same conclusions as the works mentioned above.

Therefore, in this first study, it is considered whether it is true if, for the original texts in English whose measurements in Coh-Metrix on these indices are normally considered small, the values resulting from the texts in English generated by the students can be incorporated. We will use some graphs where the values obtained by the students in each of the indices will be observed in bars and in a continuous line where the probable maximum is found. To calculate the probable maximum, the sum of the mean of the values of the indices of the original texts has been taken and the standard deviation of such indices has been added (as differences in absolute value).

Table 2

Indices Whose Values are High in Spanish

Description	Coh-Metrix Index	Name
Average sentence size	6	DESSL
Frequency of use of causal connectives	51	CNCCaus
Frequency of use of additive connectives	56	CNCAdd
Frequency in the use of nouns	82	WRDNOUN
Mean of hyperonyms in nouns	101	WRDHYPn
Mean of hyperonyms in verbs	102	WRDHYPv

2.3.3. Assessment of easibility-based texts

Consideration has been given to studying some of the more well-known Coh-Metrix indexes to see to what extent the texts generated by the students conform to the same measures as the originals of their genre. For this, the following indices have been chosen:

Table 3

Most Popular Coh-Metrix Indices

Description	Coh-Metrix Index	Name
Easability of narrativity as a percentage	13	PCNARp
Syntactic facility as a percentage	15	PCSYNp
Easability in specifying words as a percentage	17	PCCNCp
Easability of referential cohesion as a percentage	19	PCREFp
Easability of deep cohesion as a percentage	21	PCDCp
Easability of verbal cohesion as a percentage	23	PCVERBp
Easability of connectivity as a percentage	25	PCCONNp
Easability in temporality as a percentage	27	PCTEMPp
Flesch reading ease	104	RDFRE
Flesch-Kincaid grade level	105	RDFKGL
Coh-Metrix L2 Readability	106	RDL2

To apply the *Z* test, we only have to look at the values that should normally be low, and in this case, it would be the variance of the indices. That is, the documents of the same typology must generate the minimum variance for each index, making the *Z* test the maximum.

2.3.4. Co-evaluation

Surveys were sent to the students with the following questions about the different types of texts:

1. Content: Does the lexicon (including phraseological units), syntax and distribution of the text, terminology, answer to the main content?
2. Organisation: Is the text properly organised in the corresponding paragraphs?
3. Vocabulary: Are the vocabulary and terminology used in the text adequate for the transmission of the message?
4. Spelling: Is there good spelling in the translated texts?

   Students were given the following responses to choose from: completely, much, sufficient and little.

2.4. Ethical consideration

The participants of this study voluntarily gave their consent to participate. This study did not pose harm to the participants, and neither did it reveal individual identities. The study poses no harm to society or any organisation. No funding was received for this study.

3. Results

3.1. Initial diagnosis

Focusing on the results of the initial evaluation, the survey was divided into two parts. The first related to the definition of blogging and the second to blogging and Flipped Classroom as ways to enhance the development of writing skills in English. Referring to the definition of blogging, the students were asked if they knew of ways to improve their writing skills in English through blogging; 90% of the students answered as follows:

- I have never worked this way.
- Creating blog posts that report on it.
- Writing among all the people who have access to the blog and different examples of written production.

The question is, what is blogging for you? obtained the following results proportionally:

- A useful information tool.
- A website where one person posts content and others can comment on it.
- The way we have, thanks to the Internet, of presenting our writing to the world.
- No idea.

Reflecting more on this aspect, the students were asked if they knew examples of blogging and the results can be seen in Figure 2 below:

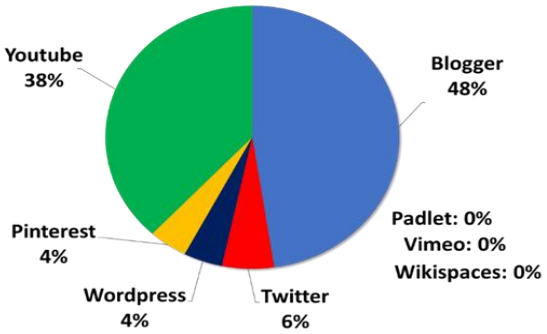

Figure 2

Blogging Survey Example

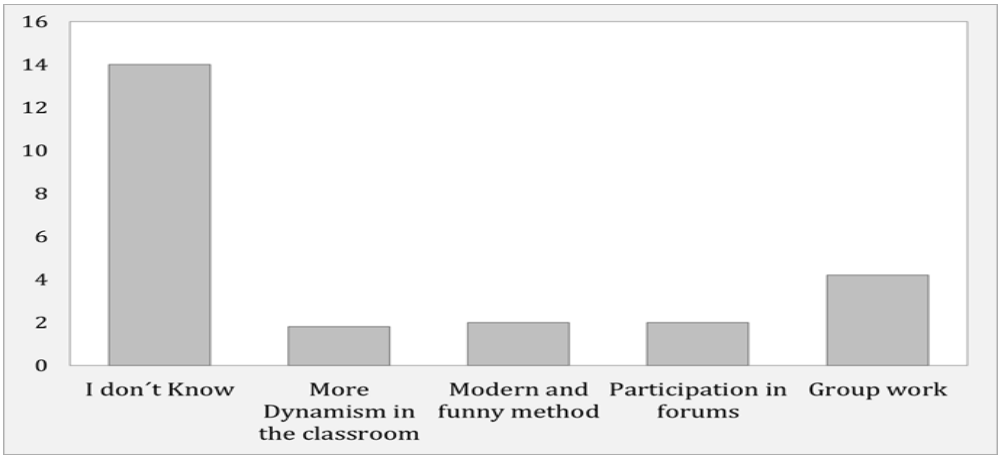

Figure 3

Advantages of Blogging

As can be seen in Figure 2, most of the students knew mainly Blogger and YouTube, which will facilitate the work with the study tools. However, as can be seen in Figure 3, it does not seem that they imagine in advance what can help them to improve their English. It is worth mentioning some inconveniences that the students experienced when blogging, such as, for example, the veracity of the content, the Internet connection, the continuous updating of the blog, and little in-depth study of the subject matter.

In the third part of the survey, students were asked if they had read or heard anything about the Flipped classroom. In the following Figures 4 and 5, the results can be seen:

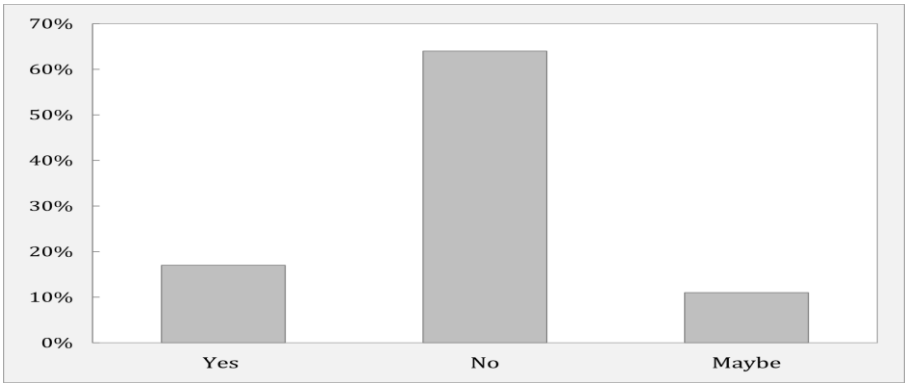

Figure 4

Knowledge About the Flipped Classroom

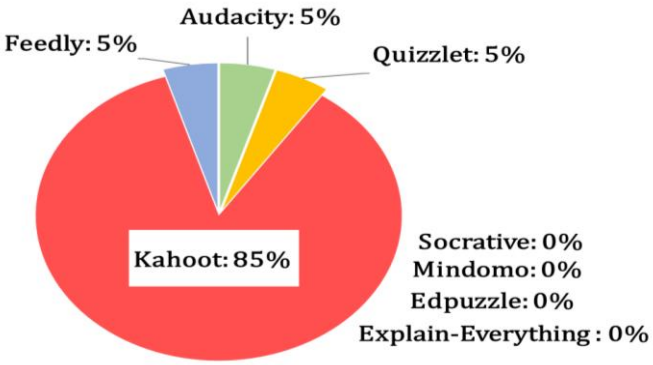

Figure 5

Tools to Use in the Flipped Classroom

As can be seen in Figure 4, most of the students were unaware of the necessary tools for the Flipped classroom, where, as can be seen in Figure 5, it will be the Kahoot application that will be used mainly.

3.2. Translation practices (English-Spanish)

For the evaluation of these translation practices, the evaluation metrics mentioned above were used.

Table 4

Evaluation Metrics for Group 1

Group 1	WER [W]	BLEU [B]	PRE [P]	REC [R]	Approximate mark
Practice 1	7.339	2.34	8.569	8.833	4.3
Practice 2	6.517	2.201	8.829	8.969	5.1
Practice 3	5.465	1.785	8.741	8.642	5.5
Practice 4	561	2.007	885	9.546	5.6
Practice 5	4.483	2.766	8.784	9.11	6.0
Practice 6	1.343	7.185	9.928	9.902	8.8

Table 5

Evaluation Metrics for Group 2

Group 2	WER [W]	BLEU [B]	PRE [P]	REC [R]	Approximate mark
Practice 1	8.688	6.330	8.294	8.87	3.5
Practice 2	7.154	6.980	6.442	9.194	4.1
Practice 3	6.028	2.176	8.733	7.954	5.1
Practice 4	5.075	1.999	9.335	9.468	5.9
Practice 5	4.244	3.513	8.963	9.297	6.5
Practice 6	1.753	6.357	9.868	9.823	8.5

Table 6

Evaluation Metrics for Group 3

Group 3	WER [W]	BLEU [B]	PRE [P]	REC [R]	Approximate mark
Practice 1	7.261	1.386	8.592	8.739	4.5
Practice 2	8.309	5.075	9.207	947	4.8
Practice 3	6.663	1.232	9.117	952	5
Practice 4	5.562	2.874	8.715	8.496	5.6
Practice 5	4.944	1.623	8.717	9.171	5.8
Practice 6	4.266	3.603	9.097	9.558	6.6

Table 7

Evaluation Metrics for Group 4

Group 4	WER [W]	BLEU [B]	PRE [P]	REC [R]	Approximate mark
Practice 1	6.643	1.133	6.811	9.508	4.6
Practice 2	6.768	1.636	8.922	8.648	4.8
Practice 3	5.747	1.994	8.734	8.824	5.4
Practice 4	5.299	3.483	8.745	8.226	5.8
Practice 5	4.115	3.513	9.375	9.536	6.7
Practice 6	0	1	1	1	10

Table 8

Evaluation Metrics for Group 5

Group 5	WER [W]	BLEU [B]	PRE [P]	REC [R]	Approximate mark
Practice 1	7.331	1.122	8.577	8.704	4.4
Practice 2	6.345	1.627	8.314	7.663	4.8
Practice 3	5.416	2.208	7.868	9.426	5.5
Practice 4	5.391	2.114	8.599	9.226	5.6
Practice 5	1.937	1.648	9.675	9.709	8.3
Practice 6	0	1	1	1	10

The previous Tables 4–8 show the evolution of the grades, as WER in each group tends to go down and the rest of the measurements tends to approach 1, to have a certain tendency to achieve the highest grade (10).

3.3. Composition of texts in English

The texts in English produced by the students were evaluated using the *Z* test, the study of the errors that Spaniards make when writing in English, and the analysis of the easability of the texts. In Figures 6–11, it is observed that, except for the CIEA3 document regarding incidents by name (WRDNOUN), the values are probably lower, so the scientific-technical documents seem to fit the way that English speakers have to write them.

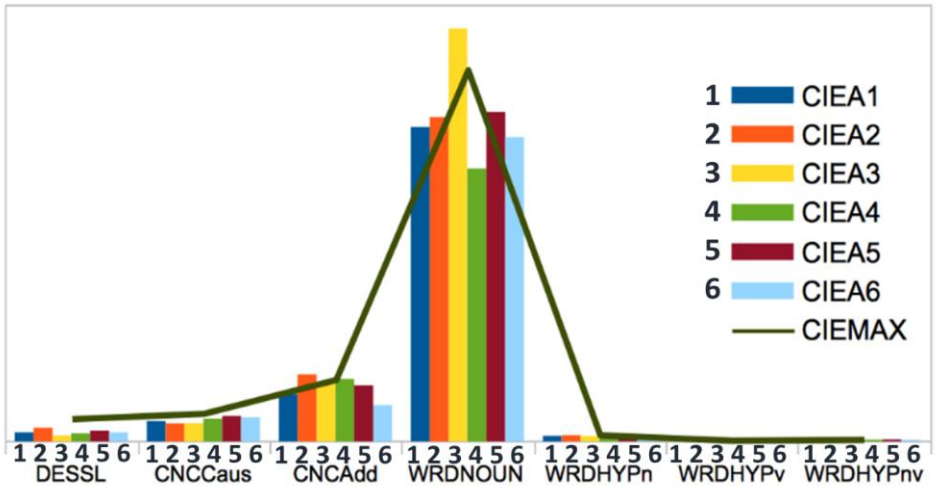

Figure 6
L2 Errors in Spanish with Scientific-Technical Text

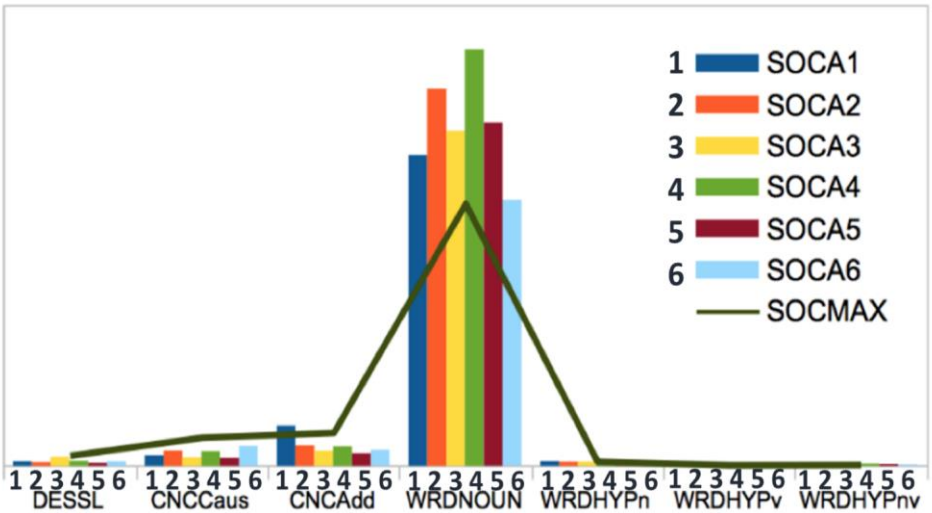

Figure 7
L2 Errors in Spanish with Socioeconomic Texts

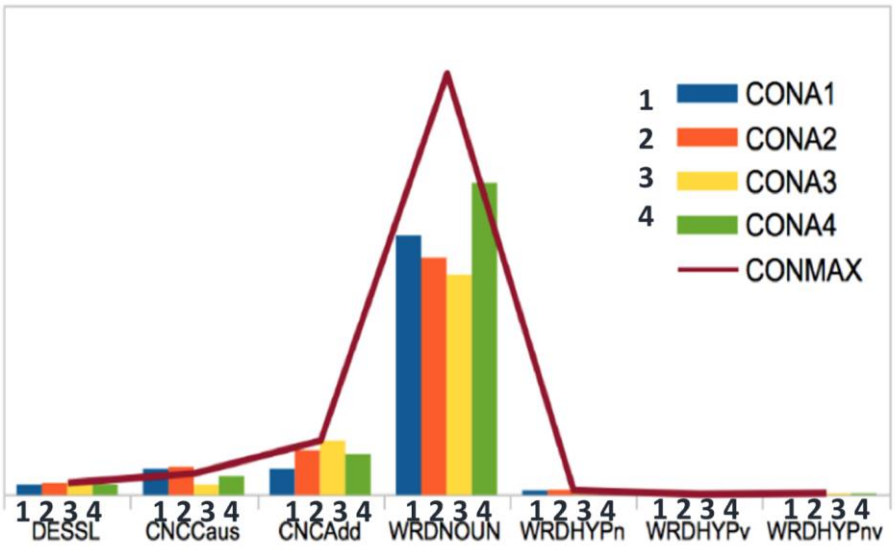

Figure 8

L2 Errors in Spanish with Consumer Texts

3.4. Evaluation of easability-based texts

For the graphical interpretation of these results, two joint graphs will be used: one based on the stock market analysis and the other based on dispersion points. To make the stock analysis graph, it is verified that for each index some white rectangles are observed from where two vertical lines appear above and below the rectangle. The lower end of the vertical line that comes out below will point to the minimum of the values acquired by the data to be analysed and the upper end of the upper vertical line will represent the maximum of the values. In the same way, the lower top of the rectangle is the result of subtracting the standard deviation in absolute value from the mean, to represent the probable minimum; and the upper limit will be the maximum probable value.

On the other hand, the different figures are the different texts incorporated by the students; it is understood that the different points should probably accumulate at the height of the rectangle and not above the vertical line, or below it.

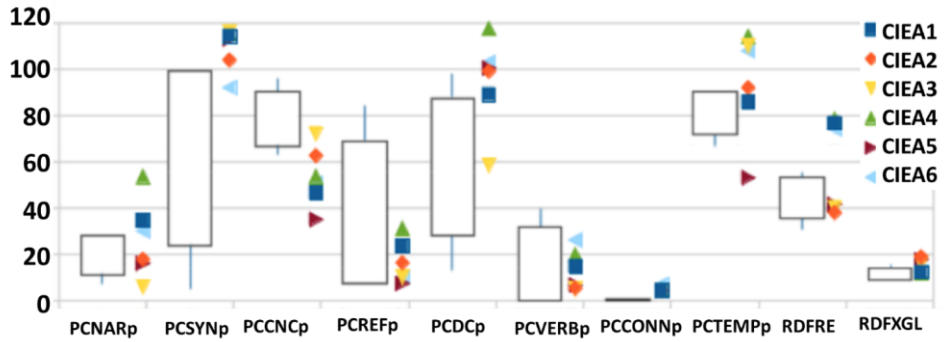

Figure 9

Joint Graphs Based on Stock Market Analysis and Scatter Points for Technical Scientific Texts

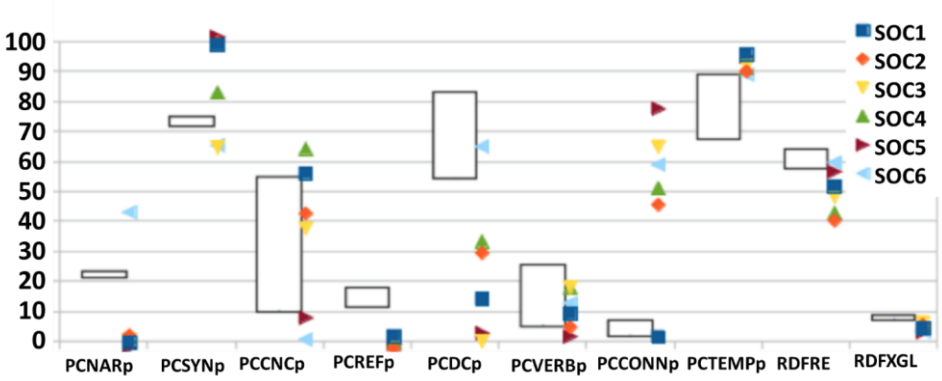

Figure 10

Joint Graphs Based on Stock Market Analysis and Scatter Points for Social Texts

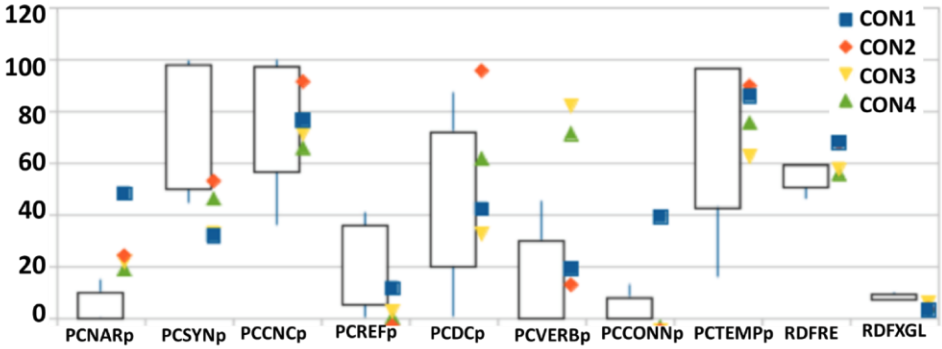

Figure 11

Joint Graphs Based on Stock Market Analysis and Scatter Points for Consumer Texts

In Figures 6–11, it has been necessary to incorporate some reference measurements to correctly apply the *Z* test. These ideal results come from English texts and it is speculated that students should generate their results approximately below the line drawn by CIEMAX, SOCMAX, and CONMAX. In Figure 6 it is observed that, except for the CIEA3 document regarding incidents by name (WRDNOUN), the values are probably lower, so the scientific-technical documents seem to fit the way that English speakers have to write them. In the case of Figure 7 it is observed how all the documents except SOCA6 also probably fail in the number of nouns, while in the consumer texts in Figure 8, it does not seem that the *Z* tests will fail. Besides, as can be seen in the previous Figures 9–11, the different documents seem to tend to approach the normal distribution function generated by the native reference documents.

3.4.1. Final diagnosis

Once the study was finished, the students made this diagnosis. For the first part and, considering the first of the aspects (ways of working through blogging), the students commented mostly:

- Through an analysis of the texts uploaded to Blogger.
- Sharing our texts and thus seeing the different ways that different people write the same text.
- Creating a blog.

- Kahoots.
- The question about the definition of blogging showed the following majority of responses from the students:
- A way of sharing my practices with other people and thus sharing my knowledge and being able to discover that of others.
- A way of interacting with society and sharing academic knowledge online.
- A useful tool to compare translations, learn from mistakes, and see colleagues' daily work.

It is interesting to review the answers to blogging examples below:

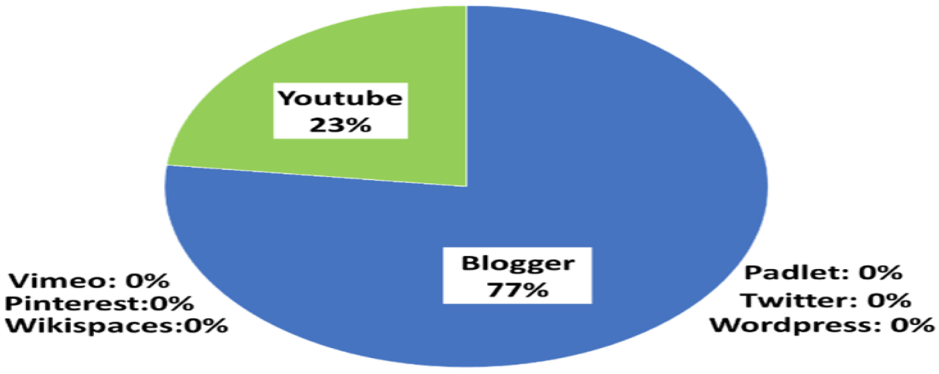

Figure 12
Blogging Examples

As seen in Figure 12, students have maintained their preference for Blogger after having experienced blogging.
For the question about the advantages of blogging in the classroom, the students considered:

- The speed and usefulness, as well as the accessibility to all the practice.
- The originality, the effort to update the blog.
- Learning the use of technologies.
- The correct collection and organisation of the course work.
- Freedom of expression and creativity.
- The drawbacks found working with blogging were also reflected:
- None.
- Internet access problems; it can be tedious to have to update.
- The students expressed ways of using blogging as a tool in the Flipped Classroom to improve their knowledge of composition in English:
- Through games.
- Through different work groups and exhibitions.
- Sharing our translations and phraseological units that we have found.

For the question about the advantages of blogging in the classroom, the students considered:

- The speed and usefulness, as well as the accessibility to all the practice.
- The originality and the effort to update the blog.
- Learning the use of technologies.

- The correct collection and organisation of the coursework.
- Freedom of expression and creativity.
- The drawbacks found working with blogging were also reflected:
- None.
- Internet access problems; it can be tedious to have to update.
- Considering the third and last part, now all the students have listened and read about the Flipped Classroom. They are also able to give definitions of the Flipped Classroom:
- That the roles of the teacher and the students are changed.
- A new way of teaching and learning for everyone.
- Combination of face-to-face and virtual learning through different tools.

The students expressed ways of using blogging as a tool of the Flipped Classroom to improve their knowledge about the composition of texts in the English language:

- Through games.
- Through different work groups and exhibitions.
- Sharing the translations and phraseological units we have found.

In the last question related to the tools that can be used to work the Flipped Classroom, the students opted mainly for Kahoot.

3.5. Co-evaluation

Concerning the survey on the quality of the compositions in English sent to the students, it is necessary to consider the texts in English related to consumption, socio-economic and scientific-technical. Below, you can see the data from consumer texts:

Regarding the co-evaluation and taking into account the questions and answers, the complete block of scientific-technical (CIE), socioeconomic (SOC), and consumer (CON) texts would end up having a theoretical mark out of 10 if we consider Table 7:

Table 9

Evaluation of the Responses in Percentages

Description	Times selected
Completely	100%
Much	75%
Quite	50%
Little	25%

The result is reflected in Table 10:

Table 10

Evaluation of the Responses in Percentages

	Lexis	Organisation	Vocabulary	Spelling
CON	6.79	8.04	7.68	6.61
SOC	8.13	8.59	8.59	8.59
CIE	9.40	9.40	9.17	9.29

Table 10 shows how students demand more of themselves the more technical the document is.

The graph that is generated is shown in Figure 13.
It is evident from the initial survey that little knowledge can be observed in the use of blogging and Flipped Classroom in the acquisition of the competence of composition of texts in English. Related to this, it is possible to appreciate in the final diagnosis a progressive development in the translation practices developed by groups and using blogging and Flipped Classroom and, therefore, in the composition of texts in English.

In the following graph, you can see the approximate marks of the English-Spanish practices (marked with a P in the graph) of the different groups (marked with a G):

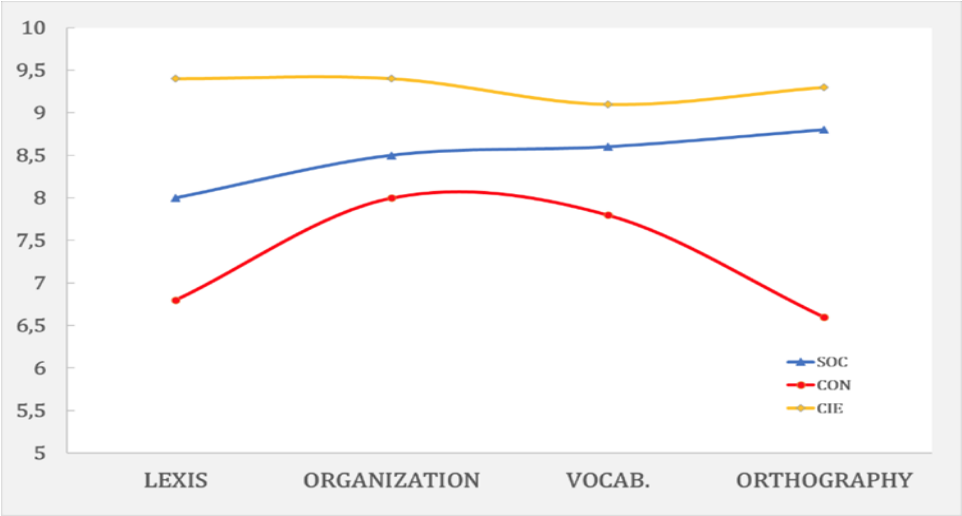

Figure 13
Text Generation Surveys

In Figure 13 it can be seen how the lines of the four notes do not intersect each other.

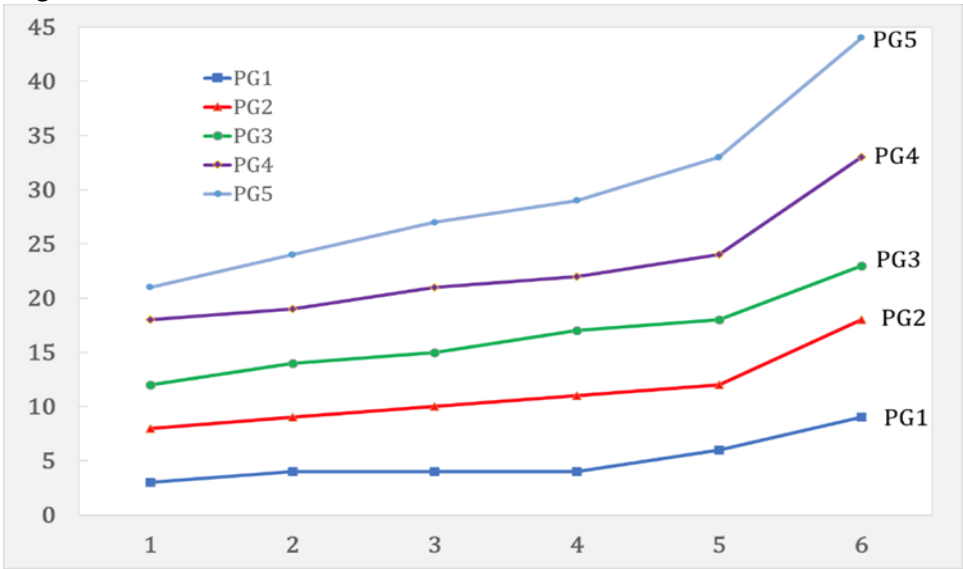

Figure 14
Results of the Translation Practices in the Different Groups

In Figure 14 we see how each group has evolved with the delivery of each practice.

Table 11

Metrics on the Easability Applied to the CIEAE1 Group

Description	VAR CIE	VAR SOC	VAR CON	VALUE	TEST CIE %	TEST SOC %	TEST CON %
Text easability PC narrativity, percentile	26.43	41.43	16.36	442.47	84.15	0.00	0.00
Text easability PC syntactic simplicity, percentile	95.91	1,194.85	508.05	482.02	68.65	0.00	84.08
Text easability PC word concreteness, percentile	36.69	1,738.89	18.36	1,615.43	0.00	0.00	0.27
Text easability PC referential cohesion, percentile	16.6	472.19	4.02	17.47	86.45	0.00	99.70
Text easability PC deep cohesion, percentile	73.89	261.14	27.61	762.72	94.15	0.00	65.92
Text easability PC deep cohesion, percentile	9.01	38.06	39.69	36.18	95.98	0.00	91.38
Text easability PC connectivity, percentile	0.03	0.62	18.96	11.88	85.93	0.00	83.54
Text easability PC temporality, percentile	70.88	99.73	55.13	1.44	51.57	0.00	93.65
Flesch reading ease	63.002	351.98	5.49	63.06	0.00	0.00	1.11
Flesch-Kincaid grade level	6.79	23.11	1.57	2.32	0.02	0.00	19.84
Coh-Metrix L2 readability	10.21	0.24	1.68	2.34	97.56	0.00	94.7
	CIEA1	Easability			60.40	0.00	57.66

In Table 11 we observe the parameters that the *Z* test needs to work: the aim is that the value calculated by Cohmetrix (VALUE) on the document being examined as an example (CIEA1) has the minimum variance (VAR) concerning the mean value obtained by native CIE, SOC and CON documents. Therefore, the variance values shown in the table must be low enough concerning the variance values obtained in the reference texts, and the result of each test is in the TEST columns. When doing this example we observe how the CIEA1 document has ease results that are more likely to fit with native CIE documents by 60.40%, so if the nature of the document were not known, this procedure would have been used to guess what document type is concerning all three families.

Table 12

Grade Example Using Only Instruments 2, 3, and 4 (From the Rubric)

Groups		False positive	Errors Spaniards	Easability Cohmetrix
		10.00%	55.00%	35.00%
Technical scientist				
CIEA1	Betadine		80.42%	
CIEA2	Information leaflet to user		67.12%	
CIEA3	Keppra		50.53%	
CIEA4	Paracetamol tablets 500 mg		53.21%	
CIEA5	Patient information leaflet		68.09%	

CIEA6	Sibilla	72.05%
Socio-economic		
SOCA1	Certification	21.49%
SOCA2	Student's certificate	30.02%
SOCA3	Student's official document	38.87%
SOCA4	Student's record	30.20%
SOCA5	Student's register	32.12%
SOCA6	Sworn translation	45.04%
Consume		
CONA1	Art and myths	54.25%
CONA2	Our tips for visiting the Asterix Park	50.13%
CONA3	The day of the dead	52.42%
CONA4	Underwater tourism	66.16%

In Table 12 we establish what weight the final grade of the generated text acquires based on the *Z* tests (errors Spaniards, easability Cohmetrix) and if it failed to guess which family the document belongs to as studied in Table 11 (false positive). The final evaluation of each document is also calculated using such weights. A possible evaluation rubric could be considered that would include all the elements mentioned above, including the co-evaluation made by the students regarding the quality of the texts produced in English. This rubric would include the following instruments:

Table 13

An Instrument for Evaluation 1

Item	Description
Instrument 1: Evaluation metrics	Evaluation employing a computer program that calculates evaluation metrics and approximate scoring of English-Spanish translations $$\text{Metrics Mean} = \frac{(3 \cdot (1 - W) + 1 \cdot B + 1 \cdot P + 1 \cdot R) \cdot 10}{6}$$
Evaluation criteria:	Comparison of student translations with reference translations.
Percentage:	30%
Item	Description
Instrument 1: Evaluation metrics	Evaluation by means of a computer program that calculates evaluation metrics and approximate scoring of English-Spanish translations $$\text{Metrics Mean} = \frac{(3 \cdot (1 - W) + 1 \cdot B + 1 \cdot P + 1 \cdot R) \cdot 10}{6}$$
Evaluation criteria:	Comparison of student translations with reference translations.
Percentage:	30%

Table 14

Instrument for Evaluation 2

Item	Description
Instrument 2: Easability test with the *Z* test. Check that the variance of the document does not exceed the variance of the corpus too much	Evaluation utilising a statistic that calculates the density function *Z* and describes the probability of finding a value less than a specific value.
Evaluation criteria:	Probability of finding a value less than a specific value
Percentage:	30%

Table 15

Instrument for Evaluation 3

Item	Description
Instrument 3: Evaluation of the text under the errors that Spaniards make when writing in English	Evaluation by means of a statistic that calculates the errors that are made by Spaniards when writing in English.
Evaluation criteria:	Student values around indices.
Percentage:	30%

Table 16

Instrument for Evaluation 4

Item	**Description**
Instrument 4: Evaluation of the idiosyncrasy of the text within its corpus. Evaluation of false positives	Evaluation by combining Instruments 2 and 3, so that the document itself within its corpus gets the highest mark.
Evaluation criteria:	If the evaluation of Instruments 2 and 3 in their textual typology obtains the highest mark, then it is valued at 100%, if not 0%.
Percentage:	5%

Table 17

Instrument for Evaluation 5

Item	**Description**
Instrument 5: Co-evaluation of the text by students not participating in the preparation of the text subject to study around 4 indices	Evaluation utilising a Google Form of the four indexes: content, organisation of paragraphs, vocabulary, and spelling.
Evaluation criteria:	Student values around indices.
Percentage:	5%

4. Conclusion

The present work investigates whether the students of the Faculty of Translation at the University of Murcia improved their competence in written production in specialised English through blogging in a Flipped Classroom environment. According to the results and discussion raised above regarding the different phases of the developed project, these are favourable to the initial hypothesis that the combination of blogging and Flipped Classroom are certainly valid instruments for the development and consolidation of the composition of texts in English, in line with previous studies mentioned.

We have seen how if texts are examined for their ease, consumer texts tend to give better results, but if we ask students to self-evaluate, they get the worst results. In the same way, if we incorporate the evaluation globally established by Table 12, we observe how consumer texts are neither above nor below. We must understand that these evaluations, therefore, offer us the possibility of giving more weight to some results or others in an automatic way and that they evaluate the quality of the documents from completely complementary points of view.

Future lines of research could influence the application of the evaluation rubric described above, to ascertain the viability of using it in other subjects on the Degree of Translation and Interpreting. This application must be done with a larger sample of students that provide more significant data about the use of blogging and Flipped Classroom in the composition of English texts.

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