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Error analysis in the essays of engineering students: A comparative taxonomy

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ABSTRACT: If nowadays there is a clear tendency to consider the errors made by learners in their process of language learning not as a negative aspect but as a natural step in the development of their language skills, in the past teachers pondered the errors committed by students as something unfavourable, something to prevent from occurring. However, in recent decades, researchers have come to consider errors as the evidence for a creative process in language learning. Therefore, the main objective of this paper will be to characterise and classify the errors made by undergraduate engineering students in a public Spanish Polytechnic University over the last two academic courses. We will try to categorise those errors taking into account their source but following one of the distinctive taxonomies proposed by Dulay, Burt, and Krashen in "Language Two" (1982): the comparative taxonomy. The comparative taxonomy of errors, upon which we will be basing ourselves on the present research, arranges errors into the following four categories: interlingual errors, developmental errors, ambiguous errors, and other errors. Consequently, what we shall be demonstrating along this article is that, contrary to the opinion of previous studies and researchers, the most frequent category of errors, at least for these technical students, is the interlingual category of errors. And in order to be able to lead this research, a corpus of a total of 72 essays was examined, comprising their written productions in the task assigned throughout these last two years that these students had to take on.

KEYWORDS: Comparative strategy taxonomy, error analysis, technical engineering students, written essays.

1 INTRODUCTION

Error Analysis is a branch of Applied Linguistics which emerged in the 1960s to reveal that the errors that the learners did were not only due to their mother tongue but rather it also reflected certain universal strategies. This trend supposed a reaction to Contrastive Analysis that considered native language interference as the main source of errors in the field of second language learning.

Jack C. Richards (1971) explained in that sense that "the field of errors analysis may be defined as dealing with the differences between the way people learning a language speak and the way that adult native speakers of the language use the language" (Richards, 1971: 1). Similarly, Corder (1981) stated "the errors that learners make are a major element in the feedback system of the process that we call language teaching and learning" (Corder, 1981: 35).

Since then, errors have received much attention from scholars and researchers who tried to analyse different errors made by language learners. Consequently, procedures have been introduced analysing errors from very different and specific points of view. Many error taxonomies have been based on the linguistic item that is being affected by the error. These linguistic taxonomies classify errors according to the language component and the linguistic constituent that the error affects.

Errors can be classified according to different taxonomies. The current research presented here follows the classification proposed by Dulay, Burt, and Krashen in "Language Two" (1982), being the surface strategy taxonomy and the comparative taxonomy two of the major ones in order to classify errors. We can also include two other classifications: linguistic category and communicative effect taxonomy. They firmly believed that an analysis of errors made by language learners could help us understand the process of language learning deeply.

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Consequently, we will be basing ourselves on the analysis of errors according to the comparative taxonomy. The classification of errors following a comparative taxonomy is grounded on the comparison between the structure of L2 errors and other types of constructions. Therefore, this taxonomy includes four main categories of errors: developmental, interlingual, ambiguous, and other errors (arranged alphabetically).

Developmental errors are similar to those made by children learning the target language as their first language as in "cat eat it". *Interlingual errors* are similar in structure to a semantically equivalent phrase or sentence in the learners' native language as in "the woman obese". *Ambiguous errors* are those that could be classified equally well as either developmental or interlingual as in "I no have a house". Finally, *other errors* are those that do not belong to any of the previous categories as in "He do Spanish".

Therefore, the main objective of this study will be to classify the errors made by a number of Spanish students doing an engineering degree in a public Polytechnic University over the last two years, according to the comparative taxonomy of Dulay, Burt, and Krashen. We will attempt not only to categorise the errors following the aforementioned taxonomy, but also to demonstrate that the most frequent type of errors detected, at least in the case of this specific group of technical students whose English level is not the same as those students doing the English Studies degree, is not the one expected and predicted by some researchers.

2 LITERATURE REVIEW

Errors are recognised as those parts of conversation (spoken discourse) or composition (written discourse) that deviate from some selected norms of mature language performance. Teachers have long realised that making errors is an inevitable part of learning. According to Dulay, Burt, and Krashen, learners cannot learn a foreign language without first committing errors.

Following Bartholomae (1984), students inevitably make errors in their writing productions. And given the prestige that nowadays society gives to correctness in formal writing, teachers quite often correct every error they found in their students' papers or assignments. But still a wealth of scholarly research not only suggested that this approach to dealing with language error is quite ineffective, but it also argued that it may have a negative impact on their writing ability, usually because it destroys fluency.

Subsequently, error analysis was predominantly used to help language teachers predict what problems a language learner would have due to the linguistic differences between the learner's native language and the target language. In this way, errors that could not be directly attributed to language interference were virtually ignored whilst those most frequently focused upon were so well-known that many teachers found the work of these researches redundant.

Also, in the decade of the 1970s, several studies were conducted on the speech and writing of adults learning a second language. And these studies found that most of the non-phonological errors that an adult learner made did not reflect their mother tongue. However, the proportion of interlingual errors observed was larger than those which were detected in the case of children. We can include at this stage the studies developed by scholars such as Bertaku (1974), Lo Coco (1976), White (1977), Hanania and Gradman (1977), among others.

Dulay, Burt, and Krashen limited their discussion to the descriptive aspects of error taxonomies in the belief that the accurate description of errors is a separate activity from the task of inferring the sources of these errors. Therefore, they focused on error taxonomies that classify errors according to some observable features of the error itself, without any reference to its underlying cause or source.

It is precisely due to those observable features of errors that we decided to base this research on one of the taxonomies proposed by these researchers. They have called these descriptive taxonomies, reviewing the existing previous literature in order to present the most useful bases for the descriptive classification of errors. And they classified errors into the following categories: linguistic category, surface strategy taxonomy, comparative analysis taxonomy, and communicative effect. These linguistic taxonomies classified errors according to the language component and the particular linguistic constituent that the error affects.

In the first taxonomy, *linguistic category*, James also stated that errors were regarded with respect to where the error was placed in the whole system of the foreign language based on the linguistic item that is disturbed by such error. This taxonomy thus specifies in which part of language the error is located. Therefore, errors following this taxonomy can be classified according to phonology (pronunciation), syntax, morphology (clause, noun phrase, verb phrase, auxiliaries, prepositions, adjectives…), semantics (meaning), lexicon (vocabulary), and discourse (style). According to Dulay, Burt, and Krashen "constituents include the elements that comprise each language component" (Dulay, Burt, and Krashen, 1982: 146), although

they recognised that a full presentation of the language components and constituents would require a Abstract of descriptive linguistics beyond the scope of their research.

In the second taxonomy, *surface strategy*, errors are based on the diverse means in which the students' mistaken account is different from the supposed foreign language version. This means that this taxonomy underlines the ways in which the surface structures diverge. According to this taxonomy, errors are consequently divided into the following four types: omission (omit necessary items), addition (add unnecessary items), misformation (misform items) or misordering (misorder items). The classification put forward by this taxonomy gives us an accurate explanation about the cognitive processes that cause the students' reconstruction of the new language that is being learnt. As Dulay, Burt, and Krashen affirmed "errors are not the result of laziness or sloppy thinking, but of the learner's use of interim principles to produce a new language" (Dulay, Burt, and Krashen, 1982: 150).

It is precisely the third taxonomy, *comparative analysis taxonomy*, the one that we are actually following so as to carry out this study, and the one we will devote more lines to explain in detail. As stated by Dulay, Burt, and Krashen, "the classification of errors in a comparative taxonomy is based on comparisons between the structure of L2 errors and certain other types of constructions" (Dulay, Burt, and Krashen, 1982: 163). And such comparisons have brought about four main error categories: interlingual, developmental, ambiguous, and other errors.

Researchers have consistently found that the great majority of errors in the language output of L2 learners, in our case undergraduate engineering students, is of the developmental type. Although adult learners tend to exhibit more mother-tongue influence in their errors than children normally do, adult interlingual errors also occur in relatively small numbers according to these researchers. However, as we will be determining in this research, the great majority of the errors detected in the 72 essays examined in our study correspond to the interlingual type.

According to the researchers, *"developmental errors* are errors which are similar to those made by children learning the target language as their first language" (Dulay, Burt, and Krashen, 1982: 165). For example, if we take the following utterance made by a Spanish child learning English "dog eat it", the omission of both the definite article and the past tense marker may be classified as developmental because they are also found in the speech of children learning English as their first language. When such errors are made by second language learners, it would be reasonable to hypothesise that mental mechanisms underlying general language development come into play, not the rules and structures of the learner's native language.

Quoting these researchers, *"interlingual errors* are similar in structure to a semantically equivalent phrase or sentence in the learner's native language" (Dulay, Burt, and Krashen, 1982: 171). For example, the utterance "the man thin" produced by a Spanish speaker reflects the word order of Spanish adjectival phrases [article + noun + adjective]. In order to identify an interlingual error, what researchers normally do is to translate the grammatical form of the learner's phrase or sentence into the learner's first language so as to see if there exist similarities. According to Ellis (1985), this type of error is interference or transfer, which means that the learner's native language interferes with the learning of the L2, or rather it transfers into the learner's developing L2 system.

They chose the term "interlingual" instead of the equally similar labels "interference" or "transfer" because it seemed to be the least explanatory in connotation. Interlingual errors simply refer to L2 errors that reflect native language structure, regardless of the internal processes or external conditions that spawned them.

Ambiguous errors could be equally classified as developmental or interlingual errors. According to Dulay, Burt, and Krashen "this type of error reflects both the learner's L1 and also the type of error in the speech of children acquiring English as their first language" (Dulay, Burt, and Krashen, 1982: 172). For example, in the utterance "I no have a bike", the negative construction reflects the learner's native Spanish and it is also characteristic of the speech of children learning English as their first language.

The ambiguous category is particularly important in a comparative taxonomy. Assigning such errors to a distinct category guarantees the clarity of the findings resulting from a comparative analysis of errors and allows researchers to draw clear theoretical inferences from the rest of the data obtained.

Other errors make up a sort of grab bag for items that do not fit into any other previous category. For example, if we take the utterance "She do thirsty", the speaker used neither the native Spanish structure (in the use of have for is as in She have hungry), nor an L2 developmental form (such as She hungry), where the auxiliary is omitted altogether.

Such an error would go into the other category, also called "unique errors" by Dulay and Burt (1974), referring to their being unique to L2 learners. These errors are not similar to those made by children during the first language development, so they must be unique to second language learners, and since they are not interlingual, at least some of them must be unique reflections of a creative construction.

The fourth and last taxonomy is the *communicative effect taxonomy*, "based on the perspective of their effect on the listener and the reader" (Dulay, Burt, and Krashen, 1982: 189). It deals with discriminating between errors that seem to cause miscommunication and those that do not. Errors that distress the overall organization of the sentence usually hinder communication, while those errors that affect a single element of a sentence usually do not hinder communication. And following Dulay, Burt, and Krashen (1982), this type of taxonomy classifies errors into global errors and local errors.

Global errors are errors that affect the complete sentence organization and they meaningfully hamper communication. These errors include the wrong order of major constituents as "English language use many people"; missing, wrong or misplaced sentence connectors as "He will be rich until he marry"; missing cues to sign obligatory exceptions to pervasive syntactic rules as "The student's proposal looked into the principal"; and regularization of pervasive syntactic rules to exceptions as "We amused that movie very much".

On the other hand, *local errors* are those that affect single elements in a sentence and that do not usually hinder communication significantly, at least not to a great degree. This type of errors includes errors in noun and verb inflections, articles, auxiliaries, and the formation of quantifiers, among some others.

We cannot end up this review without making allusion to several studies which were carried out by some Spanish university professors such as Roca de Larios, Murphy, and Manchon Ruiz among others. In the last decades, this group of professors have published a number of articles dealing not only with the analysis of errors but also with other aspects regarding their interpretation, strategies and components.

3 METHOD

The present research was conducted using a quantitative research design that was used to disclose what type of errors and how many these undergraduate students made. Not only did we attempt to classify all the errors encountered, but also, and more specifically, we did find out what the most frequent ones were. Let's remember at this point that we were following the comparative taxonomy proposed by Dulay, Burt, and Krashen in "Language Two" (1982), as we forestalled in the previous section.

The group of students included in this study encompassed an uneven number of undergraduate technical engineering students who were doing their degree on a public Spanish Polytechnic University. These students, whom were mostly male given the technical nature of the degree, were asked to carry out a written assignment during the last two academic years in order to get a bigger quantity of participants.

This uneven number of contributors was justified by shedding some light on the kind of assignment being asked for. Since the task was not compulsory but optional, not the same number of students handed in the task. Therefore, a total of 72 essays were delivered for the task although the overall distribution was slightly unbalanced in each year.

The focus of the study was thus laid on the classification of the many errors committed by these undergraduate students along the written assignment. And in order to do so we kept the comparative taxonomy classification offered by Dulay, Burt, and Krashen which divided errors into four different categories: ambiguous, developmental, interlingual, and other errors. For the sake of clarity, we should clarify that these categories have been arranged here alphabetically for the moment.

Consequently, the instruments which were used to develop this current research referred to the writing assignment that these students had to undertake along the semester. At this point the authors figure out that it is important to remark an important fact about the assignment. Although the students had to cope with writing an essay about a specific topic as we will later detail, it is also true that prior to this writing they received the necessary background information in terms not only of grammar of vocabulary but also of the required structures, which would apparently enable them to deal with the assignment appropriately.

Finally, regarding the procedure, this study was conducted during one semester in the last two consecutive academic years. The collection of data did not take place until all the necessary information had been studied and dealt with in class, on the one hand, and they also had enough time to carry out the assignment, on the other. Although many different errors were encountered, only those falling under the comparative taxonomy were taken into consideration.

4 DISCUSSION OF RESULTS

Behind the analysis of the data which we obtained, in general terms, we can assert that a total of 256 errors were encountered along the 72 essays examined, which gives us a rough average of 3.5 errors per essay. Taking into account that

there was a number of essays with no errors at all, this figure gives us an accurate idea on the number of errors which were detected along the task.

And following the comparative taxonomy of errors proposed by Dulay, Burt, and Krashen in 1982, the errors found in the task were classified into the following types: ambiguous errors, developmental errors, interlingual errors, and other errors. Errors that did not fall under these categories were not considered in this research.

The task that students had to accomplish along the semester was the description of the electricity cycle (generation, transmission, and distribution) by means of including action verbs and the use of the passive voice. This task was carried out after the students had completed a unit of the syllabus on electricity in which the electricity cycle was discussed.

The number of essays underwent for this task was 72 in total. And the distribution of errors was quite odd. If the most commonly found essays in this task were those with 5 or more errors, with a subtotal of 25 cases representing a 34.8%, the least ones were those with 1 or 2 errors with 13 cases, standing for an 18% overall. In between we came across 19 essays with no errors, denoting a 26.4 of the total, and 15 essays with 3 or 4 errors, meaning a 20.8% as a whole. This allotment gives us a clear idea of how distributed the number of errors detected were in this initial task.

Should we focus on the 53 compositions containing 1 error at least, we came across the fact that the category with the highest number of errors in this task following the comparative taxonomy was interlingual, with a total of 99 errors out of 256, which represented a 38.8% of the total. In the second place we found developmental errors with 61 cases detected, representing a 23.8% overall. Other errors came in the third position with 59 errors spotted, standing for a 23% of the total. And in the last place we found ambiguous errors with 37 examples which meant a 14.4% in general. The numbers and percentage of each error category are shown in the following table:

Table 1. Number and percentage of error categories in the task

Type of error	Number of errors	Percentage
Interlingual errors	99	38.8%
Developmental errors	61	23.8%
Other errors	59	23%
Ambiguous errors	37	14.4%
TOTAL	**256**	

Source: Own elaboration

Let's now have a look at *interlingual errors*, the category with the highest number of errors, 99 out of 256. This meant that almost one in each three errors belonged to this category in the task. And as it will be shown in table 2, interlingual errors were divided into the following six types keeping the division made by Krashen, Burt, and Dulay: addition of past tense, addition of preposition, verb-number disagreement, inappropriate demonstrative, inappropriate preposition, and inappropriate pronoun.

Table 2. Number and percentage of interlingual errors in the task

Type of error	Number of errors	Percentage
Addition of past tense	1	1%
Addition of preposition	1	1%
Verb-number disagreement	74	74.8%
Inappropriate demonstrative	6	6%
Inappropriate preposition	12	12.1%
Inappropriate pronoun	5	5%
TOTAL	**99**	**38.8%**

Source: Own elaboration

Under the category of interlingual errors, the type with the highest number of cases in the students' compositions was that of verb-number disagreement with 74 errors detected, which represented a 74.8% of the total. Given the technical nature of the task, students seemed to be unable to maintain the agreement between the subject and the verb as in the following example: "The smart grid is a grid that use information technology".

Quite less numerous was the next type of interlingual errors, the use of an inappropriate preposition, something which happened 12 times, representing a 12.1% overall. The following sentence is an example of this type of error: "The process of electricity is controlled for electronic and computing means".

Then we found 2 other types of interlingual errors close in numbers. On the one hand, there was the use of an inappropriate demonstrative, with 6 errors detected which made up for a 6% of the total. Using the correct demonstrative in the sentences did not represent a big deal for these students. An example of this type of error could be the following: "In this transformers the voltage is reduced by electromagnetic induction".

And on the other hand, there was also the use of an inappropriate pronoun with 5 cases spotted, meaning a 5% overall. As can be seen both types shared closed number of errors. The following could be included as an example of such an error: "When electricity reaches her destination, it is stepped down to a low voltage in a substation".

Finally, the presence of two other types of interlingual errors, the addition of a past tense and the addition of a preposition, was rather testimonial in this first task. In each type there was just one error, which signified a scarce 1% of the total. The following can be included as an example of the former type, the addition of a past tense: "We can classified into 2 components". And the next sentence is an example of the latter type, the addition of a preposition when it was not needed: "The electric power which is generated is stepped up to a higher voltage at which it connects to the electric power transmission network".

The second most numerous category in this task corresponded to *developmental errors*, with a total of 61 errors out of 256, which represented a 23.8% overall. This time developmental errors were classified into the following eight different types: omission of auxiliary, omission of plural marker, omission of regular past tense marker, omission of irregular past tense marker, addition of regular past, addition of irregular past, inappropriate part of speech, and omission of the infinitive marker "to". The distribution of each type of developmental error can be checked in the next table.

Table 3. Number and percentage of developmental errors in the task

Type of error	Number of errors	Percentage
Omission of auxiliary	12	19.7%
Omission of plural marker	12	19.7%
Omission of regular past tense marker	15	24.6%
Omission of irregular past tense marker	1	1.6%
Addition of regular past	1	1.6%
Addition of irregular past	2	3.3%
Inappropriate part of speech	17	27.9%
Omission of infinitive marker "to"	1	1.6%
TOTAL	**61**	**23.8%**

Source: Own elaboration

In this task, there was a relatively even distribution in the number of errors not only for the most recurrent errors but also for the least frequent ones as can be deduced from the information gathered in the preceding table. Whether we came across four different types of developmental errors in the upper side of the rank, the same happened in the lower side with four other types of errors.

Should we just start with the most numerous type of developmental error, this referred to the misuse of an inappropriate part of speech, error which occurred 17 times, representing an almost 28% of the total of developmental errors. Nearly one third of developmental errors belonged to this type. Apparently, students faced some problems when they had to construct long complex sentences keeping the logical and normal order. An example of this type of error could be the following: "This generation is far from consumption and so is produced in the central electricity".

Close in frequency we could find the next type of developmental error, the case of the omission of a regular past tense marker, something which happened 15 times along the task, which stood out for a 24.6% overall. They seemed to forget to include the past tense marker in some verbs as can be seen in the following example: "The substation is where the electricity voltage is increase through the transformers".

Two other types of developmental errors followed in number in the upper side of the rank: the omission of the auxiliary, and the omission of a plural marker. In each case, we found 12 errors in the task, denoting a 19.7% of the total. The following can be included as an example of the former type, the omission of the auxiliary: "Why __ we do it?". And the next one is an

example of the latter case, the omission of a plural marker: "The electrical grid is one of the most important invention in the modern world". Using the auxiliary when forming questions and keeping the concordance in plural formation seemingly appeared to pose some problems when writing this task.

On the other hand of the scale we came across four different types of developmental errors whose occurrence along the task was nothing but testimonial with just 1 or 2 errors. One of these types was the addition of an irregular past formation in the sentence with 2 errors spotted, which represented a 3.3% of the total. This sentence can serve as an example for such a type of error: "We will lost a lot of its energy".

The other three types of developmental errors, which merely happened once in each case, standing for a 1.6% of the total, included the omission of an irregular past tense marker, the addition of a regular past, and the omission of the infinitive marker "to". This symbolic presence in the task denote that these types of errors did not suppose a big problem to accomplish.

The following sentence could be considered as an example of one of these types, the omission of an irregular past tense marker: "This electricity is then send to a step-up transformer". As an example of the addition of a regular past tense form we could include the following: "When we use step-up transformers, we will decreased the intensity of the electricity". Finally, the next one could be cited as an example of the omission of the infinitive marker "to": "When electricity is used, it's necessary __ decrease it".

In the third place in terms of number of errors, there came the category of *other errors* with 59 errors encountered out of 256, which embodied a 23% of the total. However, it should also be clarified that this figure is a bit deceitful since a great deal of these corresponded to the case of incorrect spelling. Taking into account the technical nature of the task and the specific vocabulary they were asked to use, it may seem reasonable to expect such a number of words incorrectly written.

Other than this, the presence of other errors in this task was quite symbolic as we will now explain. For this task, other errors were classified into the following five different types: addition of article, addition of plural marker, omission of progressive form, incorrect spelling, and addition of subject.

Table 4. Number and percentage of other errors in the task

Type of error	Number of errors	Percentage
Addition of article	2	3.4%
Addition of plural marker	3	5.1%
Omission of progressive form	5	8.4%
Incorrect spelling	46	78%
Addition of subject	3	5.1%
TOTAL	**59**	**23%**

Source: Own elaboration

As anticipated, the bulk of other errors corresponded to the case of incorrect spelling with 46 errors detected, denoting a 78% of the total. Given the scientific nature of the task, we may expect such a number of words incorrectly written. A clear example of this type of other errors can be the following: "Industrial consummers are large facilities like manufacturing plants or office building". The difference in frequency between this type of errors and the rest of other errors was quite outstanding.

Therefore, it was from a notably distance that we encountered the next type of other errors, the omission of a progressive form. This type happened 5 times, representing an 8.4% overall. The omission of the progressive form of the verb was reflected in cases like the following: "The electrical grid is the network which is generate power".

Next, we found two other types of other errors with the same number of incidences, 3, standing for a 5.1% as a whole: the addition of a plural marker and the addition of a subject. The former case, the addition of the plural marker, can be seen in the following example: "The generation of electricity can be in differents plants like hydraulic or nuclear". And the following could be cited as an example of the latter, the addition of a subject when it was not required: "As a consumer, you can't choose which it is your distribution company".

The last type of other errors corresponded to the case of the addition to the sentence of an article when this was not needed, something which just happened twice, representing a 3.4% of the total. An example of this type of error could be the following: "Nowadays, the most part of the machines are fed by electricity".

Finally, the least numerous category of errors in this first task following the comparative taxonomy corresponded to *ambiguous errors*, with a total of 37 errors out of 256, representing thus a 14.4% of the total. In this initial task, ambiguous errors were divided into the following types: omission of the article, omission of the subject, inappropriate quantifier, and inappropriate article.

Table 5. Number and percentage of ambiguous errors in the task

Type of error	Number of errors	Percentage
Omission of article	17	46%
Omission of subject	14	37.8%
Inappropriate quantifier	3	8.1%
Inappropriate article	3	8.1%
TOTAL	**37**	**14.4%**

Source: Own elaboration

As can be seen in the previous table, there is a certain degree of parallelism with the category of developmental errors in the number of cases found both in the upper side of the scale and in the bottom. But this time the frequency is almost reduced to the half.

The most frequent type of ambiguous errors was the case of the article, either definite or indefinite, being incorrectly omitted in a sentence. This occurred 17 times in the task, representing a 46% of the total as can be seen in the following example: "Electricity is generated at __ generating plant". This sole type of ambiguous errors meant almost half of the total of errors in this category.

The next type of ambiguous errors in frequency was the case of the omission of the subject in the sentence, something which happened 14 times, denoting a 37.8% overall. As an example of this type of error we could include the following: "The electricity goes through a lot of kilometres until our homes because __ is safer for us". Including the correct subject in each case posed some problems on the students, especially when this was an impersonal one.

Finally, we found out two other types of ambiguous errors in the lower side of the rank with just 3 errors each one, standing for an 8.1% of the total: the use of an inappropriate quantifier and the use of an inappropriate article. In the case of former type, the use of an inappropriate quantifier, we could include the following sentence: "The <u>most</u> application of the electrical grid is the smart grid". Finally, as an example of the latter type, the use of an inappropriate article, the next one could be included: "Now there is <u>a</u> only electricity central for all types of sectors".

5 CONCLUSIONS

Writing is one of the most difficult skills for EFL students to acknowledge. Producing a well-organised piece of writing seems to be a difficult task for learners, especially if we bear in mind the notable fact that we were dealing with undergraduate students doing a technical degree and whose domain of the FL should then not be comparable to that of those students doing English studies or any related field of expertise.

Error Analysis included an internal focus on the learner's creative ability to construct a foreign language. Therefore, it was the main method used to document the systematic errors appearing in the writing compositions of EFL students. Errors were usually classified according to the language component: phonological, morphological, syntactic, etc.

Throughout the present research, errors have been arranged according to the classification proposed by Dulay, Burt, and Krashen in "Language Two" (1982) into four taxonomies or categories: linguistic category, surface strategy taxonomy, comparative taxonomy, and communicative effect taxonomy.

And more precisely, we have been following the comparative taxonomy in this study whereby errors were organised into the next four main categories: ambiguous errors, developmental errors, interlingual errors, and other errors (being arranged here alphabetically without any other restraining factor).

The first important aspect to recall back is the fact that some of the researchers mentioned in the present study defended that the majority of errors that adult FL learners committed corresponded to the developmental category. However, we have consistently corroborated that it was not the case in our research. We have definitely shown that the most frequent errors

that undergraduate technical engineering students made were interlingual in the case of the written assignment examined, contrary to the opinion of these researchers.

Secondly, the data obtained in this research came from the thorough analysis of the 72 essays handed in by Spanish undergraduate engineering students during the last two academic years. These students had to deliver a task along the semester with an uneven distribution throughout the two courses.

Thirdly, concentrating on the number of errors, a total of 256 errors were detected in the written assignment with an uneven distribution. A total of 256 errors were found in the 72 essays of the task, which gave us an estimated average of 3.5 errors per essay.

In the fourth place, we can also emphasise the number of errors detected in the 72 essays. In this, we made a distinction between essays without errors, essays having one or two errors, essays having three or four errors, and essays having more than five errors. And in terms of numbers, the first group was that composed of essays having more than five errors with a total of 25 essays, representing a 34.7% of the total. Next, we found essays with no errors, 19 out of 72, standing out for a 26.4% in all. In the third place, there were essays with three or four errors, 15 out of 72, which represented a 20.8% of the total. Finally, the least representative group was that of essays with one or two errors, with 13 essays in total, denoting a 18.1% as a whole. These data can easily be interpreted in the next explanatory figure.

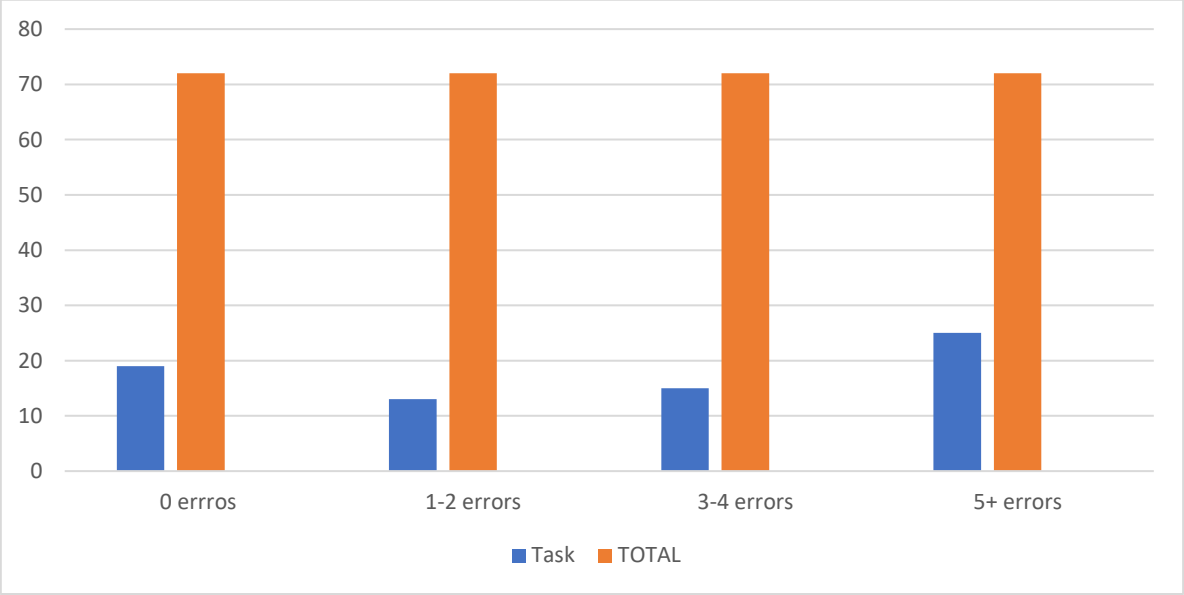

Fig. 1. Number of errors in the task

Source: Own elaboration

In the fifth place, we focused in depth on the different categories of errors encountered along the 72 essays. And contrary to the view of some researchers, we determined that interlingual errors, and not developmental errors as suggested, was the category with the highest number of occurrences along the task with a total of 99 errors, making up a 38.7% of the total. In second place there came developmental errors, with 61 errors in total, representing a 23.8% overall. The third place was for other errors with 59 cases detected, which denoted a 23.1% in all. Finally, the last representative category was that of ambiguous errors with 37 errors, which represented a 14.4% in general. In the next figure we can appreciate the distribution of errors according to the category.

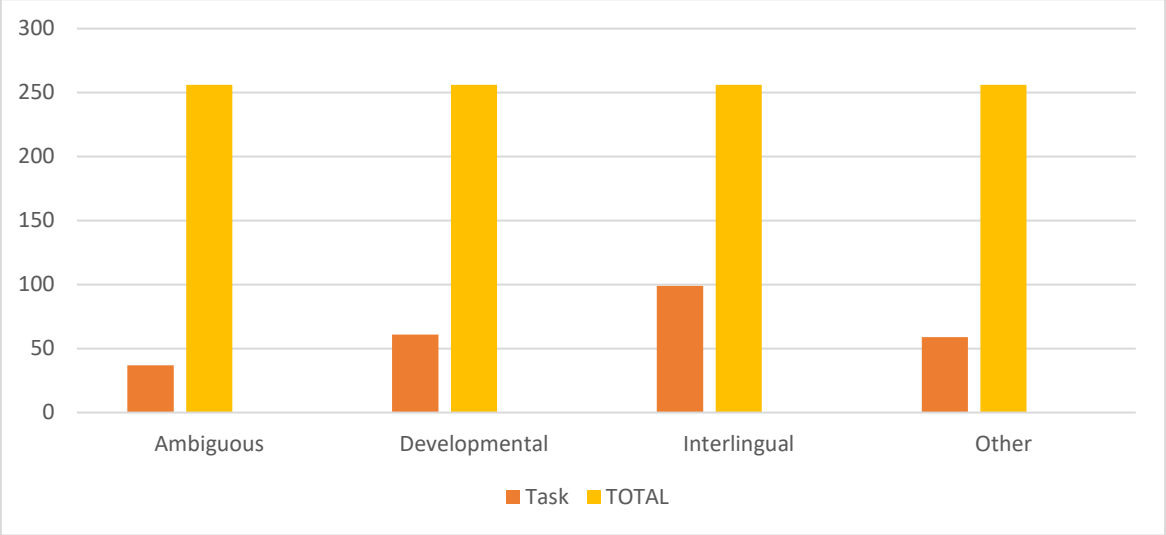

Fig. 2. Type of errors in the task

Source: Own elaboration

In the sixth and last place, we also divided each error category into different types. Thus, in the first category, *interlingual errors* were divided into the following six types: addition of past tense, addition of preposition, verb-number disagreement, inappropriate demonstrative, inappropriate preposition, and inappropriate pronoun. The most repeated type of error was the case of verb-number disagreement with 74 errors whilst the least repeated ones were the addition of past tense and the addition of a preposition with just one instance each. Other frequent interlingual errors were the use of an inappropriate demonstrative, inappropriate preposition or inappropriate pronoun. In the following pie chart, we can acknowledge the distribution of types of interlingual errors.

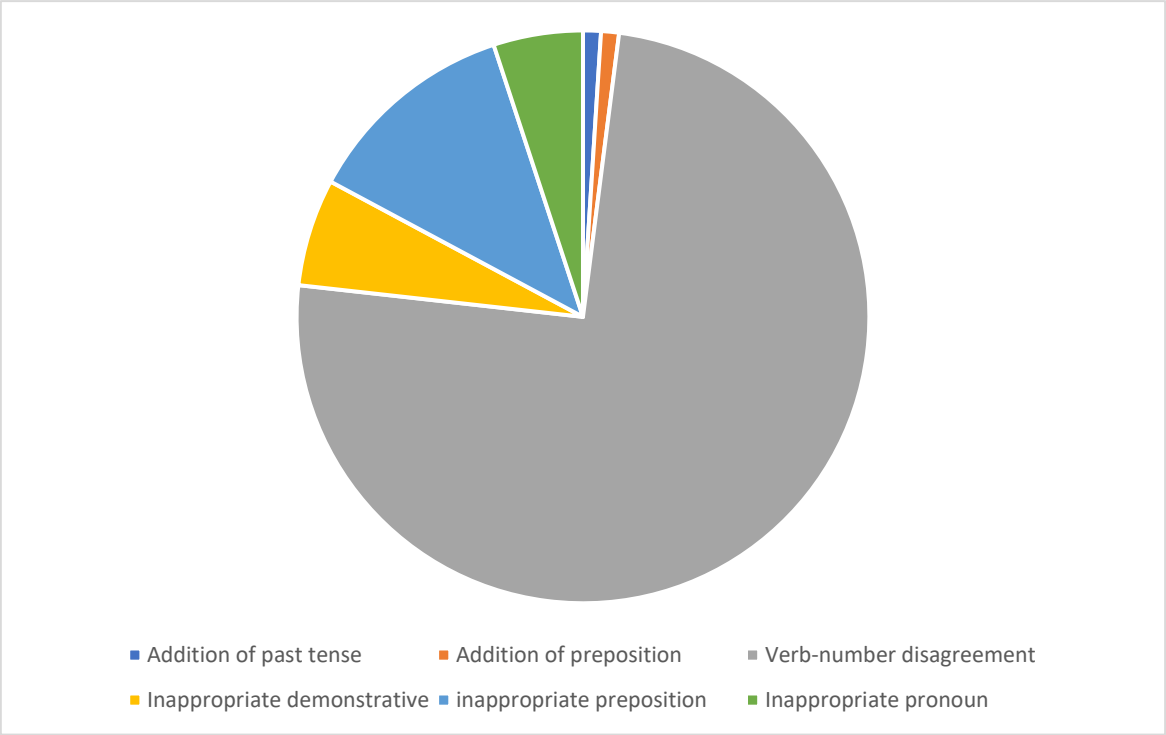

Chart 1. Distribution of types of interlingual errors

Source: Own elaboration

The second category corresponded to *developmental errors*, which were divided into the following eight types: omission of an auxiliary, omission of plural marker, omission of regular past tense marker, omission of irregular past tense marker, addition of regular past, addition of irregular past, inappropriate part of speech, and omission of infinitive marker "to". Within developmental errors, the most frequent type was the use of an inappropriate part of speech with 17 cases. On the other hand, the least frequent types were the omission of irregular past tense marker, the addition of regular past, and the omission of the infinitive marker "to" with just one case each. Other types which were also recurring were the omission of the auxiliary or the omission of a plural marker, as can be seen in the next pie chart.

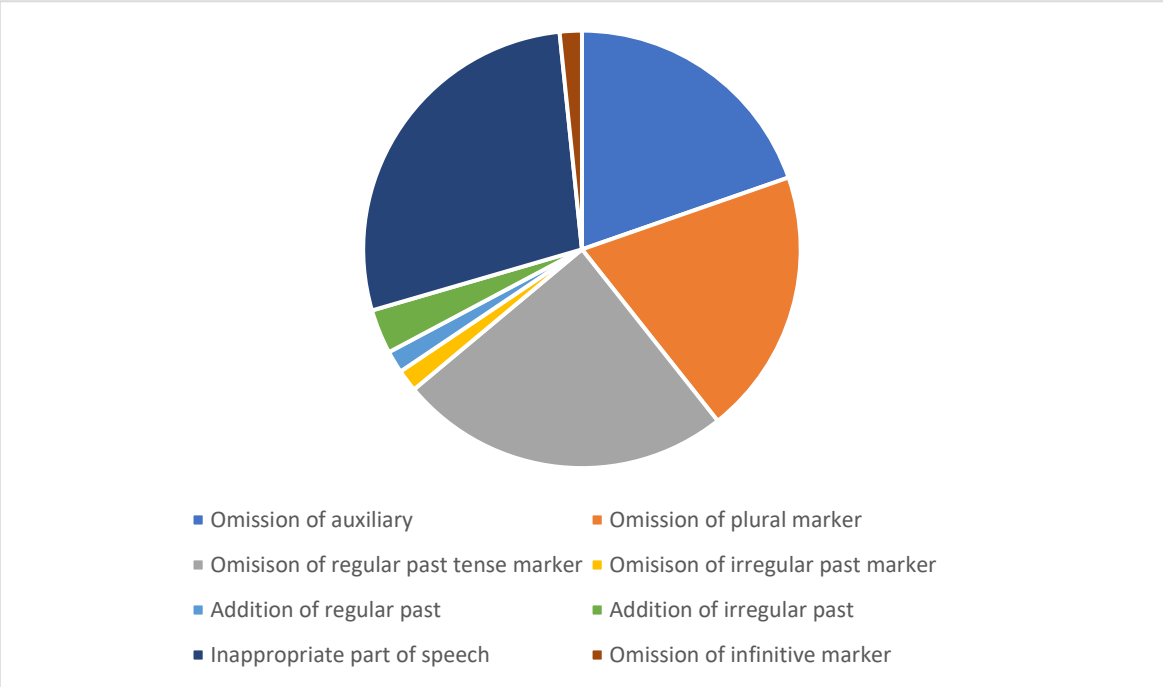

Chart 2. Distribution of types of other errors

Source: Own elaboration

In the third place, *other errors*, which were divided into the following five types: addition of article, addition of plural marker, omission of progressive form, incorrect spelling, and addition of subject. If the most represented type was that of incorrect spelling with 45 cases, the least represented one was the addition of the article with just 1 error. Some other recurrent types were the addition of a plural marker and the omission of the progressive form.

At this point, it should be reminded that had not been for the type of incorrect spelling, the category of other errors would have come in the last place in the rank. However, it may seem unavoidable to expect such a high number of words incorrectly written in the assignments. We can appreciate it better in the following pie chart.

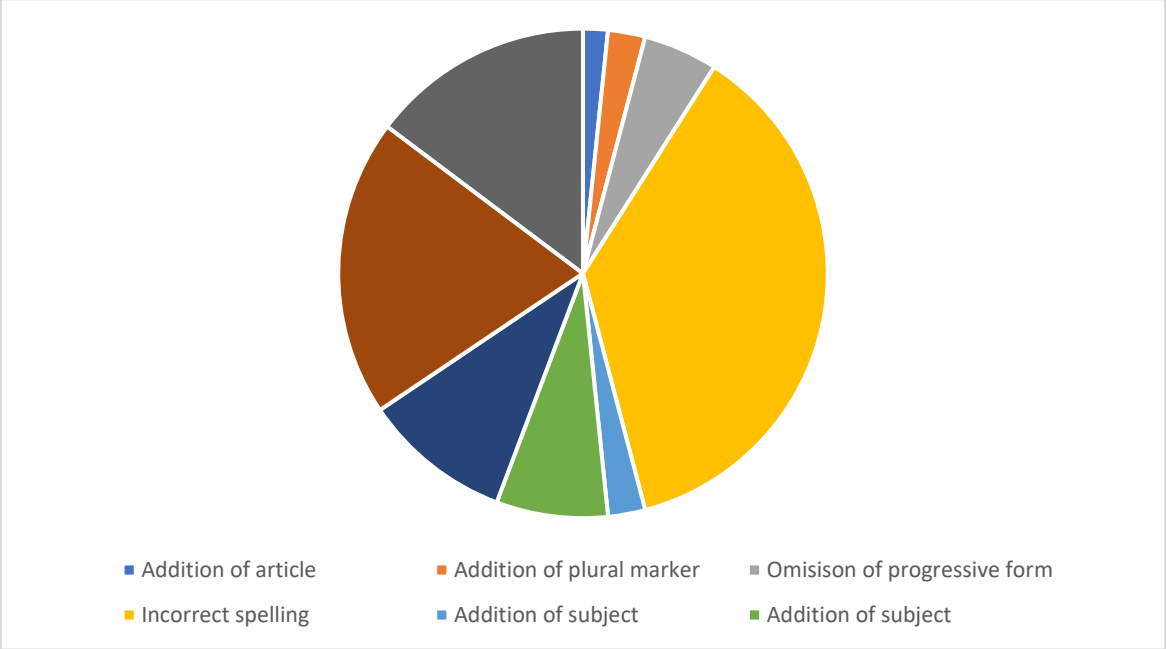

Chart 3. Distribution of types of other errors

Source: Own elaboration

Finally, *ambiguous errors*, the last category in numbers, were divided into the following four types: omission of article, omission of subject, inappropriate quantifier, and inappropriate article. Whilst the first two types, the omission of article and the omission of the subject were found quite recurrently each, on the other hand the use of an inappropriate article and the use of an inappropriate quantifier were just encountered 3 times as can be deduced from the following pie chart.

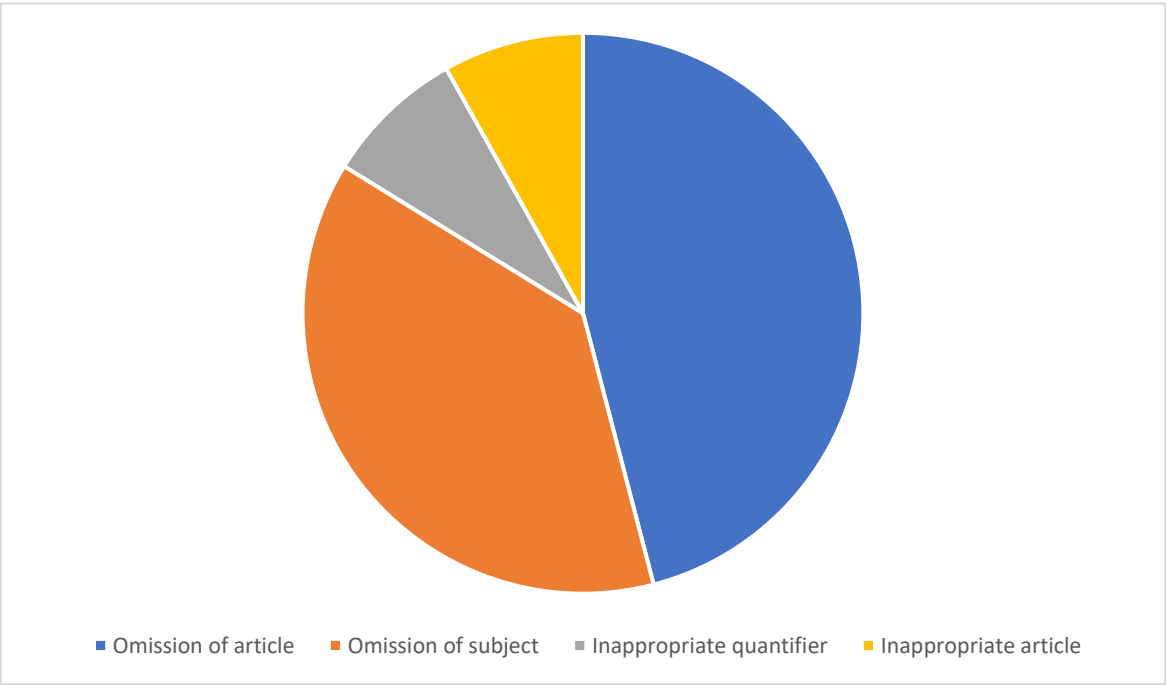

Chart 4. Distribution of types of ambiguous errors

Source: Own elaboration

As a closing remark, we can finish withdrawing the main information collected along the study. The corpus of this research has been the analysis of errors in 72 essays written by technical engineering students during the last two academic years in a written assignment. And in order to do so, we followed the comparative taxonomy proposed by Dulay, Burt, and Krashen. The findings in these essays have demonstrated that the most recurrent category of errors detected was that of interlingual errors, followed by other errors and developmental errors. Finally, we placed ambiguous errors in the last position in the rank.

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