

Methodological proposal for the teaching, learning and evaluation of syntax in secondary school in bilingual contexts

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Abstract: The teaching of syntax is typically a complex and controversial issue in secondary school classrooms. Moreover, in schools in bilingual areas, the problem is aggravated. Students usually feel confused between two languages. As we believe bilingualism benefits linguistic knowledge, in this paper, we propose a set of guidelines to improve the teaching of syntax in bilingual schools (in our case, in Catalonia, Spain). Subsequently, we show how the implementation of our proposal has developed. The data obtained from our study guarantee that greater coordination between teachers of different languages and a more proficiency-based perspective improves students' results. We also provide data detailed by gender, level of proficiency in the two languages as L1 and educational profile (humanistic or scientific). In all three distinctions, an education with a bilingual emphasis and comparison is more beneficial than the traditional methodology, which has continued to be used in the control group of our study.

Key words: syntax, methodology, bilingualism

1. Introduction

Syntactic knowledge is one of the most salient aspects in language classes in the Spanish education system. The topic is introduced in a general way in elementary education. Subsequently, in secondary education, different aspects are worked on each year so that pupils become familiar with the syntax of their language (Spanish in our case). In the first four years, the aim is usually to master the simple sentence and, in the last two years, to master complex sentences.

However, syntax is often quite problematic for students and teachers. Most students never master syntax with certainty (although syntactic analysis is repeated every

year) and have an aversion to syntax. Syntax is considered boring, and most teachers tend to take a traditional approach when teaching it.

In the Spanish educational context, the teaching of syntax has evolved from traditional to contemporary practices. In bilingual areas of Spain, such as Galicia, Basque Country, Navarre, Catalonia, Valencia, and the Balearic Islands, the challenge is amplified, as the same content must be taught in both Spanish and the regional language. Therefore, a Galician student, for example, must demonstrate proficiency in the syntax of both Spanish and Galician equally. As more time is devoted to teaching in these regions, and content is repeated, there is a greater willingness to innovate and adopt a more contemporary approach. This approach emphasizes the active participation of students, encouraging them to create sentences and justify their choices. In fact, in many bilingual regions, the assessment of competencies is now required to ensure a fair evaluation of the different skills that students acquire, rather than solely focusing on syntactic labelling.

The traditional approach is based on getting to know syntax through the systematic analysis of sentences. Therefore, the most recurrent image is a photocopy with 50 or 100 sentences that must be labelled. Each day a certain number of these sentences are analysed and corrected. This practice makes syntax perceived as useless and boring. Moreover, pupils tend to experience more confusion between the two languages in bilingual areas. Lack of proficiency leads to confusion.

Nowadays, many aspects of language teaching (L1 or L2) are being adapted to new methodologies. Generally, these new approaches (such as cooperative learning, task-based learning or problem-based learning, for example) make the content more attractive to the learner. In addition, the aim is for the learner to play a leading and active role in the whole teaching-learning process. The activities carried out are more varied, authentic, and flexible to be useful for students' learning, in accordance with “personality factors in learning” (Ausubel et al. 1978: 391-415).

In the case of syntax, we are also gradually seeing attempts to propose such change (López Valero, Encabo Fernández & Jerez Martínez 2017). However, it is more complicated to implement. Most of the innovations come from Spanish as a Foreign Language methodologies. Syntax is not usually worked on explicitly in these classes, as it is not viewed as relevant content.

We believe that the knowledge of more than one language should not be detrimental to learners. On the contrary, it is beneficial for grammatical knowledge. Moreover, this also means that more hours are spent on teaching language content. Therefore, the first aim of this study is to detect problems related to the teaching of syntax in bilingual contexts (Catalonia). Subsequently, we want to propose methodological changes to improve the learning process. Then, we will try to implement our proposal in a specific context. Finally, we will evaluate the positive and negative aspects of our implementation.

2. Syntax, bilingualism, and teaching

Although the explicit teaching of syntax in each country is different and depends on the tradition of each country, it is an aspect that should always be considered. Many studies have shown that a greater knowledge regarding the functioning of syntax has a positive influence on other language skills. In the case of bilingual speakers, mastering it grants an even broader knowledge. As an example, the recent study by Sohail et al. (2022) shows how explicit syntactic knowledge in bilingual speakers improves their reading comprehension.

Many monolingual regions are trying to create a similar environment to take advantage of these benefits. In the case of Spain, we can mention the region of Madrid. In this region, only Spanish is spoken, but many of the schools have a bilingual model with English, comparable to that found in dual-language regions. Several studies that have been carried out to assess the suitability of this approach show positive results. For example, Madrid and Corral (2018) show the results of a comparative study between students in the bilingual plan and students who have received the same content in a monolingual mode. In general, it can be observed that language skills and knowledge are higher when it comes to bilingual students.

Some authors relativise these results. In the case of Thordardottir et al. (2015: 440-443), it is evident that working linguistically in a bilingual mode versus a monolingual mode is more beneficial, but not drastically so. The significant change, according to them, can be seen in vocabulary. The improvement in syntax exists, but it is not very pronounced.

We should not ignore the negative aspects of knowing deeply more than one language. Although in this study, we did not assess how much transfer there is, especially in close languages, several experiments show how syntax is affected. For example, Hatzidaki et al. (2011) offer 4 different experiments that review these contaminations. Other research, such as that of Golestani et al. (2006), also shows the different problems that appear in the syntax of bilingual speakers but not native ones (or not with a deep knowledge of one of the two languages).

Another critical aspect of the literature is bilingual speakers' shared syntactic knowledge base. Beyond general considerations already known from generativism, different studies investigate what is known as syntactic prime (Hartsuiker et al. 2004). These authors develop the assumption that basic syntactic knowledge is shared and demonstrate it with an experiment on bilingual Spanish and English speakers. Therefore, if we accept this proposal as valid, our methodology, designed to highlight the benefits of cross-linguistic comparison of official languages in a territory, will allow us to reinforce the content of both languages.

However, language or linguistic results in different external tests (PISA or university access exam, for example) show that bilingual territories in Spain, for example, perform worse than most monolingual territories (Ministry of Education and Vocational Training 2022).

2.1. The Spanish education system

Although Spain is a multilingual country, until 1978, education was mainly in Spanish. As Huguet (2004) points out, from the constitution of that year onwards, two aspects were safeguarded: the security of teaching in Spanish throughout the territory as an integrating language and the guarantee of the teaching of regional languages. In addition, educational competencies were transferred to the different regions. Therefore, each region decides what methodology to use and how to teach. In the case of Spain, there is a tendency towards learning through "linguistic immersion": content is taught in the less predominant language, and, in addition, there is explicit grammatical teaching of both languages.

This means that the same linguistic content is repeated in both languages. In the case of Romance languages such as Galician or Catalan, this explanation will be very similar. This proximity favours the comparison between languages. On the other hand, in

the case of Basque, an isolated language, there are fewer points in common, and the differences must be emphasised.

Many authors have long commented on the lack of consensus in Spanish classrooms (Castellà Lidón 1994). Although they have been widely analysed, these traditional problems have not been solved. The two official languages of each region are still taught in Spanish bilingual classrooms in isolation and independently.

2.2. Methodological innovations in teaching syntax

In addition to analyses denouncing this more traditional tendency in the teaching of syntax, various proposals also appear in the literature that attempt to update the teaching of syntax in Spanish (Delicia 2016 & Bosque & Gutiérrez-Rexach 2011). These innovations mainly focus on proposals to adapt to a more competency-based model. The most notable aspect is the change in the typology of activities. In recent years there have been many proposals (such as cooperative learning, task-based learning or problem-based learning, for example) which recommend more challenging activities for students. In addition, the motivational aspect of the students is also considered. Little by little, these types of activities are being implemented in classrooms, although this is not a general rule.

There is not much emphasis on the aspect of comparison between languages in bilingual territories. The proposals are likely intended to be more general and do not focus so much on specific contexts. There is no evidence of implementing these proposals in the literature. To confirm this, we have analysed the situation of a specific school as an example.

3. Analysis of how syntax is taught

Once we had reviewed the literature, we decided to conduct a face-to-face study in a secondary school by direct observation. The main objective is to characterise syntactic teaching in the different languages of the secondary school. Our goal is to identify areas for improvement so that we can propose actions to strengthen syntactic teaching.

In this school in Tarragona (Spain), Catalan, Spanish, English and German are taught. Catalan and Spanish are taught as native languages, and each language is taught

3 hours per week. All other subjects are taught in Catalan. English is taught, on average, 2 hours per week. The level of teaching is between A2 and B1. Lessons are conducted in a mixture of English and Catalan. German is taught as an optional subject in the final years (2 hours per week). The level is A1, and is taught in Catalan language. Grammatical content (and literature) is worked on in the Catalan and Spanish classes. In English and German classes, the approach is more communicative.

In the Catalan and Spanish subjects, the content is the same. In other words, the grammar topics taught are duplicated in both languages equally. The proximity between the two languages means that the importance given to the different aspects is the same. The textbooks used in all courses are from the same publisher (in both languages). As far as syntax is concerned, only information on the simple sentence is provided in the first three years. In the fourth year, aspects of the complex sentence are introduced. Complex syntax is worked on in the remaining two years (preparation for university). Since there are different courses, we decided to focus on the second year because they have already been able to work on some syntactic aspects, but they still must learn more.

3.1. Syntax in Spanish in the second year

The syntactic content appears in the central part of the textbook. Syntax is spread over different units; it is not concentrated. The following functions are covered: complemento directo (direct object), complemento indirecto (indirect object), atributo (attribute), oraciones pasivas/complemento agente (passive sentences/agent), complemento de regimen verbal (prepositional object), complementos circunstanciales (circumstantial complements), complemento predicativo (predicative). In all cases, a brief theoretical definition is given. Afterwards, there are some examples. Then, there is a list of exercises.

There are always between 6 and 8 exercises. Most of the exercises ask students to analyse sentences thoroughly. The first exercises ask students to analyse only the underlined parts. Occasionally, an exercise presents a series of sentences, and the learner is asked to identify content of all the sentences with a specific function.

There is no explicit explanation of the criteria to be followed to identify a particular function. Nor is there any mention of what happens in other languages. There is no link between syntax and other language modules. Nor is there any link between the usefulness of syntactic knowledge and its impact on and benefits for the language. The

sentences used as examples are all quite general, of little significance to learners, and open to criticism from a gender perspective. For example, one of the sentences that students are asked to analyse is “Ana did not remember to wash the trousers”.

The teaching of syntax is not only based on the coursebook. Teachers also provide students with a photocopy of 50 sentences to analyse. A complete analysis, including morphological analysis, is required. Typically, the photocopy is analysed after looking at the syntax in the coursebook. It is used as homework for practice at home. The sentences are taken from the Internet, and some are further modified or added. A random student goes to the board to write an analysis of one of the sentences they had as homework. The teacher then corrects it and discusses the results with the rest of the class.

3.2. Syntax in Catalan in the second year

The syntactic content appears in the central part of the textbook. Syntax is spread over different units; it is not concentrated. The following functions are worked on: objecte directe (direct object), objecte indirecte (indirect object), atribut (attribute), oracions passives/complement agent (passive sentences / agent), complement preposicional (prepositional object/complement), complements circumstancials (circumstantial complements). There is no mention about the predicative complement. It should be noted that the nouns used are different from those used in Spanish, even though there are also some nouns in Catalan that are the same as in Spanish. In all cases, a brief theoretical definition is given. Subsequently, some examples of this complement are given. There are also examples of how this complement can be substituted pronominally (if it can be). Finally, we can find the exercises.

The number of exercises is irregular, depending on the topic. Most of the exercises ask students to analyse sentences in their entirety. The first exercises ask them to analyse only the underlined sentences. There is also an exercise that asks them to replace the underlined syntagm with an appropriate pronoun in some cases. Occasionally, an exercise presents a series of sentences, and the learner is asked to identify all the sentences with a particular function.

There is no explicit explanation of the criteria to identify a particular function, except for pronominal substitution. Nor is there any mention of what happens in other languages. No link is made between syntax and other language modules. Nor is the

usefulness of syntactic knowledge linked to its impact on and benefits for the language. The sentences used as examples are all quite general, of little significance to learners, and open to criticism from a gender perspective in some cases.

Syntax teaching is not only based on the textbook; teachers dictate some sentences to the students to do as homework. Syntactic but not morphological analysis is required. The sentences are taken from the Internet, and some are further modified or added. A random student goes to the blackboard to write an analysis of one of the sentences they had as homework. The teacher then corrects it and discusses the results with the rest of the class.

4. Proposal for bilingual contexts

In general, we have seen a rather classical approach to learning syntax. The main interest is in analysing sentences (Gumiel Molina 2014). The role of the student is passive. There is no coordination between departments. Therefore, we will propose some changes to work on syntax in a coordinated and more meaningful way in a bilingual environment. We hypothesise that, with these changes, students will show a greater mastery of syntax.

Firstly, terminology should be unified. Two languages as close as Catalan and Spanish, which have the same terminology, to avoid unnecessary confusion among students. It has been decided to adopt the word "complement" instead of "object" because it applies to more situations. We have also opted for "prepositional complement" because it is more transparent for learners than "verbal regime complement". Whenever it is impossible to equate labels, the differences between languages should be emphasised. The techniques used to teach syntax should also be unified. It is confusing for students to work with different methods to obtain the same result in syntax. In short, each school should adopt a common position on any existing ways of analysing a sentence, assess their positive and negative points and use one of them as the approach that students will see.

Secondly, the same content should be explained at the same level. Therefore, we propose that the predicative complement should also be explained in Catalan, even if it does not appear in the textbook, to avoid confusion among students. In the same way, a

plan should be agreed upon to extend the content if necessary, so as not to work at different paces.

Thirdly, grammatical content should be explained in both languages simultaneously. In other words, we propose to explain in Spanish class what the direct complement is like in Spanish and Catalan. This fact forces the teacher to constantly compare the two languages to make it clear to the students what points there are in common and what differences there are. We believe that some comparisons with English should be made. For example, in the case of explaining passive sentences, it is always necessary to mention the agent complement and what form it takes. It will constantly be introduced by a preposition, which will not change, thus allowing its identification. In this case, it is easy to indicate that this preposition will be “por” in Spanish, “per” in Catalan, and “by” in English. The relationship with languages that are less like Spanish but which they can also know helps solidify the linguistic knowledge that these students have, as they must make the cognitive effort of abstraction (Cifuentes Honrubia 2012).

Fourthly, explanations must also be unified. In other words, the same resources for identifying a grammatical function must be offered in both languages. In the case of Spanish, no resources are usually offered from a formal perspective. In the case of Catalan, only pronominal substitution is offered. We propose that in both languages, students should work on identifying syntagms correctly using tools such as pronominal substitution and concordance. Providing students with objective tools to understand the syntax of a sentence should also be done in monolingual schools (Mangado Martínez 2002). However, we could see that it was not practised in the school where the observation of classes took place.

Fifthly, we believe that the competences sought in the activities should change. The goal always tends to be parsing, which should be understood as a simple identification of labels. More exciting and cognitively challenging aspects, such as justification or creation, are not usually expected. Therefore, we propose that each of the activities be consistent with Bloom's taxonomy's updated proposal (Anderson and Krathwohl 2001). In other words, one should start with identification exercises, as is already done, but there should be more stringent requirements, such as the justification of the choice. (Lozano Jaén 2012). In addition, the sentences that teachers should create for themselves to work on should be more original and linked to the reality of the students (Bianchi 2014). This small change can help to improve teenagers' motivation.

Subsequently, learners should be asked to create sentences containing certain functions or structures themselves, also known as reverse analysis (Bosque & Gallego 2016). They should also be asked to justify why they have chosen that a certain syntagm is performing a specific function. This justification should always include a reflection by the teacher (or learners) on whether the situation is the same in the other language they know or how it would be different (Cantero 2008 & Gómez Torrego 2012). In activities which are also recommended, such as minimal pairs of sentences, comparisons can be made between the two languages. In other words, the aim is to reinforce knowledge of one's language by comparison with the other known language.

In fact, in many of Spain's bilingual regions, such as Catalonia, it has been compulsory for a few years now to assess competences (Departament d'Ensenyament de la Generalitat de Catalunya 2017, 2018 & Sanmartí 2010). In other words, the different skills that we want to work on with the students in the exercises must be qualified for an exam. In this way, the assessment will be fairer as the students will have done exercises on different competencies that will then be assessed and not just on syntactic labelling.

5. Implementation of the proposal

Once we have seen the proposal we plan to work with syntax in bilingual classrooms, we are going to see the suitability of the proposal through its implementation in a specific school. To do so, we present the following methodological design, from a quantitative approach.

5.1. Research questions

The main objective of the pilot study conducted in a specific school is to determine whether an innovative methodology, as described above, can enhance the syntactic and linguistic knowledge of students. However, we also aim to investigate whether this methodology is particularly advantageous for a specific group of learners. To achieve this, we pose the following questions:

- Is this approach to syntax equally effective for boys and girls?
- Is this approach to syntax equally beneficial for individuals who have learned the language later in life?

- Is this approach to syntax equally positive for students with a stronger preference or background in science or humanities?

While our initial hypothesis suggests no significant differences between the two groups, we will verify this through various tests.

5.2. Participants

This proposal has been implemented in a secondary school in the city of Tarragona (Spain), in the region of Catalonia, where both Catalan and Spanish are official languages. The research was conducted with second-year students. The duration of the implementation of our proposal (the time span between the pre-test and the post-test) was 1 month. The research has been possible thanks to the participation of 2 groups. One of the groups was randomly selected as the study group, and the next group was the control group. Therefore, the proposal was implemented in the first group, and both groups' starting point, evolution, and endpoint have been compared. Both groups have similar characteristics and are demographically similar.

Students in this year's class are 13 and 14 years old (except for two teenagers who are 15 years old, one in each group). The two classrooms are composed of 28 students. The experimental group class (or class 1) consists of 12 girls and 16 boys. The control group class (or class 2) consists of 13 girls and 15 boys. In class 1, there are 22 students born in Catalonia (therefore, they are always schooled in a bilingual system). 2 teenagers come from another part of Spain and, therefore, have had to learn Catalan afterwards. 4 students come from outside Spain: 2 from Morocco, 1 from China, and 1 from the UK. In class 2 there are also 22 students born in Catalonia. There is 1 teenager from another part of Spain. 5 students are from outside Spain: 3 from Morocco, 1 from Senegal, and 1 from Germany. In class 1, there are 13 teenagers with a humanistic profile and 15 with a scientific profile. In class 2, there are 16 students with a humanistic profile and 12 with a scientific profile.

5.3. Procedures

Given the risk that a sample of 56 subjects could be considered small, we follow objective criteria for the significance of the sample. To ensure that the results can be extrapolated to other contexts and are not caused by chance, we have set a significance level ($p < 0,05$) that allows us to avoid sampling errors. Results with a p-value above this threshold will be deemed inconclusive.

Firstly, we will carry out a pre-test to obtain quantitative and objective data on the starting point of the two groups. Secondly, we will follow up during the month of implementation to obtain data on the implementation carried out. Finally, we will conduct a post-test to obtain quantitative and objective data on the margin of improvement of the two groups depending on the methodology used.

The pre-test was designed considering the knowledge worked on in the previous year. The students were not asked about activities related to more cognitively demanding competencies because they would not be able to give an adequate response to them. Likewise, the post-test design has been made considering the activities related to competencies that both groups (experimental and control) know. For example, it would be false and would distort the results to ask for a reverse analysis. The experimental group would have worked on it in class, while the control group did not. Therefore, the content of the final test is based on aspects that both groups have worked on during that month. Since the implementation has been carried out in the Catalan and Spanish subjects, half of the test corresponds to one language and the other half to the other language.

The test contains 10 exercises of 1 point each. The first exercises ask students to identify the underlined syntagm's function correctly. In the last exercises, a complete sentence analysis is required. In other words, the requirement is the same as the activities in the coursebook that are typically used.

5.4. Findings

The results obtained will be presented divided into the variables in question.

5.4.1. General results

The overall data comparing the pre-test and post-test of the experimental and control groups shows that our proposal offers significant improvements. The mean of the pre-test in the experimental group is 3,75. The pre-test mean of the control group is 3,89. The mean of the post-test in the experimental group is 7,71. The mean of the post-test in the control group is 5,42. The difference is below the set threshold ($p < 0,05$); therefore, these data are not random and they actually show significance. These means are summarised in table 1:

Table 1: Overall mean

Group	Pre-test	Post-test
Experimental	3,75	7,71
Control	3,89	5,42

As can be seen in figures 1 and 2, the dispersion in the 4 tests is very similar. In the case of the pre-tests of the two groups, the dispersion is shared, ranging from 0 to 7 points. However, the post-test shifts the results from 4 points to 10 points in the experimental group. In the case of the control group, the result ranges from 2 points to 9 points. On the vertical axis, there is the number of students who obtained a specific result. On the horizontal axis, there are different possible results obtained in the test.

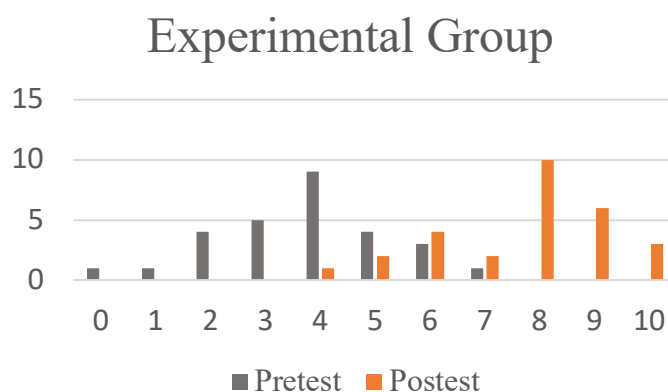


Figure 1: Pre-test & Post-test Results in the Experimental Group

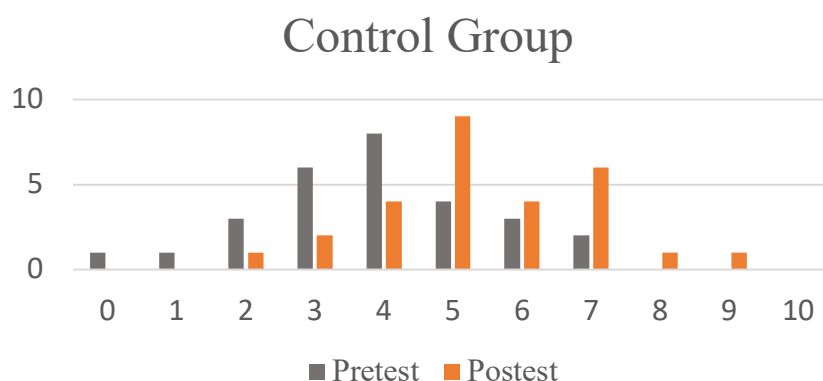


Figure 2: Pre-test & Post-test Results in the Control Group

As can be seen, the starting point between the two groups is similar. Both start from the same knowledge. Apart from the slight difference in the mean, the dispersion is the same. It is also important to note that the most common result in both pre-tests is a 4. This mark means that most students would fail a hypothetical exam. It should be remembered that the contents asked about are contents they worked on in the previous year. Therefore, the previous way of teaching syntax presents problems.

In the case of the post-tests, the difference between the two groups is evident. The experimental group shows noticeable (and statistically significant) improvements. These improvements mean that the change of the teaching method is beneficial for the students. The control group also shows improvements, but they are much lower. Then, the usual methodology is not as effective. The most common post-test score of the experimental group is 8, whereas in the post-test of the control group it amounts to 5.

Furthermore, few people fail the test in the case of the experimental group, while there are still quite a few failures in the group with the traditional methodology. Not only can most students demonstrate much better knowledge, but students with more difficulties can improve their results. It is also important to remember that the object of study of the post-test is the same as that of the pre-test. This means that, although the experimental group has worked in a more varied and demanding way, the level of demand for the test has not changed. The questions are of the same nature as those of the pre-test. In summary, the proposed proposal offered in this study has been successful. However, we should not

forget that the sample is small and therefore we should check in the future whether the results are extendable to other contexts.

6.2. Gender

The first social variable considered is gender. The main reason is to check whether the proposed methodology and the traditional methodology tend to benefit one of the two genders more or not. The mean pre-test of the boys in the experimental group is 4,06. The mean pre-test of the girls in the experimental group is 3,33. In the pre-test of the control group, the boys obtained an average of 3,66, and the girls obtained an average of 4,15. In the experimental group's post-test, the boys obtained an average score of 7,68 and the girls 7,75. The boys in the control group scored 5,26 on average, while the girls scored 5,61 on average. These data are summarised in table 2:

Table 2: Gender

Group	Pre-test	Post-test
Experimental Boys	4,05	7,68
Experimental Girls	3,33	7,75
Control Boys	3,66	5,26
Control Girls	4,15	5,61

The differences between social groups are not statistically significant. Therefore, it is not sure that this development has significant differences. The detailed data and the dispersion can be seen in figures 3, 4, 5 and 6.

There are no significant differences between the two groups in the experimental group. In both cases, in the pre-test, the most common result is a score of 4 points, and in

the post-test, 8 points. The observable trend is the same, and there are no differences. It is noteworthy that the girls in this group start with a lower score in the pre-test, and, on the other hand, in the post-test, they can match the boys' score (or even slightly surpass it).

In the case of the control group, there are no notable differences between the two groups either. In this case, the most frequent is to go from a score of 3-4 points to 5 points. The dispersion is the same. The results are balanced and homogeneous.

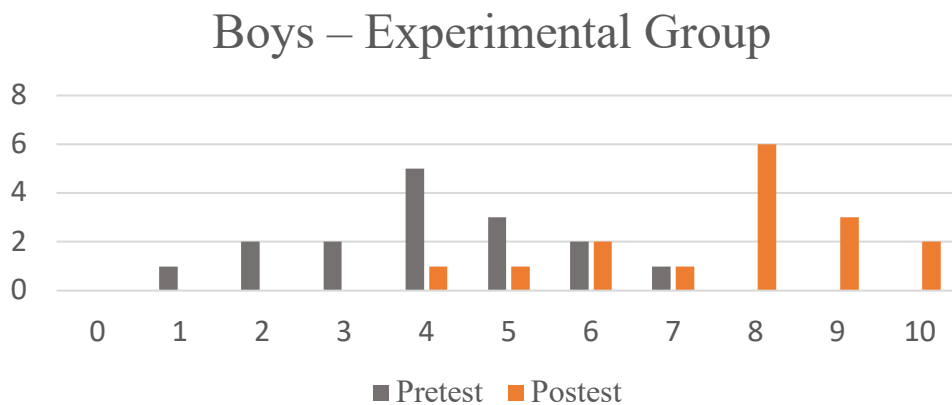


Figure 3: Pre-test & Post-test Results in the Experimental Group (Boys)

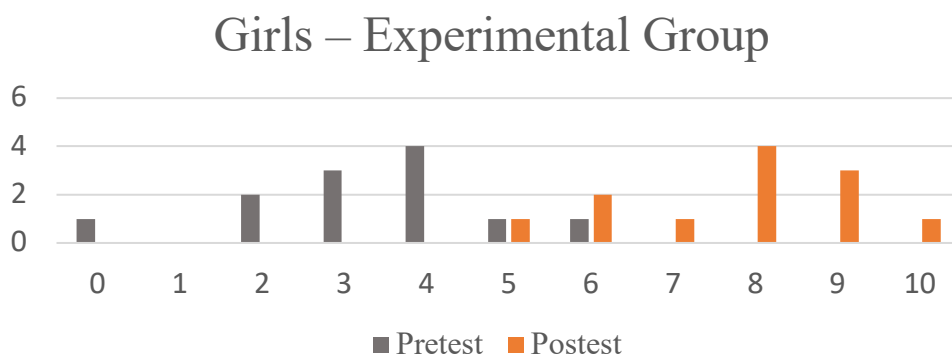


Figure 4: Pre-test & Post-test Results in the Experimental Group (Girls)

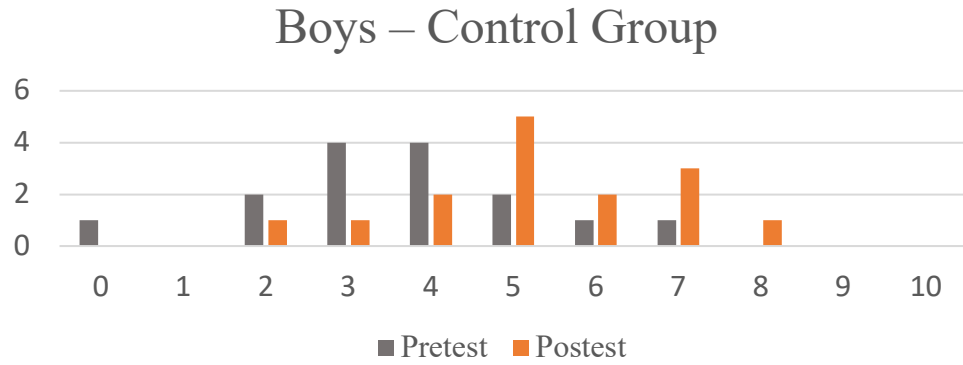


Figure 5: Pre-test & Post-test Results in the Control Group (Boys)

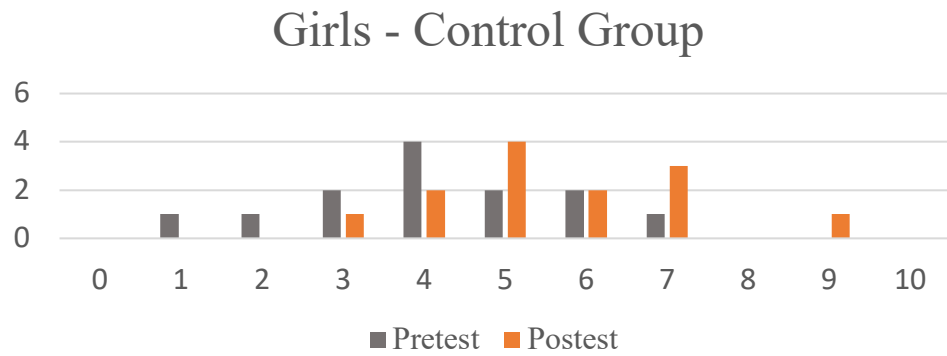


Figure 6: Pre-test & Post-test Results in the Control Group (Girls)

6.3. Proficiency

The most crucial social variable is the proficiency difference between speakers who have known the two languages since childhood and immigrant students. Our proposal is based mainly on the help that a second language can offer to reinforce knowledge of the target language. Therefore, it is interesting to see if there are differences in those teenagers who have learned these two languages later. For this purpose, we show the data collected in Figures 7, 8, 9 and 10. We also provide beforehand Table 3, in which the averages of all groups are shown:

Table 3: Proficiency

Group	Pre-test	Post-test
Experimental L1	3,81	8
Experimental L2	3,5	6,66
Control L1	3,81	5,68
Control L2	4,16	4,5

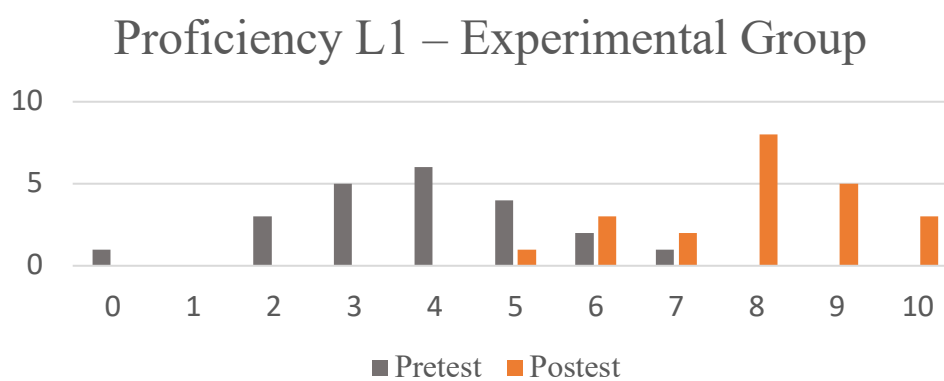


Figure 7: Pre-test & Post-test Results in the Experimental Group (Proficiency L1)

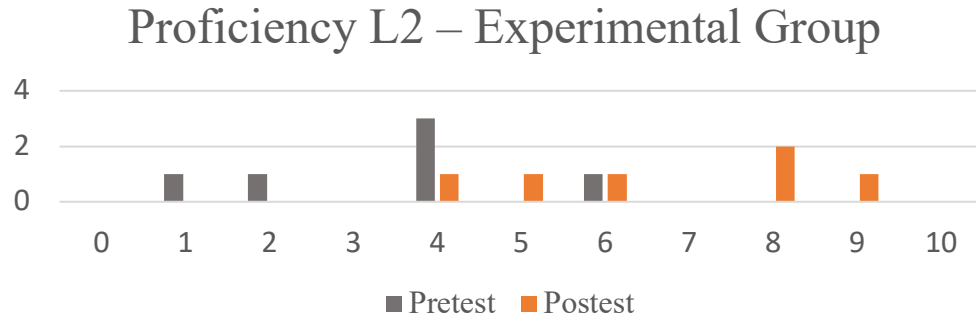


Figure 8: Pre-test & Post-test Results in the Experimental Group (Proficiency L2)

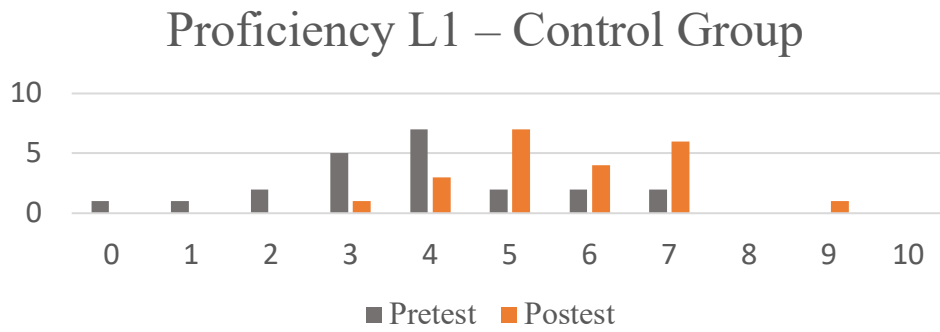


Figure 9: Pre-test & Post-test Results in the Control Group (Proficiency L1)

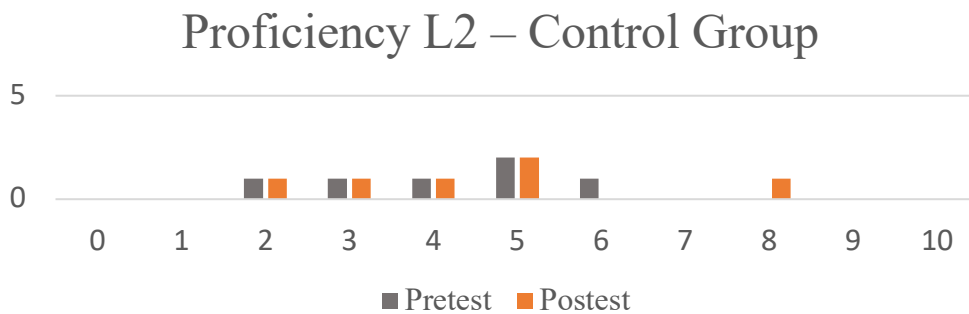


Figure 10: Pre-test & Post-test Results in the Control Group (Proficiency L2)

First, it should be mentioned that, as can be seen on the vertical axis, the sample is tiny, especially in the case of bilingual learners as L2. The aspect that is perhaps most striking and clearly shows a trend is a comparison between bilingual learners as L2 between the experimental and control groups.

This analysis aimed to check whether our proposal based on the simultaneous teaching of syntax in several languages also helped learners who acquired these languages later (and in some cases, not as deeply). It can be seen from the comparison in figures 7 and 8 that all the students in the experimental group improved their results equally. The trend is the same. Therefore, the methodology is also helpful for learners who know Catalan and Spanish as L2.

On the other hand, the data in figures 9 and 10 show that this is not the case for the control group. In the case of L1 learners, most of them show improvement after 1 month of working on syntax with the usual methodology. On the other hand, only 1 of the L2 students manages to improve after this month. The rest of the students do not improve their results.

6.4. *Profile*

Traditionally, syntax has been considered one of the most accessible and attractive aspects for students with a scientific profile (Chomsky & Gallego 2020). Therefore, we decided to investigate whether students with a scientific profile show better results in the pre-test. We also want to check whether they show better results in the post-test and, therefore, a better evolution. We first review the experimental group and then the control group as well. The results can be seen in figures 11, 12, 13 and 14. Beforehand, we attach table 4, in which the averages are shown:

Table 4: Profile

Group	Pre-test	Post-test
Experimental Humanistic	4,15	7,3

Experimental Scientific	3,4	8,13
Control Humanistic	4,43	5,68
Control Scientific	3,5	5,08

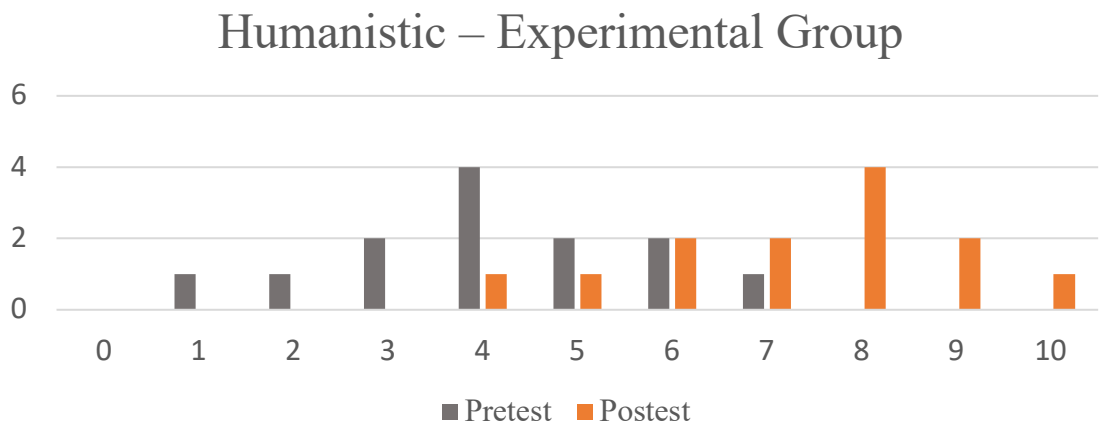


Figure 11: Pre-test & Post-test Results in the Experimental Group (Humanistic)

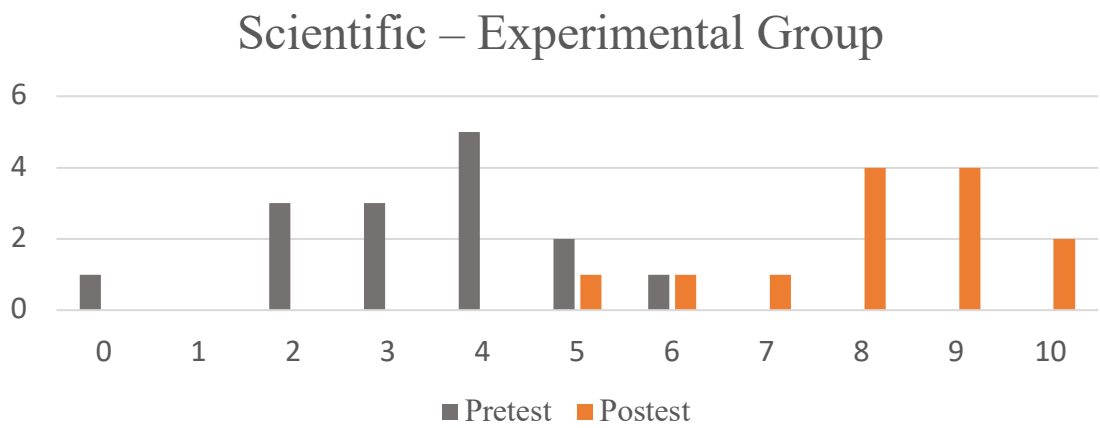


Figure 12: Pre-test & Post-test Results in the Control Group (Humanistic)

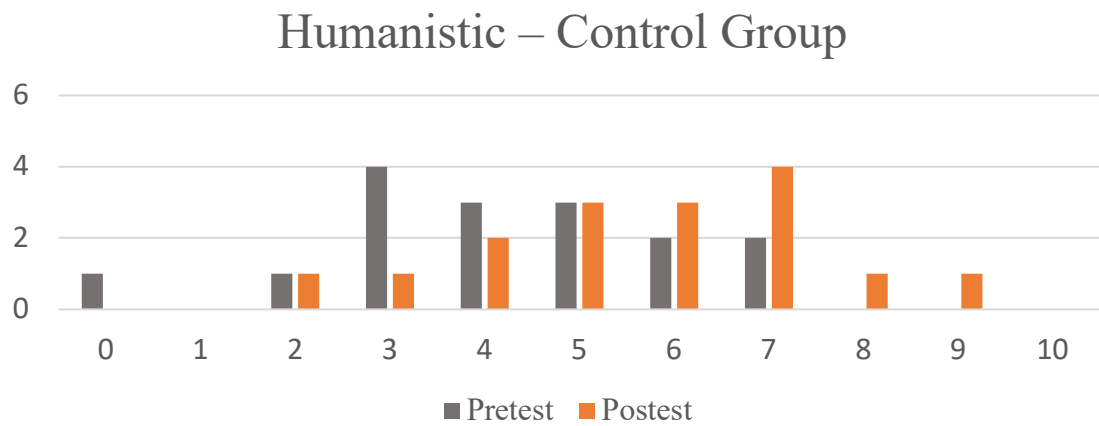


Figure 13: Pre-test & Post-test Results in the Experimental Group (Scientific)

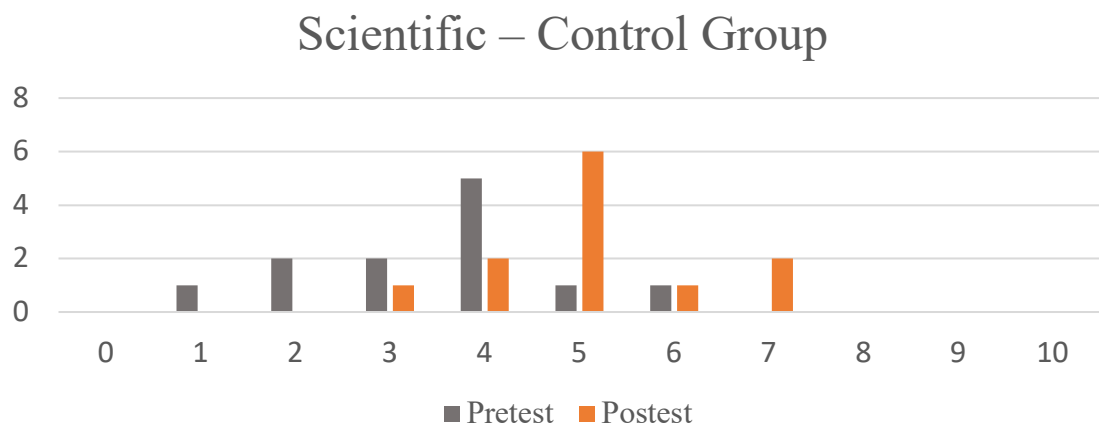


Figure 14: Pre-test & Post-test Results in the Control Group (Scientific)

5.5. Discussion

In general, as shown in the figures, gender did not have a significant impact on the results. None of the groups showed a significant change that could lead to such a conclusion. However, it could be said that the proposed methodology helps to

homogenise the results of the experimental group and to bridge the previously existing differences. As seen, girls had lower results in the pre-test, but in the post-test, they can slightly outperform the boys. However, in the case of the control group, this tendency is not so pronounced. The more central and balanced results in the control group case indicate a lower evolution in both girls and boys.

In short, given the small sample we have and the not very different results, it is impossible to draw any definite conclusions about the different impact of this methodology on genders. Although we can highlight trends, they are not sufficiently clear. Therefore, we must state that this methodology positively influences both boys and girls equally. There is no gender distinction.

According to our data, it appears that our proposal is beneficial for students who acquire bilingualism later. Furthermore, we must emphasize that our proposal was successful, especially considering that the control group did not experience the same benefits. However, we would like to remind readers that the sample size is small, and therefore the results are not definitive. These findings should be compared with other samples in the future.

It should be noted that it is evident that students with a humanistic profile perform better than students with a more scientific profile in the pre-test. However, the results are not very different. This, together with the sample size, means that it is not possible to state with certainty that there is a clear correlation. The trend is also worth mentioning: the best results were always found in the students with a humanistic profile in the experimental group. On the other hand, most of the highest marks are produced by students with a scientific profile in the final test.

In contrast, in the case of the control group, the results are more homogeneous, and there is less dispersion. Moreover, in this case, in both tests, students with a more humanistic profile are the ones who obtain better results.

In summary, we tend to see how the methodology used for 1 month benefits students with a scientific profile. However, these data are not very radical and, therefore, it is simply a trend that can be seen.

6. Conclusions

In conclusion, the present study has demonstrated that the traditional approach to teaching syntax in bilingual contexts has much room for improvement. Our analysis revealed that the lack of variety in skills taught and the resulting monotony are significant issues in the current educational approach. Moreover, the bilingual context of regions like Catalonia leads to additional problems, including confusion between languages due to the lack of a unified and integrated approach to teaching.

To address these issues, we proposed a series of changes to the methodology of teaching syntax in language subjects, specifically designed for a bilingual context. Our proposed changes aim to unify the syntactic terminology in all the languages of the school, explain the same content at the same level in all the languages, teach syntactic content in both official languages simultaneously, base explanations on objective identification criteria, constant comparisons between languages, emphasize exceptions, and analyze different examples. Additionally, we recommend offering students a single system of syntactic analysis and creating varied activities with different cognitive demands based on competencies.

To evaluate the effectiveness of our proposed changes, we implemented them in a real bilingual school in Tarragona and monitored their impact. We divided the school into two groups, with one group serving as the experimental group and the other as the control group. We administered an initial test and a final test to both groups to collect data for analysis. The results show that the group that followed our proposed changes obtained significantly better results than the control group. The experimental group's average score increased from 3.75 to 7.71, while the control group's average score increased only from 3.89 to 5.42. These findings suggest that the proposed changes are beneficial for students, and we recommend that teachers consider these guidelines in their teaching methodologies.

Furthermore, we investigated whether success was cross-sectional or specific to a particular group by analyzing different social variables. The data revealed that our proposed changes were equally beneficial to boys and girls, bilingual students as L1, and pupils who are bilingual as L2. The changes also helped students with a more humanistic profile and those with a more scientific profile. However, we observed a slight tendency for the changes to be more helpful for girls and students with a more scientific profile, particularly when compared to the control group.

Although the data support the suitability of our proposed changes, there is still room for improvement. We acknowledge that implementing changes involving different teachers and levels requires a great deal of coordination and involvement. Additionally, it would be ideal to evaluate the results of students at all levels after having studied with this methodology. Therefore, we recommend conducting a more extended analysis over time, taking into account all the courses, to evaluate the school's overall approach.

We believe that secondary schools should make a greater effort to have very clear guidelines that all teachers should follow, regardless of their background or subject area. These agreements or consensuses in the linguistic field could even be made public, facilitating coordination between teachers and ensuring a more effective and integrated approach to teaching. Moreover, we recommend conducting a follow-up study after a few months to determine whether the benefits observed in the post-test are lasting or fade over time. We believe that by using the bilingual factor as an advantage for the pupils, we can achieve even better results.

Although the data shown support the proposal's suitability and, therefore, we recommend it, some aspects could be improved. We are aware that a proposal of this kind, where different teachers or levels are involved, requires a great deal of coordination and involvement. Moreover, it would be ideal to see the results of these students after having studied at all levels with this methodology. For this reason, our prospects are to try to carry out a more lasting analysis over time, taking into account all the courses. In this way, the school's approach could be evaluated. We believe that if we can already see positive signs in such a concrete intervention, by using the bilingual factor as an advantage for the pupils, the results would be much better.

To this end, we believe that secondary schools need to make a greater effort from an organisational point of view. We believe that it is necessary for each school to have very clear (and agreed) guidelines. These should be followed by all teachers, no matter who they are. These agreements or consensus in the linguistic field could even be made public.

In addition, we are also aware that a study of these students is necessary after some time. For example, it would be interesting to carry out another test after 6 months to check whether the benefits observed in the post-test are lasting or, on the contrary, fade away over time.

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