Analyzing errors of CLIL and non-CLIL primary school students in their written and oral productions: a comparative study

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Abstract

This study explores to what extent the density and types of errors made by Primary CLIL students differ from those of non-CLIL learners of the same academic year. With the aim of doing this, two groups of 6 Year of Primary (aged 11-12) students were chosen (both belonging to Bilingual Projects in Madrid, Spain) and two groups of learners of the same year, but who did not follow any type of bilingual programme. Participants completed the Cambridge Key English Test (KET) for schools to determine their proficiency levels. The writing and speaking sections of that exam are used to examine the errors made by these students. A complete error analysis of the spoken and written texts is completed following James’ (1998) criteria and taking into account error density. The results seem to indicate that grammar was the area of English in which learners found more difficulties and that non-CLIL students made significantly more errors than CLIL learners in the oral texts.

Keywords: error analysis; CLIL programmes; primary education; grammar

1. Introduction

The aim of this study is to explore the differences in density and types of errors made by Content and Language Integrated Learning (CLIL) learners and their peers who are engaged in traditional English as a Foreign Language (EFL) learning. This study concentrates on Year 6 (11-12 year old) learners from bilingual and non-bilingual schools in the Comunidad de Madrid, in Spain. Previous research has compared the proficiency of CLIL and non-CLIL learners and the areas of language that are positively affected by CLIL instruction (Hüttner & Rieder-Bünemann,

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2010; Ruiz de Zarobe, 2011). However, few have focused upon error analysis and most are based in secondary education. This study seeks to fill these gaps by focusing on errors made in speaking and writing, comparing the production of primary CLIL and non-CLIL learners.

2. Content and language integrated learning (CLIL)

CLIL refers to “being educated in a language other than one’s mother tongue” (Coyle, 2007) and has been a predominant method of language learning in Europe starting in the 1990’s. The rise of CLIL began with the publication of the Commission of the European Communities White Paper entitled *Teaching and learning: towards the learning society* in 1995, which proposed that all European Union citizens should be able to communicate in two European languages besides their native tongue (Coyle, 2007). Modeled on Canadian Immersion Programs, the aims of CLIL are dual focused: learning content while simultaneously learning a second language.

Numerous researchers have cited benefits associated with CLIL on a language level, including an increase in students’ linguistic competences, vocabulary learning skills and grammatical awareness (Coyle, 2007; Ruiz de Zarobe et al. 2011). Additionally, CLIL has a positive effect on problem solving, risk taking and intercultural communication, and has been demonstrated to increase student motivation (Lasagabaster, 2008; Dalton-Puffer, 2008). Despite this, previous studies applying error analysis in CLIL secondary schools have revealed that CLIL learners do not always make fewer mistakes than non-CLIL learners (Ackerl, 2007).

3. Methodology

The participants of this study come from two primary schools in the Comunidad de Madrid, in Spain: one bilingual school (n=43) that employs a combined curriculum with 50% of the classes in English and one non-bilingual (n=34) school that offers 3 hours per week of English language instruction. The aim was to analyze the types of errors made by both groups and make a comparison to determine the differences observed in a CLIL versus non-CLIL curriculum.

The research questions addressed are the following:

- RQ1: Do primary CLIL students make fewer errors in the writing and speaking sections of the KET exam than non-CLIL students?
- RQ2: What are the most frequent types of errors made by CLIL and non-CLIL students in those sections of the KET exam?
- RQ3: Does register influence the type of errors made by CLIL and non-CLIL students? That is, do the errors made in the writing section of the exam differ from those of the speaking section?

Data was collected by administering the Cambridge Key English Test (KET) exam, which measures an A2 level of English under the Common European Framework of Reference for Languages (CEFR). The exam contains several papers to measure the competences of reading, writing, listening and speaking (see table 1).

| Name of the paper | Content | Time allowed | Marks (% of total) |
|-------------------|---------|--------------|--------------------|
| Paper 1: reading and writing | 9 parts/ 56 questions | 1 hour and 10 minutes | 50% |
| | Reading: part 1-5 | | |
| | Writing: part 6-9 | | |
| Paper 2: listening | 5 parts/ 25 questions | 30 minutes | 25% |
| Paper 3: speaking | 2 parts | 8-10 minutes per pair of candidates | 25% |

The data treatment analyzed students’ papers from the writing section of the KET: a 30-50 word letter completed by all students (n=77). The speaking section was conducted with 12 students from each school (n=24) paired based on their English level (low, intermediate, high), which was audio recorded and transcribed. Once all of the data was
collected, it was analyzed using James’ (1998) Level of Errors framework, which is sub-divided into substance, text and discourse errors (see table 2).

Table 2. James’ level of framework errors (James, 1998).

| Level of errors          | Substance errors                                      | Texts errors                                      | Discourse errors                                    |
|--------------------------|-------------------------------------------------------|---------------------------------------------------|-----------------------------------------------------|
|                          | Errors in encoding in speaking                        | Errors in composing spoken texts                  | Errors in formulating spoken discourse               |
|                          | Mispronunciations                                     | Mis-speaking                                      | Misrepresenting                                     |
|                          | Errors in encoding in writing                         | Errors in composing written texts                 | Errors in formulating written discourse             |
|                          | Misspellings                                          | Miswriting                                        | Miscomposing                                        |
|                          | Errors in decoding in hearing                         | Errors in understanding spoken texts              | Errors in processing spoken discourse               |
|                          | Misperceptions                                        | Mishearing                                        | Misconstrual                                        |
|                          | Errors in decoding in reading                         | Errors in understanding written texts             | Errors in processing written discourse             |
|                          | Miscues                                               | Misreading                                        | Misinterpretation                                   |

A bottom-up approach was used in order to analyze these errors in writing and speaking. First, substance level errors (spelling, punctuation and pronunciation) were coded, followed by text level errors (lexis and grammar) and finally, discourse level errors (cohesion, appropriateness and redundancies). Error frequency and type were analyzed, making a comparison between CLIL and non-CLIL students as well as types of errors found in writing versus speaking.

A statistical analysis was conducted in order to compare the errors of both types of students. The website GraphPad Software was used to calculate the t-test and Chi Square to determine whether the differences in frequency of errors among CLIL and non-CLIL students were significant. The results of these findings will be explained in the following section.

4. Results and Discussion

To develop an error analysis of CLIL and non-CLIL students’ texts, aspects like error density, types and subtypes of errors or error variability will be reported in the next sections along with a discussion of the results.

4.1. Error density of written and spoken texts

As table 3 shows, the density of errors of CLIL students written compositions is lower than that of non-CLIL students written texts, a mean of 12% and 15% of errors out of the total number of words, respectively. An unpaired t-test with a probability level of 0.02 concludes that this difference is not statistically significant. Concerning the error density of oral texts, CLIL students’ texts present an average of 5% of errors out of the total number of words and that percentage increases up to 10% in the case of non-CLIL students. This difference is statistically significant for a probability level of 0.02 as can be seen in table 3. Therefore, non-CLIL students made significantly more errors in their oral texts.

Table 3. Error density of CLIL and non-CLIL students.

|                        | Number of errors | Number of words | Percentage of errors | T-Test |
|------------------------|------------------|-----------------|----------------------|--------|
| CLIL written texts     | 169              | 1388            | 12%                  | 1.09   |
4.2. Frequency and types of errors

Table 4 illustrates the most frequent types of errors made in CLIL students’ written and spoken texts: text-grammar errors, representing 43% and 71% out of the total number of errors. Something similar can be found in the case of non-CLIL students’ texts since the percentages that stand for text-grammar errors are 48% and 64%.

Table 4 also shows the results of a statistical comparison analyzing whether register influenced the type of errors using a Chi-Squared statistic with a probability level of 0.02. In the table, related to Chi-Squared, + means statistically significant. On the one hand, comparing the errors of written and spoken texts, CLIL and non-CLIL students made significantly more substance errors in their written texts than in their spoken ones. Secondly, there were significantly more text-grammar errors in the spoken texts of both types of students than in the written ones. And thirdly, CLIL students made significantly more discourse errors in their written compositions than in their spoken ones. Comparing the texts of CLIL and non-CLIL students, non-CLIL students’ oral texts had significantly more discourse errors than the spoken texts of CLIL students.

| Types of errors   | Subtypes of errors | CLIL written texts | CLIL spoken texts | Chi-Squared | Non-CLIL written texts | Non-CLIL spoken texts | Chi-Squared | Chi-Squared (CLIL and non-CLIL written) | Chi-Squared (CLIL and non-CLIL spoken) |
|-------------------|--------------------|--------------------|-------------------|-------------|------------------------|-----------------------|-------------|----------------------------------------|--------------------------------------|
| Substance errors  | Deviances in spelling | 80                 | 90                | 17.95+      | 14.59+                 | 30%                   | 11%         | 17.95+                                 | 0.40                                 |
| Text-grammar errors |                    | 43%                | 71%               | 22.29+      | 43%                    | 48%                   | 64%         | 7.39+                                  | 1.00                                 |
| Text-lexis errors |                    | 7%                 | 13%               | 2.79        | 7%                     | 5%                    | 9%          | 2.11                                  | 0.57                                 |
| Discourse errors  |                    | 23%                | 7%                | 13.07+      | 23%                    | 17%                   | 16%         | 0.35                                  | 2.29                                 |

4.3. Subtypes of errors

Related to the subtypes of errors of students’ written texts, the most frequent subtypes of substance errors made by CLIL and non-CLIL students, spelling errors are the most frequent. Secondly, omissions of 3rd person singular –s, omissions of subject or omissions of prepositions are very frequent text-grammar errors in CLIL and non-CLIL students’ compositions. For both types of students, the majority of text-lexis errors are lexical misselections. And thirdly, the majority of discourse errors are related to the genre of the letters students had to write. Table 5 shows the most frequent subtypes of errors together with some examples.

| Types of errors   | Subtypes of errors | CLIL students | Non-CLIL students | Examples |
|-------------------|--------------------|---------------|-------------------|----------|
| Substance errors  | Deviances in spelling | 80            | 90                | “Hellow”, “Good by”, “Wot ever” |
Regarding the subtypes of errors of students’ spoken texts, the most frequent subtypes of substance errors made by both types of students, pronunciation errors are the commonest ones. Problems with verb tense or omissions of prepositions are very frequent text-grammar errors of CLIL students, while omission of subjects and incomplete questions are common in non-CLIL students’ texts. Regarding text-lexis errors, lexical misselections are frequent in CLIL students’ texts and misselections of verbs in those of non-CLIL learners. And finally, for CLIL students, problems with coherence are the most frequent discourse errors but for non-CLIL students are incorrect answers to different questions. Table 6 shows the most frequent subtypes of errors with some examples.

| Types of errors | Subtypes of errors                  | CLIL students | Non-CLIL students | Examples                                      |
|-----------------|-------------------------------------|---------------|-------------------|-----------------------------------------------|
| Substance errors| Deviances in pronunciation          | 100%          | 100%              | “Friends → /friends/”                          |
| Text-grammar errors| Problems with verb tense           | 12%           | 11%               | “Last summer, i go on a cruise”               |
|                  | Omission of prepositions           | 11%           | 8%                | “(From) 9 to 11 past (on) Saturdays”          |
|                  | Omission of auxiliary do           | 10%           | 10%               | “How much (does) it costs?”                   |
|                  | Misselection of preposition        | 10%           | 7%                | “I went in Granada”                           |
|                  | Omission of subject                | 5%            | 14%               | “How much does (it) cost?”                    |
|                  | Incomplete questions               | ---           | 12%               | “How much (does it) cost?”                    |
| Text-lexis errors| Lexical misselection               | 100%          | 21%               | “It’s a little more evolutionated”             |
|                  | Misselection of verb               | ---           | 37%               | “I was some friends”                          |
| Discourse errors | Problems with coherence            | 56%           | 28%               | “Where are the conversation do you have in classes?” |
|                  | Incorrect answers                  | 44%           | 60%               | “Do I have to take anything?” “The lesson starting at 10” |

4.4. Variability of errors

Given that the only objective information about the participants is the exam they took to determine their English level, it is difficult to establish whether the errors are errors or only mistakes. One possible solution is to consider the variability of errors, in other words to see whether we can find the correct version of each subtype of errors in the text in which they were made. The variability of discourse errors have not been taken into account because it is difficult to establish whether they have variability.
It seems that substance, text-grammar and text-lexis errors of the spoken texts of both types of students present a slightly higher variability in the texts in which they appeared than those of written compositions, 24% and 16% in the case of CLIL students and 34% and 18% in the case of non-CLIL learners. Moreover, text-grammar errors are the ones that present more variability in all the categories.

4.5. Discussion of results

Even if the results of the KET show that CLIL students have higher proficiency level than non-CLIL learners, when it comes to develop an error analysis, similar results are obtained. Perhaps primary bilingual school environments do not have an effect on errors made by students, namely written errors. Primary CLIL programmes place an emphasis on oral communication, which may explain why CLIL students have difficulty with grammar. In fact, text-grammar errors are the most frequent for CLIL and non-CLIL students, which implies that more focus on form approach would be necessary in bilingual contexts because certain aspects of language are not acquired incidentally.

In non-bilingual programmes a new approach to grammar must be introduced because although grammar is the focus of attention in class, students made many grammar errors. The development of projects where aspects of English grammar could be incorporated or oral presentations in which students explain certain grammar topics would be different ways of practicing grammar. Even though text-grammar errors present more variability in the texts in which they were made, these figures are not significant. Perhaps students are in the process of acquiring the accurate version of the errors. Regarding the error density of non-CLIL students’ oral texts, that figure is very high. Additionally, they employed hardly half of the words of CLIL students in their oral texts. A possible explanation could be that they do not participate a lot in class and speaking is the language skill least practiced in traditional EFL classes.

5. Conclusion

The results of this study show many similarities in the error analysis of written and oral texts of CLIL and non-CLIL students. Some interesting results are that the error density of the texts written by both types of students is very similar, in line with the number of words used in the compositions. Additionally, the most frequent types of errors of all the texts are text-grammar. However, the results of the analysis also revealed interesting differences: it seems that non-CLIL students not only make significantly more errors than CLIL ones when they speak in English, but also use fewer words in their oral texts.

To sum up, this study has attempted to fill in gaps in CLIL research, especially in the field of error analysis, focusing on primary education, on students’ production and on form. In spite of this, we are aware of the limitations of this project. More data would help researchers to distinguish between errors and possible mistakes, the number of errors out of the potential context for errors could be analysed. These limitations could be considered directions for future studies, as elaborating research in the field of education is fundamental in trying to improve students’ command of a foreign language in both CLIL and non-CLIL settings.

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