VIEW[z]

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LETTER FROM THE EDITORS

Dear Readers,

After two years without Special Issues on CLIL, we are very happy to present the third such collection of short working papers on Content and Language Integrated Learning in VIEWS.

CLIL has established itself as umbrella term for educational practices where non-language subjects, such as geography or history, are taught through the medium of an additional language (e.g. Perez-Vidal 2009). As expounded on in more detail in Dalton-Puffer, Nikula and Smit (forthc.), CLIL in Europe can further be characterized by its use in mainstream education at all levels, although it is usually implemented once learners have acquired literacy skills in their L1 or national language of education. Besides such commonalities, CLIL is most likely best described by the impressive variety of practices it subsumes, which hinges mainly on the amount and intensity of using the additional language in class. The possibilities range from CLIL programmes that employ the additional language for selected content aspects and teaching phases, such as summarizing certain topics, to long-term and high-intensity ones, aiming for an exclusive use of the target language for the majority of the content subjects. Theoretically, the target language could be any additional language that the learners are sufficiently proficient in, but the reality has been that, apart from the English L1 countries, English has functioned as the default target language in CLIL, as is also reflected in the contributions in this volume.

A second commonality in the European CLIL programmes so far seems to be their explicit focus on the content subject, in terms of time-tabling, educational focus and teachers involved. In an attempt to counterbalance this de facto preponderance placed on the non-language content, the recent literature on CLIL stresses its 'dual-focus' in that the "additional language [should be] used for the learning and teaching of both content *and* language" (Coyle, Hood & Marsh 2010: 1; emphasis original).

The understanding of CLIL as 'fusing' content and language learning is also apparent in the contributions to this Special Issue, which emanated from the Spanish ReN Symposium in September 2009 in two ways: either directly, in the sense that they featured as talks, or indirectly, in that the researchers would have liked to take part in the symposium, but could not because of their teaching commitments. With the exception of Dafouz, Llinares & Morton,

reporting on an EU-funded 3-year project on CLIL teacher education, the contributions present individual research projects and thus offer a kaleidoscopic view on CLIL in terms of diverse settings, educational levels, and research agendas. Sketched roughly, this issue holds insights in and considerations on:

- modelling teacher education frameworks (Dafouz, Llinare & Morton; Moore)
- the teacher's voice in CLIL (Gefäll & Unterberger; Wilhelmer), especially as regards assessment (Hönig)
- CLIL textbook evaluation (Floimayr)
- aspects of classroom discourse, esp. vocabulary presentation (Kovacs), questions used by teachers and students (Pascual Peña; Pastrana Izquierdo)
- target language improvements (Juan)
- L1 influence on teacher and student proficiencies in the additional language (Braga Riera & Domínguez Romero; Varchmin; Vázquez Díaz).

We hope that you will enjoy this collection of short papers introducing recent research on Content and Language Integrated Learning in Europe. If you feel like commenting on any of the issues raised in these contributions, we'd appreciate your comments, either simply by email, or – even more welcome – as future contributions to *VIEWS*.

THE EDITORS
Ute Smit, Christiane Dalton-Puffer & Barbara Schiftner

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Structural calques: source language interference in CLIL lectures in Spain

*Jorge Braga Riera & Elena Domínguez Romero**

1. Introduction

As a result of the latest developments and trends in Spanish tertiary education, some universities in Spain have gradually started to incorporate English as a means of instruction, mainly in technical postgraduate courses. Hence, some professors and lecturers have been compelled to use English both as a means of instruction and as a "translated" part of their course syllabi, which means that they need to teach content in English that they usually teach in Spanish. One of the most striking consequences of this is precisely the frequent interference of the L1 in the lectures, which is revealed mainly through the presence of lexical, morphological and syntactic calques.

The present study stems from one basic assumption: that CLIL lecturers, in their teaching activity, choose L2 words and structures which show a striking resemblance with words and structures existing in their L1. This source language interference comes as the result of two different and complementary circumstances:[1]

a) Insufficient knowledge of the foreign language on the part of the lecturers (who are also, or have been, learners of that language), with their L1 acting as a direct cause of erroneous performance. As pointed out by Kellerman (1995: 129), L2 speakers use "compensatory

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* The authors' e-mail for correspondence: jbragariera@filol.ucm.es; elenadominguez@filol.ucm.es.

[1] Although, according to Odlin, transfer is not simply interference (due to the negative connotations of the latter; hence the term "negative transfer"), the word "interference" is still widely used (1993: 26). Equally, "crosslinguistic influence" and "transfer" are the two terms usually employed in the literature to refer to this linguistic phenomenon (Odlin 1993: 1). For Odlin, transfer is "the influence resulting from similarities and differences between the target language and any other language that has been previously (and perhaps imperfectly) acquired" (ibid: 27).

strategies" which frequently show the effect of the L1,[2] that is, speakers resort to their L1 to solve linguistic problems and so "compensate" for their lack of knowledge. Of course opportunities will be higher if the languages concerned are typologically similar, though not necessarily.[3]

b) "Self-translation" of L1 materials (sometimes with the visual support of *Powerpoint* slides and handouts),[4] which may well be a consequence of what Chesterman refers to as "principle of perceived similarity": "When looking for solutions, translators tend first to consider those resources in the TL that are perceived as being similar to the SL" (Chesterman 1988: 69).[5]

2. Data & Method

Any descriptive analysis must be based upon a closed corpus that allows for coherent conclusions. The data of our analysis comes from two different corpora:

- Corpus A: four Engineering lectures (approximately 25,997 words) given during a course on the topic of Formula 1 cars held at Universidad Politécnica de Madrid. Each lecture lasted approximately one hour and was attended by 26 students of nationalities other than Spanish who used English as their *lingua franca*. Of the four lecturers who volunteered to participate in the course, two had no previous experience in lecturing in a foreign language and all of them lacked translation training of any sort. As self reported by the lecturers, their levels of English ranged from intermediate to high intermediate.[6]

- Corpus B: four lectures (approximately 26,018 words) given during an *Erasmus Mundus* master in Nuclear Fusion Science and Engineering

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[2] Compensatory strategies have been the object of considerable study by several authors over the years. See Kellerman (1995) for information in this respect.

[3] Kellerman puts forward the principle of "transfer to nowhere", which states that "there can be transfer which is not licensed by similarity to the L2, and where the way the L2 works may largely go unheeded" (1995: 137).

[4] The adaptation of classroom materials is precisely one of the three main changes considered essential to methodological adjustments in a CLIL context, as pointed out by Dafouz & Núñez (2009: 103).

[5] Of the six phases a lecture is composed of (see Young 1995), there are three in which a translation process L1-L2 is particularly visible. These phases, which are Structuring, Content and Exemplification, can thus be labelled "Self-translation phases", as opposed to the other three, or "Non-translation phases" (Evaluation, Interaction and Conclusion) (see Braga Riera 2009, forthcoming).

[6] For further information on this particular corpus see Dafouz et al. (2007: 651-652).

Physics, held jointly at Universidad Complutense de Madrid, Universidad Politécnica de Madrid and Universidad Carlos III de Madrid.[7] As in the case of Corpus A, each lecture lasted approximately one hour and was attended by foreign students who used English as their *lingua franca*. The three lecturers who volunteered to participate had previous experience in lecturing in a foreign language but, as was the case in Corpus A, lacked translation training of any sort. As self reported by the lecturers, their proficient level of English allowed them to pursue PhD studies abroad.

In order to carry out a systematic categorization of the structural calques present in our corpus, the three-part grouping proposed by López & Minett (1999) and by Rodríguez González (1999) has been adopted.[8] It must be noted, though, that this division was originally intended to categorize transfer from English to Spanish, and not *vice versa*.

Syntactic calques usually respect the semantic content but introduce a new structure into the language. Lopez & Minett (1999) include paragraphing, sentence linking and word order under this heading. Given the oral nature of our corpus, paragraphing has been excluded from the analysis, with the focus being on sentence linking (<SCsl>) and word order (<SCwo>).[9] Word order refers to the adequate position of different elements in the sentence, including the transformations brought about by the construction of passives, inversions or interrogative sentences, etc., as well as subject-drop in main clauses. Sentence linking refers to how one or more clauses are joined together, including the employment of linking words and the dropping of subjects in subordinate clauses.

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[7] http://www.ucm.es/centros/cont/descargas/documento13414.pdf; http://www.emmasterfusion.org/index.asp

[8] According to the *Dictionary of Translation Studies* (Shuttleworth & Cowie 2007: 17-18), a calque is "a term used to denote the process whereby the individual elements of an SL item [...] are translated literally to produce a TL equivalent". Other linguists, however, offer different definitions. Peter Newmark's view of calques as "the literal translation of common collocations, names of organizations, the components of compounds […] and perhaps phrases" (1988: 84), for instance, must be extended so that it can allow for syntactic structures more complex than a phrase. Other definitions are wider in scope, as the one provided by Vinay & Darbelnet: "A special kind of borrowing whereby a language borrows an expression form of another, but then translates literally each of the elements" (1995: 32). With regard to translation, Odlin defines calques as "errors that reflect very closely a native language structure" (1993: 37).

[9] This division is not dramatically different from others used to study syntactic transfer. Odlin, for example, focuses on word order, relative clauses and negation, to which he devotes an entire chapter (1993: 85-111).

3. Data analysis

A close look at the presence of structural calques in our corpora shows higher numbers in Corpus A than in Corpus B — subsequently referred to as (A) and (B) — in absolute terms. It is important to point out that only calques which sound unusual or erroneous in the L2 have been taken into account. Errors of a different nature (due to overcorrection, for instance) are not part of this study.

Regarding word order, the wrong placement of adverbial phrases seems to be the most recurrent type of syntactic calque in both corpora, followed by the dropping of the subject in main clauses:

(1)   This is called **in fluid mechanics** turbulent flow (A)
(2)   We have **many times** a lot of dislocations (B)
(3)   ... **Ø is** one piece, only one piece (A)
(4)   **Ø Is** not so easy to identify (B)

The type of syntactic calques which takes third place in frequency has to do with the formation of questions. This comes as a surprise if we take into account that lectures are predominately teacher-centred without much scope for interaction. Consequently, these questions are mainly rhetorical or uttered with the aim of catching the students' attention. Two types come into play under this category:

- Questions uttered without the use of the auxiliary "do":

(5)   Why **Ø** the sheet of paper moves up? (A)
(6)   How **Ø** we reach the equilibrium? (B)

- Questions in which subject-verb inversion is not applied:

(7)   How **you can** get microgravity? (A)
(8)   What **we are** going to use? (B)

Fourth place in frequency is occupied by some reported questions, such as:

(9)   I don't know **what was** the velocity (A)
(10)   Use this information to guess **what is** this point (B)

While subject duplication, i.e. the use of both a noun and a pronoun as subjects of a clause, also occurs in English L1 spoken grammar, it is worth mentioning its frequent appearance in the two corpora:

(11)   **It** has not plasticity **the material** (A)
(12)   You can see **it** in the books **how to introduce this** (B)

Finally, less frequent cases are also found in relation with:

- The placement of adjectives in noun phrases, which, interestingly, does not occur in (B):

(13)   ... a lot of materials **very very complex** (A)

- Other structures that follow the Spanish syntactic patterns:

(14)   I would like **that you** think... (A)
(15)   The weight of the paper **makes that** the paper **fell**... (A)
(16)   If I solve **for you** the following example… (B)

As regards the linking of the elements in the sentence, the absence of the compulsory subject in subordinate clauses is the most frequent case:

(17)   It has no importance how **Ø is** alloyed... (A)
(18)   Because I think **Ø is** they are asking... (B)

Less recurrent is the erroneous use of "that", "as" and "than" in comparatives:

(19)   … better to use… **that**… (A)
(20)   Just saying the same **than** in electrostatics (B)

Also worth mentioning is the absence of "to" between two verbs:

(21)   You need **Ø** complete… (A)
(22)   I think you want **Ø** put (B)

And an erroneous presence of "so that" *(así que)* as a linker:

(23)   **So that** you have studied Physics (A) [10]
(24)   **So that** we get now the continuity (B)

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[10]This is a striking example, as the phrase "so that" with the meaning of *así que* ("so") is repeated 25 times in a single lecture.

Closely related to this is the wrong employment of "because" as "since" when referring to reason, which only occurs in (B):

(25)   **Because** we have magnetization, magnetic polarization in the material, we are going to have a... (B)

4. Conclusions

Content and Language Integrated Learning has been gaining importance in Spanish universities, and as a consequence studies increasingly focus on this particular kind of instruction. However, little has been said about the interference of the source language and the role of translation as a tool in CLIL lecturing. This article has attempted to shed some light on a striking aspect of this sort of linguistic transfer, more specifically the presence of structural calques in the lecturers' production. For this purpose two four-lecture corpora have been selected.

A close analysis reveals that the interference of L1 with L2 brings about syntactic and semantic calques. Regarding the most recurrent types of syntactic calques, which are the focus of this study, word order surpasses sentence linking as responsible for most of the cases. Focusing on word order, the position of the adverbial phrases within the sentence and the dropping of the compulsory subject, in the Spanish fashion, are responsible for the majority of calques, closely followed by the formation of questions. The erroneous construction of reported questions and of sentences with duplicated subjects is also among the types of calques which are present in the corpora. As far as sentence linking is concerned, the subject-drop in subordinate clause initial position is the most recurrent case of structural calque. Less frequent are those related to the formation of relative clauses or to an erroneous use of sentence linkers ("so that"). Except for frequency (higher in A), no difference in the type of calques has been found to distinguish the two corpora.

According to Dafouz and Núñez (2009: 109), one of the three major needs of teachers in these contexts is to prevent pragmatic inadequacies and simplified grammars.[11] In this paper we ventured to provide a starting point from which to test the presence of calques in content lectures with the ultimate aim to provide insights into potential problems of L1 interference

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[11]The other two being "expand the range of stylistic choices available in the foreign language" and "maximize content teachers' access to the generic tools for more 'explicit' signaling of metadiscursive devices" (Dafouz and Núñez 2009: 109).

and translation. Despite the fact that the size of the corpus is too small to draw definite conclusions in this respect, future studies on larger corpora and of various disciplines, which include the analysis of morphological and lexical source language interference, may well support the need to assist CLIL lecturers with tools and resources which might facilitate their foreign language production with less L1 interference.

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CLIL across Contexts: A Scaffolding Framework for CLIL Teacher Education

Emma Dafouz Milne, Ana Llinares, and Tom Morton*

1. Introduction

After approximately a decade of CLIL approaches across schools in Europe, the time is ripe to offer a framework that moves from local levels of implementation to transnational levels and that offers practical guidelines for teacher education in CLIL. It is with this spirit that the European-funded project entitled *CLIL across contexts: A scaffolding framework for teacher education* (ref. 128751-CP-1-20061-LU-COMENIUS-C 2.1) was launched in 2006[1]. This contribution aims to explain the rationale behind this project, describe the operating framework, the theoretical foundations and offer a practical example of one of the areas covered.

From its inception, the overall aim of the project was to develop new approaches to CLIL teacher training, promoting a better integration of both content and language learning, focusing on the secondary level. Specifically, the project pursued the following aims:

1. to identify effective practice in secondary CLIL through classroom observations;
2. to describe skills and raise awareness of scaffolding learning of content and language;

3. to develop a framework for CLIL teacher development across contexts.

As regards project outcomes, in addition to the aforementioned CLIL framework, specific guidelines for CLIL teacher trainers plus materials for teacher trainees as well as a portfolio were developed.[2]

One of the strong points of the project has been the diversity of contexts and professionals involved. Fifteen different educators (teachers, teacher trainers and academics) from six different European countries (Czech Republic, Italy, Luxembourg, The Netherlands, Spain and the United Kingdom) took part. Regarding languages, eight different national languages (Catalan, Czech, Dutch, English, French, German, Italian, Luxembourgish and Spanish) and their respective learning and teaching contexts were described. The linguistic diversity of contexts adds a multilingual perspective, which is linked to a variety of learning cultures and social expectations. Finally, variety is also reflected in the teacher profiles (content teacher, language teacher or both) and in the educational levels observed (from lower secondary to upper secondary and vocational).

From a theoretical point of view, socio-cultural theories of learning underpin the project (Vygotsky 1978; Lantolf and Thorne 2006). In contrast to cognitive perspectives, which focus on individual thinking processes, in socio-cultural theories learning is located and co-regulated in the social realm. Within this perspective, the scaffolding metaphor refers to the type of assisted teaching/learning that emphasizes interaction with peers and teachers in moving learners from their existing level of performance to a level of independent performance (Gibbons 2002; Walqui 2006). In this view, learning takes place when individuals interact in the social and material world, participating in the knowledge practices of a community and being supported by other members of that community (Lave and Wenger 1991).

Regarding the methodology applied, a crucial feature of this project has been the bottom-up approach and the cooperation on both local/national and transnational levels. Through classroom observation across the different contexts, a flexible framework of eight areas of knowledge for CLIL teachers has been developed. Figure 1 below summarises these eight key areas:

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[2] These outcomes will be available on the Project website (see www.clil.uni.lu).
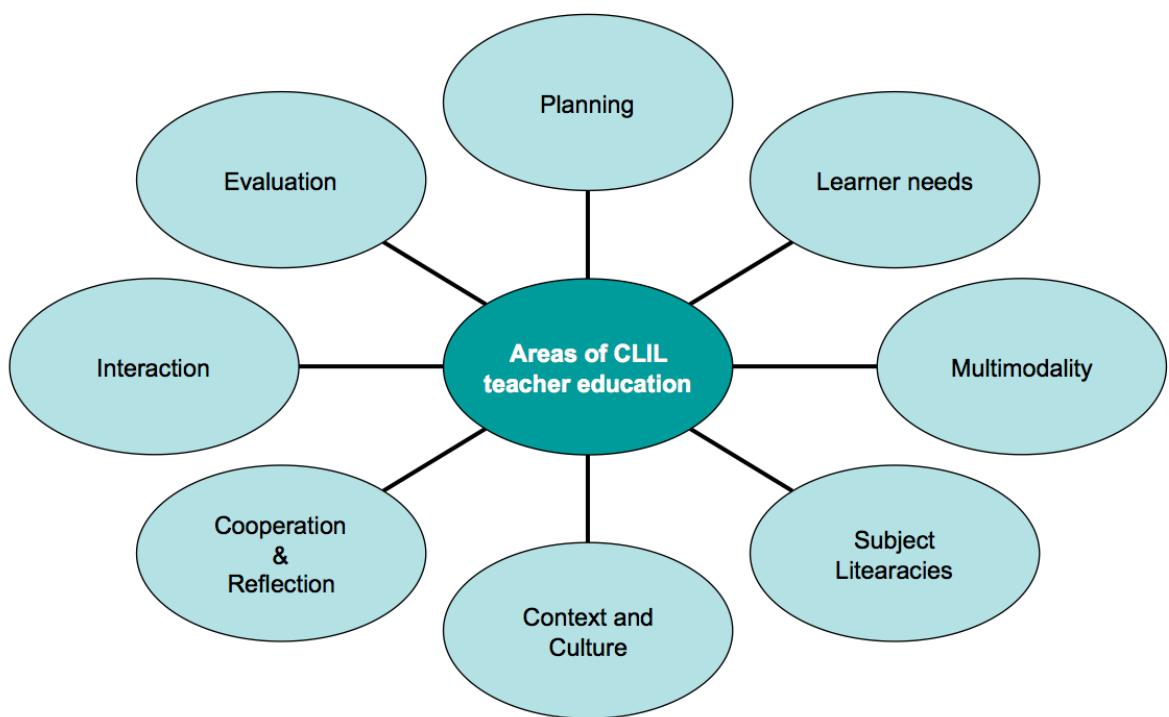
Figure 1: Areas of knowledge for CLIL secondary teachers

After careful analysis of the data collected across contexts and intensive consultation among the partners, these eight areas emerged as essential for CLIL teacher education at the secondary levels.

2. A conceptual framework for CLIL teacher development

A framework for each of the aforementioned areas was designed and developed (see Figure 2). This framework consists of a conceptual overview to be used as reference by CLIL teacher trainers in designing their training courses, as well as by CLIL student teachers. The framework comprises a description of theoretical and practical understandings and indicates how these can be developed.
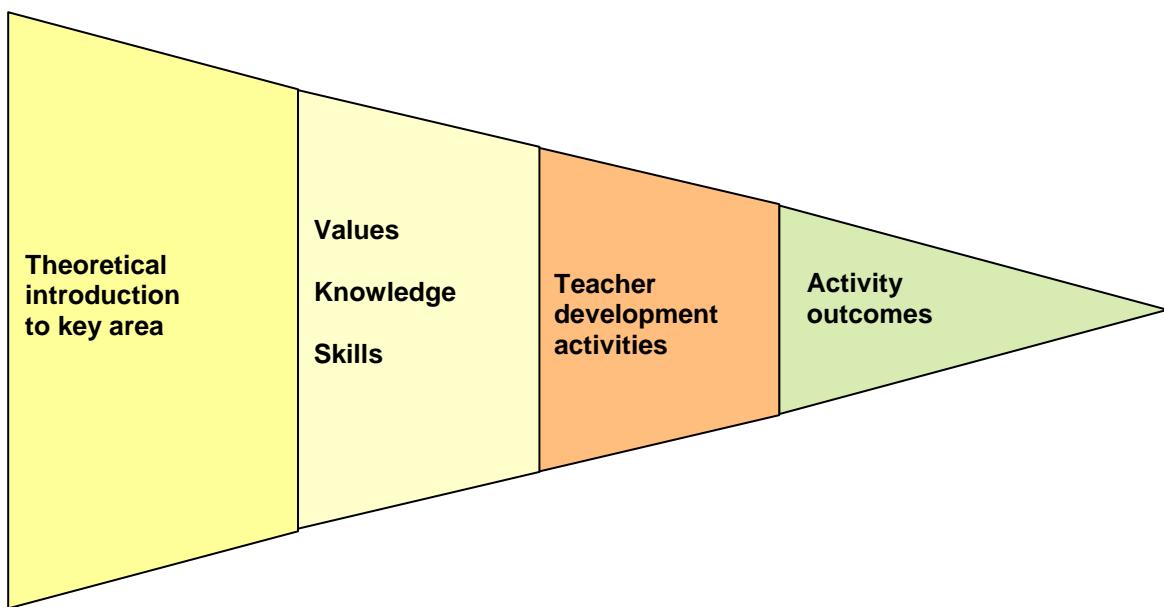
Figure 2: CLIL teacher development framework

The theoretical introduction summarises the key theoretical background underlying the development of knowledge, skills and values for each of the eight areas. It contains a list of the most relevant bibliographical references on the area. For example, for the area of *Interaction* we based our framework on three main theoretical underpinnings:

- CLIL teachers should create opportunities for learners to participate in interactions in different ways, as with learners initiating interactions themselves (Genesee 1994). Authentic integration of content and language would mean that learners have a more active role in their learning of content but also use the L2 for different functional purposes.
- CLIL classrooms, with their focus on content-related meanings, may offer an appropriate environment for the negotiation of meaning (Long 1996).
- CLIL teachers need to be aware of the options for focusing on language forms. Following Lyster's (2007) 'counterbalanced approach', an exclusive focus on content-related meaning may be detrimental to students' language learning in CLIL contexts.

The framework provides a description of the necessary *values*, *knowledge* and *skills* for each area. *Value* refers to what CLIL teachers need to appreciate,

knowledge refers to what CLIL teachers need to know and *skills* focuses on what CLIL teachers need to be able to do. For example, in the area of *Interaction,* the following are samples of the values, knowledge and skills highlighted in the framework:

- Values: CLIL teachers need to appreciate the role of language in developing understanding and that learning a language goes hand in hand with using the language for different purposes.
- Knowledge: CLIL teachers need to know how negotiation of meaning can support language and content learning and how contingent scaffolding supports CLIL.
- Skills: CLIL teachers need to be able to create opportunities for interaction involving negotiation of meaning and to identify key features of contingent scaffolding which support CLIL.

The framework also suggests *Development activities* to be used by CLIL teacher trainers and teachers in order to develop the values, knowledge and skills for each area. Furthermore, it also includes possible *Activity outcomes*, which provide ways in which CLIL teachers can include evidence of their competence in their portfolio. Taking the same area (*Interaction*) as an example, these are some of the suggested CLIL teacher development activities:

- Observing classroom interaction; identifying interactions involving negotiation of meaning.
- Analysis and evaluation of transcripts of teacher-learner interactions in CLIL classrooms.

Examples of *Activity outcomes* for the area of *Interaction* include:

- Annotated transcripts to illustrate significant features.
- Examples and evaluations of types of strategies and techniques.

3. An example activity: *Interaction*

We now go on to describe the rationale behind the types of teacher education activity we envisage, and present an example set of activities for the area under discussion, namely *Interaction*. Using the same area as an example should help to illustrate the cohesion of the framework, as it moves from the theoretical justification for the area, through the definition of relevant values,

knowledge and skills, to the identification of activities and possible products for the portfolio.

The notion of scaffolding lies at the heart of the portfolio model of CLIL teacher education which the framework and the associated activities embody. As far as possible, the teacher education activities are designed to be used in contexts in which the participating teachers have access to CLIL practice. In pre-service contexts, or even some in-service contexts, this may include micro-teaching as an alternative to, or supplement to, actual teaching experiences. Through participating in the activities, and extending them to their own classroom practices, teachers will create 'products' which provide evidence of their learning, to be included in a portfolio, similar to the dossier in the Common European Framework of Reference (CEFR). The activities done by the teachers in the training sessions, and the tools used to explore their own teaching, act as a scaffolding structure for this learning process. The products themselves are traces of this learning process. Examples of these products can be teachers' written reflections on their own developmental processes, materials or activities they have designed, or examples of students' work.

The example activities presented in the framework document are not meant to be prescriptive or to be used as templates to be applied in all CLIL contexts. They illustrate various approaches to teacher education in CLIL, thus representing the variety of contexts represented in the project. The example activities show the flexibility of the framework in that, while we may agree on a wide 'menu' of values, knowledge and skills that are important for CLIL teachers across contexts, there are many ways in which teacher learning can be scaffolded. However, within this variety, we have used key principles of a scaffolding approach in all the activities, as this represents the philosophy of learning underpinning the project. So, for example, each unit begins with an activity which focuses on an aspect of practice which should be familiar to the teachers, and avoids using unfamiliar terminology. In the first activity in the unit on interaction, we can see this principle in operation:

After watching the video, read the transcript and answer the questions:

What are they talking about?
What is the teacher trying to do?
Who talks most/least?
Whose ideas get talked about?
Do you notice any repeated patterns in the interaction?
What specific actions are done? (e.g. asking/answering questions)

As the unit progresses, teachers are introduced to a metalanguage for describing the interaction in their CLIL classrooms (Figure 3). The model is adapted from a framework for describing classroom discourse in secondary science education (Mortimer and Scott 2003). This is deliberate, as this model is based on the Vygotskian principle that learning is mediated through talk on the social plane of the classroom. It is also chosen because it takes into account the *content,* unlike some models from applied linguistics. It also highlights the importance of dialogic teaching and its relevance in CLIL (Alexander 2008).

CONTENT
What is being talked about (genetic variation; factors of development in different countries; Romanesque churches)

PURPOSE
What is being done with the content (engage students' interest in a new topic; go over homework; apply knowledge in new context etc.)

NEGOTIATION OF MEANING
How the content is being talked about (+/- interactive; only one version of the 'truth' accepted or many ideas encouraged)

INTERACTION PATTERNS
Recurring patterns of talk (e.g. IRF - teacher initiates, student responds, teacher follows up)

SPECIFIC ACTIONS
(ask different types of questions; get students to elaborate; recast or correct; evaluate students' contributions; 'amplify' for whole class etc.)

Figure 3: Framework for analysing discourse in CLIL classrooms (adapted from Mortimer and Scott 2003)

Using a scaffolding approach, in which teachers do short activities which promote analysis and reflection, teachers are introduced gradually to the different parts of this model. By the end of the unit, they will be able to use the model to analyse interaction in their own CLIL classrooms. For this, they are set a small-scale classroom investigation task:

Audio record, or get someone to video record, one of your lessons. Before you teach the lesson, use the model to think about what communication systems may be in operation at different times. Listen to the recording. Choose a short extract (not more than five minutes). Use the model to write a brief analysis of the interaction in the class. You don't have to transcribe the extract, but it would be very good to illustrate your report with some examples. Include the analysis in your portfolio, and add a brief reflective note on what you learned from the experience. What effect might it have on your CLIL practices/your students' learning opportunities?

The products for the portfolio of this task, the traces of learning, would then be the teacher's reflective report and analysis of what went on in his or her classroom. Did he or she discover any specific interaction patterns which might be promoting or hindering learning, in terms of both content and language? This could form the basis of a longer term project in which CLIL teachers videotape lessons at regular intervals and, preferably in teams, discuss ways in which their classroom talk can promote content and language learning (Alexander, 2008).

The activity described here is one example of how the 'scaffolding' metaphor operates in the framework, from the 'macro' level of the whole approach to teacher education to the 'micro' level of a sequence of activities which are intended to scaffold teachers' structured reflection on their CLIL classroom practices. In suggesting what secondary CLIL teachers may need to know and do 'across contexts' in eight key areas, the framework as a whole sets out not to prescribe fixed knowledge that must be learned and applied, but to work as a flexible tool with which CLIL teacher educators and teachers can jointly design routes towards professional development in CLIL teaching.

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CLIL in Biology– an evaluation of existing teaching materials for Austrian schools

Theresa Floimayr*

1. Introduction

Content and Language Integrated Learning (CLIL) is currently one of the most innovative phenomena in education. This very recent approach integrates foreign language learning with content subject learning (cf. Dalton-Puffer 2007:1). Due to the lack of research in various areas, the methodological principles of CLIL teaching are not yet completely established. Therefore, the development of CLIL teaching materials influenced by the methodology of the approach is also still in its infancy. Unfortunately, teachers have to prepare most of the materials they need on their own, which makes CLIL a rather time-consuming approach to teaching (cf. Gierlinger 2007: 80-81). In some countries, such as Austria, however, there are dedicated CLIL teachers and applied linguists who have already developed CLIL-specific textbooks for certain content subjects like Biology.

This paper reports on a study I carried out with the aim to provide a theoretical analysis and evaluation of the CLIL teaching materials *Cross-Curriculum Creativity – Biology (Books 1-4)* developed by Fierling and Machotka (2008).[1] These textbooks are intended to be used to teach Biology in English. They follow the Austrian curriculum for Biology for the first form of secondary education (i.e. for children aged ten to twelve; cf. BMUKK 2000 for the curriculum).

In this article, I would like to discuss two main points taken from my materials evaluation which are generally important considerations in the development of CLIL teaching materials:

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* The author's e-mail for correspondence: theresa.floimayr@gmail.com.

[1] This analysis is based on my MA thesis (Floimayr 2009), which was written at the Department of English at the University of Vienna under the supervision of Ute Smit.

- Do the evaluated materials encourage students' oral production and communication skills?
- Do the materials provide students with sufficient language support in order to understand the content of the textbook?

Since hardly any work has so far been done with regard to the evaluation of CLIL teaching materials, I developed a catalogue of analytical and evaluative criteria with regard to subject content methodology and CLIL. As regards the latter, Mathews (2005) and the criteria developed by Massler, Steiert & Storz (2007) were particularly helpful. Figure 1 provides an example of the criteria used (Floimayr 2009: 190).

> **2) Focus on early foreign language acquisition methodology**
>
> 2.1 Do the materials give language support (e.g. technical terms, useful phrases, glossary) which makes approaching a task easier for the pupils?
>
> 2.1.1 If they give language support: What type of support is given (e.g. technical vocabulary, phrases, German translations, etc.)?
>
> 2.1.2 Is the language support appropriate for the proficiency level of A1?
>
> 2.2 Are new language items, such as technical terms and phrases introduced in various ways in the unit (e.g. on their own, related to previous knowledge/personal experiences of the pupils)?

Figure 1: Example of evaluation criteria

2. Evaluation results – discussion

2.1. Do the evaluated materials encourage students' oral production and communication skills?

The evaluation was carried out on one representative unit from each of the four *Cross-Curriculum Creativity – Biology* textbooks (Fierling and Machotka 2008) and found that in those tasks in which the pupils were asked to produce language, they were only asked to do so in written form, but not orally (cf. Figure 2 and 3).

Now complete the sentences (use the word bank to help you).

1. We use our _____ to see with.
2. We use our _____ to smell with.
3. We use our _____ to feel with.
4. We use our _____ to hear with.
5. We use our _____ to taste with.

Word Bank

tongue   skin   ears
eyes   nose

Figure 2: Extract from Cross Curriculum Creativity – Biology – Book 1: The Human Body (Fierling & Machotka 2008: 42).

Label the Cat
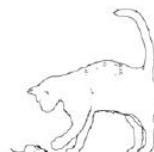
Cats like to catch mice, rats, frogs and birds. They like to hunt alone. They bend down, creep up very slowly and quietly on their prey, and then jump!
Cats have very sharp claws and teeth. They can pull back (retract) their claws.
Sometimes they bite the necks of their prey.
Cats have very good eyes. They can see well in the dark, at night. Their pupils form slits in the sunshine. They have very good ears. They hear well. They can turn their ears towards a noise. They can feel well with their whiskers.
Cats can sleep for 16 hours in one day.
Baby cats are called kittens and drink milk from their mothers.
People sometimes say that a cat has nine lives! Is this true?

3

● What is the name for a baby cat? _____
● What do cats eat? _____
● What do cats drink? _____
● What can cats do with their claws? _____

Figure 3: Extract from Cross Curriculum Creativity – Biology – Book 2: Mammals (Fierling & Machotka 2008: 21)

Given that CLIL places foreign language learning into a naturalistic environment and that language learning combines receptive and productive skills, it should be self-evident that bilingually-taught classes should focus on all language skills. More specifically, active student involvement in terms of writing and especially speaking would reinforce their learning progress in both the L2 and the subject matter.

Unfortunately, the textbooks under examination appear to follow a rather narrow teaching approach, despite being CLIL Biology materials. In the units

closely evaluated, oral production is not encouraged and students are only asked to perform productive tasks in written form (cf. Floimayr 2009: 96-97; 107). In none of the tasks in these units are students requested to further discuss the topics or to give oral summaries of information texts.

One reason for this lack of communicative tasks might be that the intended learner group will not yet have a lot of experience and knowledge of English. Due to this low level of language proficiency, the learners' knowledge of English vocabulary or grammar is probably limited. However, this should not be a reason for side-lining communicative activities in the teaching materials.

In general, the point I would like to highlight here is that teachers and materials developers should not be afraid of devising communicative tasks for language beginners. The potential of young students to perform difficult language and content-related tasks should not be underestimated (cf. Cameron 2005: xiii). Challenging tasks both in biological contents and the L2 (English) can increase the learning success of younger learners.

The way the materials are designed at the moment makes it difficult to create an environment where oral interaction could take place by which pupils could learn to respond to new input, and gather knowledge from each other. Such socio-cultural learning, however, might influence the learners' attitudes towards the content subject. Furthermore, it is expected to trigger reorganisation processes of already existing knowledge within pupils' brains. When this aspect of learning is completely missing, pupils may not have the possibility to profit from the experiences and knowledge that their schoolmates have of a certain subject matter. Therefore, the principle of socio-cultural learning should be incorporated more centrally into the CLIL Biology textbooks under investigation.

It should be pointed out that there is still communicative potential in some of the tasks presented in the four units evaluated. Teachers can convert these into interactive activities, which, however, will require a considerable amount of extra work on behalf of CLIL teachers. While teachers will always need to change or reorganise their teaching materials to some degree, CLIL materials should still provide some communicative tasks, especially so as not every teacher of Biology is also a language teacher.

2.2. Do the materials provide students with sufficient language support in order to understand the content of the textbook?

Language support is given in the teaching materials. Sometimes, the pupils find technical and semi-technical terms they need for a specific task in a so-called "Word-Bank" (cf. Figure 4); or the specific terms needed to complete a task are marked in the text which belongs to the task.

TEMPERATURE
Plants grow better in warm places. In _ _ _ _ countries like
Iceland, plants grow very _ _ _ _ _ _ .

Use the word bank below to find out the name
we use to describe how plants make food.

_ _ _ _ _ _ _ _ _ _ _ _ _ _
1 2 3 4 5 6 7 8 9 10 11 12 13 14

Word Bank
cold soil not plants light the air slowly sugary

Figure 4: Extract from *Cross Curriculum Creativity – Biology – Book 3: Plants* (Fierling & Machotka 2008: 14)

In general, CLIL materials ought to provide appropriate language support for the target learner group. The type of language support included in such materials depends on the content subject and the language proficiency of the intended learner group (cf. Lamsfuß-Schenk & Wolff 1999: 2). The materials evaluated offer various types of language help for learners, such as bilingual word-lists in each textbook and clear task instructions in the units in order to facilitate the completion of activities (cf. Floimayr 2009: 86-92). In addition, the style of the texts evaluated and their grammatical structures are on the whole appropriate for the intended learner group.

The word-lists include basic verbs and nouns in English and their German translation. However, even if at first glance the word-lists seem to be appropriate there are some problems with them. Usually, essential and difficult technical and semi-technical vocabulary needs to be included in the word lists of textbooks, especially when they are intended for inexperienced learners of both English and Biology. Unfortunately, this language support is

missing in the four CLIL Biology textbooks (cf. Floimayr 2009: 86-87, 89-90). This is especially problematic since this textbook series caters for the very first year of Biology as a school subject in its own right. Additionally, it is not certain that all learners in the first form of secondary level are familiar with the English language (cf. BMUKK 2008). At present, teachers have to supply additional word lists and language help for their students in order to help them in their work with the materials.

Another problem is that the L1 (German) is not employed throughout the whole of the materials evaluated, which I believe is not appropriate. Content-related misunderstandings which might arise in the four units examined could be avoided if some single words or parts of the text, or summaries were translated into German. The use of the mother tongue could furthermore reduce the fear which students might have of the subject of Biology being taught in English. Students might be more motivated when the mother tongue is incorporated into CLIL classroom language, especially for clarifying difficult language sections or contents (cf. Langer et al. 2006: 7). Furthermore, incorporating the L1 when using CLIL is important since CLIL is also referred to as a bilingual teaching approach. L1 learning is an important aspect of formal learning in general, especially in lower secondary grades, and can hardly take place if all the teaching is done in English. The demonstration of subject knowledge in both the target language and the mother tongue is important for the students' further school career and work life. Therefore, I believe that it can only be an advantage to employ the mother tongue as part of CLIL classroom language, and that it should also be used in CLIL teaching materials.

3. Suggested improvements of the materials

In order to enhance the degree of interactivity supported by the textbooks *Cross-Curriculum Creativity – Biology (Books 1-4)*, phrases and ready-to-use sentence constructions should be added. Such additional language support would assist the target learner group in performing interaction tasks. When learners who are new to the English language realise that they are able to express their thoughts in the L2, it is possible that they will become more motivated to do Biology in English. At this early stage of education, learners might even make more of an effort to learn more for the subject, because they are proud of being able to use English for a specific purpose (cf. Van de Craen et al. 2007: 73).

Considering language support, a substantial amount of the additional work load for teachers (i.e. devising extra word lists and communicative activities)

could easily be avoided by improving the language support in the textbooks. Much effort needs to be put into improving the dictionary sections of the four textbooks analysed. Moreover, further language help (e.g. phrases, German translations) should be added to the teaching materials, so that the young learners are able to understand the content. Additionally, a teacher's book could help teachers in using the textbooks more efficiently.

4. Conclusion

In general, it should be said that the study carried out revealed that the textbooks *Cross-Curriculum Creativity – Biology (Books 1-4)* devised by Fierling and Machotka (2008) are a very useful and good base for every biology teacher who wants to start teaching their subject in English. The content is correct and the texts are written in a way that is appropriate for the intended age group.

However, it has to be pointed out that the wide-spread absence of language support and the lack of communicative and interactive activities in the evaluated textbooks was unexpected. Before I undertook the analysis I believed that the materials would provide teachers with a larger variety of tasks to use in the classroom.

In my opinion, the close examination of the Biology textbooks clearly revealed how much work still needs to be done in CLIL materials development. The results of the evaluation reflect that the CLIL teaching approach is still in its infancy. Future CLIL teaching materials development will require more guidelines for materials developers in order to ensure that materials for any CLIL subject are devised according to the criteria suggested.

Finally, I want to indicate that the materials evaluation of *Cross-Curriculum Creativity – Biology (Books 1-4)* affirmed that more research towards a common CLIL methodology will need to be carried out in the next few years in order to make CLIL more accessible for teachers.

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CLIL programme evaluation: Deriving implementation guidelines from stakeholder perspectives

Christina Gefaell and Barbara Unterberger*

1. Introduction

In the last decade the number of CLIL programmes has increased at a speed which "has surprised even the most ardent of advocates" (Maljers, Marsh & Wolff 2007:7). Promoted by the European Commission as an approach which can fulfil the multilingual needs of today's society, CLIL has entered mainstream education in many European countries. Austria has followed this trend and launched numerous regional CLIL projects. In 2006 the Vienna Board of Education introduced *The Dual Language Programme* (DLP) to cater for mainstream students at the secondary level. Those schools which decide to implement a DLP branch select a number of subjects to be taught bilingually in English and German. The subjects commonly chosen are Biology, Geography and History, which are collaboratively taught by a subject teacher and a native speaker of English. According to the Eurydice report on CLIL programmes in Europe "it may be expected that the majority of lower secondary schools in Vienna will become CLIL–DLP schools" (Eurydice 2004/05: 23).

A year after the DLP had been implemented, the Vienna Board of Education commissioned an evaluation study at two DLP schools with the aim to capture the status quo of the programme. This article presents selected findings of this study which shed light on stakeholder perspectives, their attitudes and expectations, as well as on organisational problems encountered in this CLIL programme.[1] Whereas our results confirm most rationales behind

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* The authors' e-mail for correspondence: barbara.unterberger@wu.ac.at.

[1] For the full evaluation study and a more detailed discussion of the findings, cf. the diploma theses by Christina Gefaell (2009) and Barbara Unterberger (2008), written under the supervision of Christiane Dalton-Puffer (Department of English, University of Vienna).

CLIL, they also challenge some common assumptions about the approach. Based on these results, we developed organisational guidelines for the implementation of CLIL programmes which are also discussed in this paper. Our conclusions contribute to the constantly growing body of CLIL theory and, most importantly, they can also be applied directly, for example in the implementation process of CLIL programmes.

2. Empirical framework

As the stakeholders' attitudes, expectations and experiences influence the success or failure of a programme, we focused on the views of teachers, students and parents involved in the DLP. Furthermore, we wanted to identify organisational strengths and weaknesses of the programme.

Questionnaires were used to investigate how students evaluate their first school year in a DLP class and to identify their attitudes towards various aspects of the programme. For instance, the students' view on their relationship with the native speaker teacher, their opinion on the team teaching situation and their attitude towards the use of the foreign language were investigated. In addition, the parents also received questionnaires which were more comprehensive than those of the students. The parents' questionnaires comprised themes such as their motives for registering their child for the DLP, their attitude towards the English language and the question whether they observe any effects of the programme on their child's learning behaviour. In total, 44 student and 41 parent questionnaires were analysed with the software SPSS. In addition to the questionnaires, semi-structured interviews were used as a qualitative method of inquiry. Eight interviews were conducted with the schools' head teachers as well as with the DLP teachers of the two classes. The interview questions ranged from the teachers' professional background and their motivation to participate in the programme to anticipated and encountered problem areas. Interview transcripts were analysed according to Mayring's method of qualitative content analysis (cf. Mayring 2005).

The combination of quantitative and qualitative methods allowed us to gain a comprehensive picture of the DLP's status quo. Our results, together with recommendations for improvement, were provided to the Vienna Board of Education to support schools in informed decision making processes concerning the DLP and other CLIL programmes.

3. Discussion of selected findings

When investigating the teachers' views on the DLP, two main teaching objectives can be identified: Firstly, the DLP is aimed at decreasing students' foreign language anxiety. Secondly, the programme should improve the students' competence in English. The teachers report that these objectives could partly be accomplished within the first year of the DLP. For example, subject-specific vocabulary was expanding and students developed advanced problem solving skills in the target language. These observations confirm two popular rationales for CLIL (cf. for example Wolff 1996). Generally, teachers consider the DLP as an interesting challenge and a welcome change to their teaching routine. Although teachers feel confirmed in their approach by the students' positive feedback, they also encounter problems which dampen their enthusiasm: for example, there is an acute lack of appropriate materials and they have difficulties to schedule planning sessions with co-teachers. This leads to a rather heavy workload for the teachers, which can diminish their motivation.

Overall, team teaching seems to be successful; especially the opportunity to deal with individual students' problems is regarded as an advantage. Initial worries concerning team teaching have been dispelled. For example, some teachers feared that they could have problems in understanding the native speaker teacher or that differences on a personal level could occur. The teachers stressed that their worries had vanished due to the positive team teaching experience. Nevertheless, team teaching places great demands on DLP teachers: for example, detailed lesson planning is necessary, the teachers' spontaneity during lessons is reduced and the native speaker teacher has to acquire a considerable amount of content knowledge in several subjects. An investigation of the role allocation in team teaching situations revealed the following picture: the subject teachers are responsible for choosing and structuring the content, whereas the native speaker teachers are in charge of the language. If the distribution of responsibilities within the team is not clear, feelings of insecurity arise in the native speaker teacher as well as in the students. In the DLP classes investigated, these confusions in role allocation occurred because the native speaker teachers could only be present in a small number of DLP lessons. Both schools investigated had problems to integrate the native speaker teachers into their schedules as they usually work in several DLP schools. Our findings suggest that this has led to a poor teacher-student relationship which is detrimental to student motivation and even increases foreign language anxiety.

As far as the students' attitude towards the DLP is concerned, a great range of opinions on the programme could be discovered. For example, the

majority of students seem to enjoy the different aspects of the DLP and especially the increased use of English. About a third of the students, however, complain about comprehension difficulties and state that they sometimes lack the necessary vocabulary. Surprisingly, the majority of students find it more enjoyable to talk in the foreign language during their regular English lessons than during their bilingual subject lessons. Moreover, students do not use the opportunity to switch to their mother tongue but rather remain silent if they cannot express themselves in English. Teachers believe that the students are probably too ambitious to admit that they cannot express themselves in English. Therefore, one could argue that foreign language anxiety was not dispelled in the courses investigated. These observations contradict the common assumption about CLIL that students are less inhibited when using a foreign language in subject lessons (cf. Dalton-Puffer 2007).

The analysis of the parents' view on the DLP revealed a very positive attitude towards the programme. The parents hardly ever express fears related to the programme and negative aspects of the DLP are only rarely mentioned. Several parents would even welcome a higher quantity of bilingual subject lessons which suggests great trust in the programme. The results also proved to be surprising: in contrast to our initial expectations, for parents, the involvement of a native speaker teacher does not seem to be a decisive factor for choosing the DLP. Instead, parents register their child for the programme because they expect it to be beneficial for their child's educational and occupational future.

4. Organisational guidelines for the implementation of CLIL programmes

Based on our findings, we derived organisational guidelines to assist schools in the implementation process of CLIL. Above all, these guidelines are meant to reduce the heavy workload of teachers mentioned above.

- *CLIL training for all teachers:*
  In the DLP, only subject teachers are required to attend a pre-DLP training course, while their native speaker counterparts do not get any training. Moreover, DLP native speaker teachers do not necessarily have to be trained teachers to participate in the programme. However, due to the high demands CLIL programmes impose on the teaching staff, it is absolutely advisable that all teachers have the opportunity to improve their didactic and pedagogic skills. If all teachers are prepared

properly for teaching through a foreign language, responsibilities can be shared more equally.

- *Teacher network:*
  Another way to lighten CLIL teachers' workload is to create a strong network. Vienna's DLP community would certainly profit from regular meetings, as well as from the launch of an official DLP website. On the internet teachers could exchange materials, experiences and lists of subject-specific vocabulary, which would simplify their intensive preparatory work.

- *Scheduled lesson planning:*
  In the DLP, co-teachers are permanently struggling to find the time to set up lesson plans and to search for materials. Therefore, CLIL programmes which encourage collaboration between teachers require regular lesson planning sessions.

- *Public relations:*
  Good public relations are essential for the smooth implementation of CLIL programmes. For instance, due to a lack of information, some parents were too late in registering their child for the DLP. In a first step, public relations could be improved with the launch of a clearly structured website for parents and students. This website should provide information on aspects such as registration, the programme's benefits and important events and deadlines. Interestingly enough, there is currently no comprehensive list of DLP schools available on the internet. Furthermore, the Vienna Board of Education should endeavour to make the label 'DLP' and its logo better known, for instance by visibly attaching the logo on the buildings of DLP schools. At this point it is important to stress that the board of education should not place responsibility for PR on the DLP teaching staff.

5. Conclusions

Our survey on DLP stakeholder perspectives shows that this new mainstream CLIL programme has been well received. Especially the parents show great enthusiasm and continually stress that they believe in the benefits of the programme for their children's educational and occupational future. The teachers are also very positive about numerous aspects of the programme, for example they repeatedly emphasise that the CLIL lessons introduce a welcome change in their teaching routines. Moreover, the teachers feel confirmed in their approach by the students' positive feedback. They also report that the DLP students' subject-specific vocabulary is expanding and

that they develop problem solving skills in the foreign language earlier than their peers in regular classes. The teachers' enthusiasm for the programme is, however, dampened considerably by the heavy workload. Thus, it is highly recommendable to reduce the teachers' burden in order to ensure that their strong commitment is maintained.

The students' attitude towards the DLP is more varied. While some enjoy the increased use of English, others feel pressured by the extra demands the foreign language imposes. Moreover, the majority of students prefer their regular English lessons to DLP classes when they have to talk in English. Our findings also suggest that students are frequently too proud to admit that they cannot express themselves in English and rather remain silent than switching to their mother tongue – even though their teachers encourage them to use either language. Thus, the often cited rationales behind the CLIL approach such as the increased use of the foreign language, the naturalistic learning environment and the opportunity to switch to the mother tongue (cf. Dalton-Puffer & Smit 2007; Maljers, Marsh & Wolff 2007; Mehisto, Marsh & Frigols 2008), do not necessarily reduce foreign language anxiety. Further research on factors affecting target language anxiety of CLIL students needs to be conducted to gain a deeper understanding of this complex issue.

Based on the analysis of the stakeholders' perspectives discussed above, we developed several organisational guidelines. Programme designers are invited to consider certain key aspects in the implementation process: the importance of CLIL teacher training and proper networking opportunities, plus the need for scheduled lesson planning and effective PR.

In conclusion, when implementing a mainstream CLIL programme, stakeholder perspectives as well as possible organisational difficulties need to be taken into account to ensure that the potential of the CLIL approach can be exploited to the full.

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Assessment in CLIL – A case study

Ingrid Hönig*

1. Introduction

Content and Language Integrated Learning (CLIL), where non-language subjects are taught through an L2 (Dalton-Puffer 2007), has become increasingly popular in European mainstream schools in the last decade. Its implementation has been fostered through initiatives of individual teachers and schools on the one hand and support of EU policies on the other, but national educational policies have do not yet reflect this development (Dalton-Puffer 2008).

While various aspects of this educational approach have received a surge of academic interest in recent years, assessment in CLIL is still an underexplored area. If the subject is raised in the research literature, it is commonly referred to as problematic and difficult, but still unsolved (Ernst 1995, Schmid-Schönbein and Siegismund 1998, Vollmer 2001, Koch 2002). The present study identifies the problems addressed in the literature and investigates how assessment in CLIL is carried out in practice.[1]

2. Research questions, method and data

The theoretical part of the study delineates that the above mentioned divide between practitioners, EU policies and national educational policies is equally discernable with regard to assessment in CLIL. Teachers and educationalists debate practical issues and EU policies formulate requests, while the Austrian School Act for assessment (Leistungsbeurteilungsverordnung) does not account for CLIL. The key questions raised in the discussions about assessment procedures in CLIL are which role the target language plays in assessment and whether traditional means of assessment are adequate to

* The author's e-mail for correspondence: hoenig.ingrid@chello.at.

[1] This paper is based on my M.A. thesis (Hönig 2009), which was written at the Department of English at the University of Vienna under the supervision of Christiane Dalton-Puffer.

measure students' achievements (Grangl 1998, Vollmer 2001, Helbig 2003). In the CLIL classroom, however, there seems to be no doubt about the way assessment should be carried out. The prevailing opinion among teachers is that CLIL largely tallies with the content subject taught in the mother tongue as far as its content, objectives and forms of assessment are concerned. Therefore they claim to concentrate on the content of the subject and its didactics while neglecting the target language in assessment (Vollmer 2001). This somehow narrow view is completely contradicted in the CLIL Compendium. There the desideratum for appropriate assessment practices is spelled out, emphasising not only the dual focus on content and language in CLIL but also pointing out the necessity of assessment tools that cater for both these aspects:

> Performance Assessment of CLIL learner performance has to be sensitive to the subject-language duality inherent within many models of CLIL. Integrated pedagogical classroom learning needs to be assessed using similarly integrated assessment tools. Viewing an examination text from a solely language or subject point of view negates the trans-disciplinary characteristics of CLIL. Testing and assessment apparatus need to be introduced which allow learners to show the breadth of their knowledge and skills in relation to both content and language. (www.clilcompendium.com)

On the Austrian national level, there are no legal regulations for assessment in CLIL; the sole directive, according to the representatives of the School Boards of Vienna and Lower Austria, is that students are allowed to choose between answering in German or in the target language in exams (Nezbeda 2005).

The empirical part of my thesis focuses on two particular issues which are central to the discussion of assessment in CLIL: the role of the language in assessment and the appropriateness of traditional assessment tools. The study was conducted in history lessons taught in English in an upper-secondary grammar school and comprises interviews with 4 CLIL teachers, observation and video-taping in 2 CLIL classes (grade level 9 and 12; the students were 15 and 18 years old respectively), and one teacher's comments on 9 transcribed oral exams. The teachers in this study hold a dual qualification in history and English and have an experience of CLIL teaching of 8-10 years.

Access to the classroom proved to be the main difficulty in my research project. It took me several attempts to find teachers willing to co-operate, which indicates that assessment is a very private affair. Therefore, my initial intention to investigate assessment in lower- and upper-secondary education was unfeasible as the school to which I was eventually allowed access offers CLIL only at upper-secondary level. Much the same applies to my plan to observe assessment practice in the classroom. As the observation yielded

tangible results in one lesson only, my findings about actual assessment procedures stem from one CLIL class (grade level 12).

3. Findings

The analysis of the data shows that assessment in CLIL is riddled with discrepancies and contradictions. To begin with, students are offered the choice of taking the exam in the mother tongue or the target language (see above). However, students hardly ever avail themselves of the mother-tongue option; they nearly always speak the language in which the topics was taught, or, to express it in the words of one of the teachers: "Sie sprechen, wie sie es serviert bekommen" ("They repeat the language they are given").

The teachers were extremely reluctant to have their assessment practices observed. On the other hand, they were willing to give interviews, in which they quite openly answered all the questions asked. They agreed that they predominantly set oral exams as the basis for assessment. Regarding the role the language plays in assessment they subscribed to what the literature reveals: they unanimously stated clearly and with conviction that content is the only criterion that counts for their students' final marks; they entirely exclude language from assessment. The reasons the teachers gave for leaving language out of account in assessment were the following:

(1)   "It's a history lesson, not an English class".
(2)   "The language element doesn't count. They can make mistakes or use German words as many as they want".
(3)   "It's their content knowledge they're assessed on. How they put it across doesn't matter".

At the beginning of CLIL teaching the teachers inform their students that their language performance will not affect the grade they can achieve in the exams.

Actual classroom practice, however, completely contradicts the teachers' claim to ignore language in assessment, which was disclosed right at the beginning of my observation. After examining two students with remarkably different language behaviour but equally sound content knowledge (as confirmed by the teacher later in an interview), the teacher justified the higher grade she had given to one of the students as follows:

(4)   "You see, her language is so much better"

The teacher not only assessed the students' language proficiency but used it as a major criterion in grading her students' performance.

This finding was underpinned by further classroom observation and the teacher's comments on transcribed oral exams. In the latter she admitted that although students who had covered the content satisfactorily but were less articulate received lower grades than those who were eloquent, because

(5)   "it doesn't sound like a 1" (=the highest achievable grade).

The teacher further admitted that after reading the transcript she would have assigned a different grade to some exams. But oral exams are "fleeting", which means that the teacher must simultaneously listen to the students and judge their performance (Jäger 2000). The teacher must decide very quickly without having the possibility to check the answers a second time. Given this circumstance, it is very difficult, or I would say impossible, to isolate the content in the performance.

My findings both correspond to and contradict what the teachers told me about their judgement of the language in exams. They show that the teachers' awareness of language is focused on errors and code-switching. These they do not judge. Students can indeed make as many errors as they want, whether errors of pronunciation, lexical or grammatical errors. They can also use as many German words as they want; even if it is not only a single word (intra-sentential code-switching) but encompasses a longer explanation in German (inter-sentential code-switching), it has no negative effect on the grades. What teachers do not consider with regard to the language in their students' performance, however, are fluency and speed of speech as well as the proportion of the student's speech in the exam. These linguistic factors are associated with higher competences and abilities and these aspects partly influence assessment (Jäger 2000). This, of course, also implies that students with sound content knowledge but less eloquence are disadvantaged as they are penalised for poor language performance and not judged on their content knowledge alone.

My investigation shows that it is impossible to separate content and language in assessment. This fact needs to be recognised and programmatic statements in this respect need to be removed from CLIL guidelines. What follows is that it seems to be the case that established assessment practices are inappropriate for measuring students' achievements satisfactorily. Consequently, in order to remedy the current situation it would be necessary to develop assessment instruments that incorporate both content- and language-focused criteria and help students to get due credit for the knowledge and skills they demonstrate. Above all, language awareness among teachers needs to be raised and its role in teaching and learning, and

consequently in assessment, be defined, because this is actually the root of the problem.

4. Conclusion

In my efforts to investigate how assessment is carried out in CLIL I had to overcome major obstacles to gain tangible results. My relations with CLIL teachers were fraught with denial, breakdown and lack of communication. Retrospectively, these obstacles foreshadowed a major problem inherent in assessment in CLIL, at least in Austria: the CLIL teachers investigated do not communicate their assessment practices among each other, nor do they exchange their experiences, as a CLIL teacher commented:

(6)   "We're working here in a vacuum, nobody knows anything about the other one".

With this in mind, it can be concluded that an open and intense discussion among the teachers involved in CLIL would offer the chance to progress satisfactorily in this area. If assessment remains a private affair, it will continue to be a problematic issue.

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Oral fluency development in secondary education CLIL learners

Maria Juan*

1. Introduction

Research on the outcomes of immersion and semi-immersion in the Canadian context has clearly shown that learners in these programmes develop higher levels of fluency and confidence in using the second language than non-immersion students (Lyster 2007). Increased oral fluency through additional language practice is also one of the most widely acknowledged expectations associated with the CLIL approach (Dalton-Puffer 2007). In fact, one of the advantages of CLIL learning contexts that can enhance speaking skills – and hence oral fluency – is that they often succeed, in Nikula's (2007: 221) words, "in positioning students as language users first and foremost rather than as language learners". Thus, the increase of opportunities for authentic communication and interaction while attention is focused on content is usually regarded as one of the major linguistic benefits of CLIL contributing to oral fluency (Pérez-Vidal 2009). A number of studies have reported on the development of oral fluency in CLIL classrooms (see e.g. Escobar-Urmeneta and Sánchez-Sola 2009). Nevertheless, there still seems to be a dearth of research conducting fine-grained analyses of language gains in this area in CLIL settings.

CLIL in the Balearic Islands (Spain) has been mostly implemented through the Spanish European Sections Programme, which was first launched in the academic year 2004-2005 and has grown exponentially since then. In 2008-2009, a total of 119 European Sections were approved in 100 primary and secondary schools in the Balearic Islands (*Conselleria d'Educació i Cultura* 2008). The number of learners and teachers taking part in the programme is higher in primary than in secondary education. Schools taking part in the programme are state-funded. A new European Section can be

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* The author's e-mail for correspondence: maria.juan@uib.es.

started to teach any non-linguistic area, subject or module of the curriculum totally or partially in the foreign language chosen (see Juan-Garau and Pérez-Vidal in press and Pérez-Vidal and Juan-Garau in press for a more detailed account of CLIL programmes in the Balearic Islands).

The study reported on here is part of a broader research project, the SALA-COLE Project,[1] which seeks to analyze the impact of two learning contexts with great social and scholarly interest, namely CLIL and Study Abroad in the target-language country, on the acquisition of L3 English by Catalan/Spanish learners at the level of secondary and tertiary education. These two contexts are, in turn, compared with the Formal Instruction (FI) in English language that students receive.

The present paper, focused solely on the CLIL context, intends to contribute to the study of oral fluency in secondary school learners exposed to CLIL instruction – in addition to FI in EFL – in contrast to learners who are only exposed to FI in English. More specifically, the study addresses the following research questions: 1. Do EFL CLIL learners speak more fluently than EFL learners who exclusively follow a FI programme in English? 2. Do EFL CLIL and FI learners make significant oral fluency gains in the course of one academic year?

2. Method

Participants in the study were 27 secondary school EFL learners in Year 2 (ages 13 to 14) at IES Bendinat, a state-run secondary school in Calvià (Majorca). There was a CLIL group (N=16) and a control group (N=11). All of the participants were Catalan/Spanish bilinguals.

As regards treatment, the CLIL learners studied Social Science (History and Geography) in English for three hours weekly, in addition to receiving formal instruction (FI) in their English class for another three hours per week. It was their first year in the CLIL programme. The control group was formed by learners also taking part in a European Section through the medium of French so as to ensure comparability with the CLIL group. They only received FI in English. Thus, the CLIL and control groups were exposed to approximately 180h (90h CLIL + 90h FI) and 90h (FI) conducted in English respectively.

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[1] SALA-COLE is a state-funded coordinate project (HUM2007-66053-C02-01 and 02/FILO) based at Pompeu Fabra University (PFU) and the University of the Balearic Islands (UIB) whose leader and PFU main researcher is Dr. Carmen Pérez-Vidal, while the author of this paper is the main researcher at UIB.

In order to gauge the learners' free oral production in English, an oral narrative with picture prompts was used. Participants were first shown the pictures and asked to describe the bank robbery attempt depicted as if they had witnessed it in as much detail as possible. Each individual narrative was then digitally recorded by a member of the research team, without other students or teachers being present in the room. The researcher tried not to take part in the conversation. Participants were recorded at the beginning (T1) and end (T2) of Year 2.

Recordings were transcribed and analyzed with the help of CLAN and PRAAT respectively.[2] The term *fluency* has been used in various and sometimes conflicting ways given its multidimensional nature, encompassing linguistic, psycholinguistic, and sociolinguistic features. For the purpose of the present study, fluency has been defined as smooth, rapid speaking evidenced by appropriate pausing and few hesitations. The following specific measures to examine oral fluency considering speech rate and pausing behaviour were used:

- Speech rate:
    - Number of words per minute produced (W/M)
- Pausing behaviour:
    - Average pause duration (APD)
    - Articulation rate in words (AR wds): number of words produced during a participant's speech time, excluding pauses
    - Mean length of run (MLR): number of words produced in between pauses
    - Phonation ratio (PhonR): percentage of time spent speaking
    - Pause duration ratio (PDR): percentage of time spent in silence

Only pauses that were equal or longer than 0.4 seconds were considered. Statistical analyses – ANOVAs and T-tests – were conducted on the resulting means of the different measures with Statgraphics. The alpha level of significance was set at .05.

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[2] The CLAN application is part of the CHILDES system and can be downloaded from http://childes.psy.cmu.edu/clan/, while PRAAT (a system for doing phonetics) was developed by Paul Boersma and David Weenink from the Phonetic Sciences Department at the University of Amsterdam and is available from http://www.fon.hum.uva.nl/praat/.

3. Findings

As regards the comparison of fluency development in the CLIL and control groups (see Table 1 below), results show that these two groups of learners already differ significantly at T1 in terms of their speech rate (W/M) and the average duration of their pauses (APD). CLIL participants are seen to produce a higher number of words per minute and their pauses are shorter. There are non-significant differences in the remaining measures at T1, although the CLIL group always exhibits a certain advantage. By T2 (i.e. following CLIL treatment), the gap between the two groups has increased noticeably as all of the measures, except for articulation rate (AR wds), afford significant differences in favour of the CLIL group, which shows a higher mean length of run (MLR) and percentage of time devoted to speaking instead of pausing (PhonR and PDR). This group also continues to increase its advantage regarding speech rate and pause duration.

	CLIL G T1	Control G T1	*P* value	CLIL G T2	Control G T2	*P* value
W/M	69.46	46.37	0.015*	85.84	54.64	0.007*
APD	1.04	1.49	0.007*	0.97	1.49	0.001*
AR wds	2.38	1.82	0.072	2.68	2.28	0.293
MLR	3.54	2.12	0.294	3.37	2.13	0.023*
PhonR	50.87	45.44	0.443	55.37	37.56	0.001*
PDR	49.13	54.56	0.443	44.63	62.44	0.001*

Table 1: Comparison of oral fluency development in the CLIL and control groups at T1 and T2

When development between T1 and T2 is considered (see Table 2 below), results reveal that speech rate (W/M) is the only measure that undergoes significant improvement, and only for the CLIL group. It should be noted, however, that there is an overall tendency towards improvement for this group in the remaining measures, except for MLR. The control group, on the other hand, registers some improvement that is close to significance in the rates of speech and articulation (W/M and AR wds), but remains stable in mean length of run as well as pause length (MLR and APD), and even recedes with regard to the amount of time spent speaking and pausing (PhonR and PDR).

	CLIL G T1	CLIL G T2	*P* value	Control G T1	Control G T2	*P* value
W/M	69.46	85.84	0.002*	46.37	54.64	0.080
APD	1.04	0.97	0.278	1.49	1.49	0.993
AR wds	2.38	2.68	0.231	1.82	2.28	0.094
MLR	3.54	3.37	0.869	2.12	2.13	0.973
PhonR	50.87	55.37	0.413	45.44	37.56	0.210
PDR	49.13	44.63	0.413	54.56	62.44	0.210

Table 2: Oral fluency development between T1 and T2 in the CLIL group and the control group

4. Discussion and conclusions

As regards the first research question, results indicate that CLIL learners speak more fluently than learners who exclusively benefit from EFL education. The fact that there is an initial advantage of the CLIL group at T1 in terms of speech rate and pause duration must be explained by intervening factors other than the impact of the CLIL programme itself, as learners have just started it. These factors include learner attitude and motivation as well as admission to the programme, which in the case of the school under study is done on a voluntary basis with the parents' consent and taking into account the learner's academic record. It should be noted, nevertheless, that participants in the control group are also in the school's CLIL programme, only in French, which makes them comparable to the CLIL group. By T2, after one academic year, the two groups have significantly grown apart in most of the measures considered, confirming a higher oral fluency for CLIL subjects.

As for the second research question, fluency gains between T1 and T2 are only significant in speech rate and only for the CLIL group. Still, a tendency towards improvement is generally apparent in the CLIL group, a developmental pattern unparalleled in the control group. It might be argued that one academic year, given the exposure provided, was not sufficient for learners to register more substantial benefits.

In sum, the European Sections Programme appears to have a positive effect on learners' oral fluency, especially concerning their speech rate. Segalowitz (2000) has claimed that second language fluency develops through practice that is not just extensive and repetitive, leading to automaticity, but also communicative in nature and thus transfer-appropriate. This communicative type of practice is precisely what learners obtain through

CLIL. Learners who only receive formal language instruction, however, do not appear to make much progress in the oral fluency domain. In future research, we hope to be able to confirm these preliminary results by analysing a much larger sample from five state secondary schools longitudinally followed over a wider time span, two academic years.

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Vocabulary presentation techniques in CLIL Geography classrooms

Claudia Kovacs*

1. Introduction

The study of vocabulary acquisition has been subject of debate in the last decades. Still, studies investigating vocabulary learning in the rising field of CLIL courses have mostly been concerned with the types of vocabulary presented in CLIL classrooms, e.g. high-frequency, low-frequency or technical vocabulary. The aspects of actual presentation techniques of vocabulary and learning strategies have been neglected so far. Thus, in this paper, insights on presentation techniques in the foreign language classroom will be applied to CLIL settings.

2. Research question and data

The present study aims at shedding more light on vocabulary presentation techniques in the CLIL geography classroom and at gaining insights into the way EFL methods and strategies are employed for presenting vocabulary in CLIL settings.[1]

   Thus, five thematically consecutive CLIL geography lessons (7th grade) were recorded at a grammar school in Vienna. After the transcription of the lessons, qualitative analyses were conducted to describe the methods of vocabulary instruction in these lessons. In the course of this procedure, instances of vocabulary presentation such as the use of specific presentation strategies to explain an item were identified, classified in a taxonomy and subsequently compared within one lesson as well as across lessons.

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* The author's e-mail for correspondence: claudiakovacs@gmx.at.

[1] This analysis is based on my M.A. thesis (Kovacs 2009), which was written at the Department of English at the University of Vienna under the supervision of Christiane Dalton-Puffer.

3. Analytical framework

A combination of various sources, including the general Strategy Inventory for Language Learning (SILL) by Oxford (1990), the taxonomy presented by Nation (2001) and the one by Schmitt (1997), as well as the categorisation of Gairns and Redman (1986), provided the basis for the analysis of vocabulary learning strategies in this study. These classifications were adapted to the needs of this particular study and the identification of additional categories led to the establishment of a new taxonomy applicable to lower level CLIL students.

The basic classification system for vocabulary presentation based on the literature review is given in Table 1.

code	Strategy	e.g.
V	Visuals	flashcards, photographs, pictures, board drawings, wall charts, concrete objects
G	gestures and mime	facial expression, (hand) movements
De	English definition	x means…
Dg	German definition	x bedeutet…
Es	an illustrative situation is used as an example	When the glass falls down, it breaks.
Et	example of a type	a car is a vehicle
S	Synonym	skinny – thin
A	Antonym	high – low
Sc	Scale	damage and destroy, which one is harder?
T	Translation	crevasse = Gletscherspalte
Kw	Keyword	computer – commuter

Table 1: Vocabulary Presentation Techniques (1)

Of more importance for the analysis of the lesson transcripts are the additional categories that were included by the researcher in order to analyse prominent vocabulary learning aspects of the transcripts appropriately (see Table 2). These categories are not mentioned in the literature reviewed.

code	Strategy	e.g.
Ex	Explanation	deepens the knowledge about something
Wc	word class	what is the adjective of…?
Sp	Spelling	volcanoes is written with an 'o'
P	Pronunciation	d[ia]grams – d[aiə]grams
Ch	checking understanding	what does that mean?
Q	guiding question	what do I need?
H	hints	If they don't have money, they …
L	providing letters	it starts with a 'd'
Cor	correction	countryside not land
W	teacher writes on the board	
N	take notes	write it down

Table 2: Vocabulary Presentation Techniques (2)

These strategies are typical of vocabulary presentation in teacher-fronted classroom interaction, even though they have not yet been extensively analysed. Apart from definitions and examples which have already been mentioned above, teachers often explain the meaning of certain items, e.g. by providing the reason for a particular phenomenon, which deepens the knowledge about the specific vocabulary item. Thus, these instances are representative of a novel strategy entitled explanation (Ex).

(1)   T: Birth control, yes. If many many people take care not to get kids, there will be decrease of population.

Example 1: Explanation of the effects of birth control

Some teachers actively try to deduce the meaning of a lexeme from a related word. If students are for example already familiar with the adjective *short*, they can deduce the noun *shortage* from their already existing word knowledge.

The remaining strategies are not typical vocabulary presentation strategies *per se,* but meta-techniques setting the scene for vocabulary presentation. Lexical items known to be frequently misspelled, for instance, receive special treatment when teachers explicitly point out the correct spelling. The same is true for words that are mispronounced.

As gestures only rarely reveal if students are familiar with a particular lexical item, teachers often have to ask to ascertain whether specific words are known and the meaning of the items is understood. This technique is entitled *checking understanding*.

(2)   T: This, there is a spe- special word for that, if you leave your home place and you move to another Bundesland or city within Austria. There is a word for that. What is the word called?

Example 2: Checking understanding – what is it called?

Sometimes the students know the basic meaning but are not able to express their knowledge. Then teachers provide guiding questions or hints at an appropriate answer. Another strategy is to tell the students the initial letter(s) of the target word.

Teachers further correct wrong lexical choices, either by replacing the item or by indicating a correct collocation or expression. What is more, most teachers write important words, for example the key items of a topic, on the board. This represents the strategy W. A final strategy introduced is the instruction by the teacher to take notes.

Due to the enormous amount of strategies mentioned above, five general classes of strategies have been distinguished in the order of implementation in the classroom – regardless of frequency. First, the teacher may **check** (Ch) whether students are familiar with a novel item. This step, however, is not obligatory since the teacher can directly **present or elicit** the meaning of an item. For this, either visual techniques including visuals themselves (V) and gestures (G) or verbal techniques can be employed. A mixture of visual and verbal techniques is the keyword technique (Kw), which combines visual and verbal elements for the presentation of a new word. As far as verbal techniques are concerned, they are further classified into techniques eliciting or giving a one-word answer such as the strategies of word classes (Wc), synonyms (S), antonyms (A) and translation to and from German (Te, Tg). The second subcategory is the one of multi-word strategies including the use of illustrative situation (Es) and examples of the type (Et). The third step **support**s **meaning acquisition and retrieval** and involves the strategies of guiding questions (Q), hints (H) and providing letters (L). The fourth step is **consolidating meaning and form** with the help of the description either in English (De) or in German (Dg) and of explanation (Ex) as well as writing words on the board (W), taking notes (N) and indicating spelling (SP). The fifth step is **correction** and can concern the correction of wrong vocabulary (Cor) or the correction of pronunciation (P).

General class of strategies	Techniques	Strategies
Checking understanding		Ch
Eliciting and presenting vocabulary	Visual	V, G
	Visual and verbal	Kw
	Verbal - eliciting or giving a one-word answer - multi-word strategies	Wc, S, A and Te, Tg Es, Et
Supporting meaning acquisition and retrieval		Q, H and L
Consolidating meaning and form		De, Dg, Ex and W, N, Sp
Correcting	- of wrong vocabulary items - of pronunciation	Cor P

Table 3: A taxonomy of vocabulary presentation strategies

As already indicated, the move structure is not obligatory and instances of vocabulary presentation may only include the move of eliciting and presenting vocabulary. In many cases, supporting strategies are needed to elicit a correct answer, and correcting strategies indicate wrong tracks. If the teacher wants to foster the connection between an item and its meaning, descriptions and explanations provide further information on the meaning of a word whereas the visual presentation of the word as it is written on the board or as notes are taken highlights the respective spelling.

Already existing taxonomies do not include the categories of checking, guiding questions, hints, providing letters, writing on the board, taking notes, spelling, correction and pronunciation, since these strategies can be regarded as meta-techniques supporting vocabulary work in the classroom rather than stand-alone strategies geared exclusively at providing enough information on a word for its acquisition. Nevertheless, they are crucial components of vocabulary work in instructional settings.

ID	Ch	V	G	Kw	Wc	S	A	Te given	Tg given	Te requested	Tg requested	Es	Et	Q	H	L	De	Dg	Ex	W	N	Sp	Cor	P	Total
frequency	81	12	5	1	19	43	11	21	44	14	13	37	12	36	17	14	15	6	23	37	17	6	15	22	521
minutes between occurrences	2	15	36	182	10	4	17	9	4	13	14	5	15	5	11	13	12	30	8	5	11	30	12	8	22 secs

Table 4: Frequency of use and minutes between the reoccurrence of presentation strategies

Frequency of strategy use
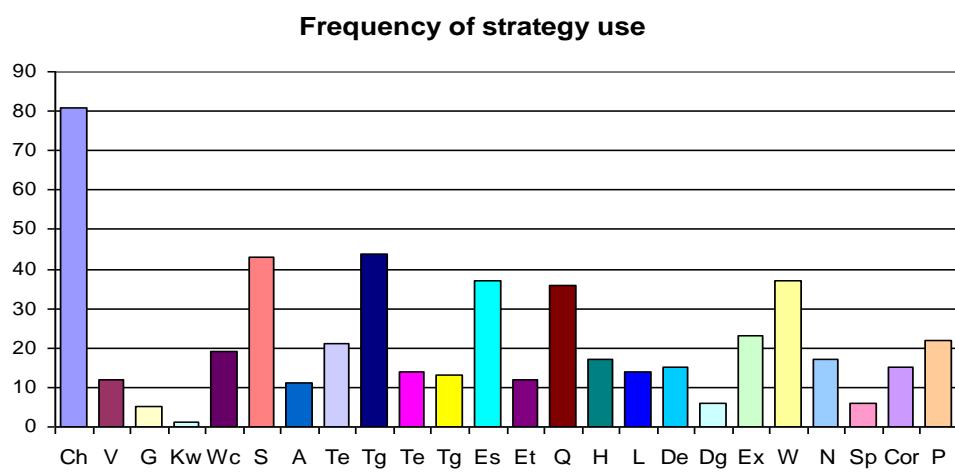
Figure 1: Frequency of the use of presentation strategies

All in all, a vocabulary presentation strategy is employed every 22 seconds in the CLIL lessons under consideration, which corresponds to the use of about three strategies per minute. The strategy adopted most often is the one of checking understanding with approximately minutes between occurrences. Other frequently employed strategies for presenting vocabulary are providing synonyms or German translations, using illustrative situations in explanations, asking guiding questions and writing words on the board. As regards the minutes between occurrences, the smaller the number of minutes, the more often a strategy is employed. What is more, various strategies may be employed to present a word, as illustrated in Example 3.

A Et, W, Es (incl. various Ets) H L	T: Okay, so know the push factors are the opposite of the pull factors. So push factors are bad medical care ((writes it down)), or ... if there is no train station, no bus station, no tram, there is no supermarket in your little village. There is only a very very small shop. There is no petrol station in your village. There is nothing. There is no- .. there is a word for that. No in-
	S: International.
(L), De H De	T: No, no. Wait a second. No in-. That means no good streets, no good traffic system, no public transport, no supermarkets. We use the word very often. We use it in German all the time in geography and it's the same in English. It means that there is not a lot of things that you can use. Ja, Carmen.
	S: (xxx)
	T: Ja, good, say it loud.
	S: Infrastruktur.
Te, (Es) Tg, W	T: In-fra-structure. So the infrastructure is bad. It's the same word in German, Infrastruktur. ((writes it down))

Example 3: Several strategies are used to explain the term infrastructure

4. Conclusion

Summing up, a bulk of strategies is employed for presenting and explaining vocabulary. The strategies proposed in the literature are not exhaustive and had to be complemented in order to cover all instances of vocabulary work in an Austrian CLIL geography classroom. Nevertheless, the analysed strategies are mainly those found in EFL teaching, which can be taken as an indication of the integration between content and language learning.

Interestingly, many strategies do not occur in isolation, but often several strategies are applied in combination to present and explain a particular lexical item. The most prominent strategies are checking understanding, a meta-strategy to ascertain whether or not students are familiar with a word, as well as the use of synonyms, providing a German translation, and the use of illustrative situations. As regards the support of meaning acquisition and retrieval, guiding questions are the strategy most often recorded in the data.

Even though the data is limited to CLIL geography lessons, the general trends may be representative of several kinds of CLIL classes. These insights can further contribute to a better understanding of language teaching in general. Nevertheless, since this is a cross-sectional study, it still remains to be investigated how much vocabulary is retained after a CLIL session and which of the techniques applied ensure the best retention of vocabulary and influence language competence. Probably the mixture of various methods will foster learning because it addresses a variety of learning types, and the lexical items are encountered in different contexts or relations. However, in order to answer these questions adequately, more research needs to be conducted in this field.

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Towards a model of oracy in CLIL

Pat Moore*

1. Introduction

The term oracy was coined by Wilkinson in 1965, by analogy with literacy. Wilkinson argued for oracy as "a condition of learning in all subjects […] not merely a 'skill' but 'an essential instrument in the humanising of the species'" (1965: 1).

The past few decades have witnessed major overhauls in attitudes towards the importance of spoken language in education. The dynamics of classroom discourse have been radically altered by the shift from expert-fronted, teacher-centred to discovery-based, student-centred classrooms alongside the (re-)emergence of dialogic enquiry as a pedagogic approach (on the latter see for example Alexander 2008; Fisher 2007; Shor and Freire 1987). The recognition that "the oral competencies children need to develop to become fully participative citizens in a highly mobile global context cannot be left to chance" (Evans and Jones 2007: 559) has led to a new push for oracy in both 1st and 2nd language education (see Evans and Jones 2009 on the former, and Tarone, Bigelow and Hansen 2009 on the latter).

2. Modelling oracy in CLIL

If we accept the importance of oracy in education, and thence in CLIL, it follows that we need a map upon which we can mark out the terrain. This article represents a tentative exploration of areas which might guide us in such an endeavour. The framework here presented is still at a preliminary stage and is open to debate and modification. Although some might criticise the idea, the goal for the moment lies in elaborating a model which can be applied to all facets of both the process and the product of CLIL; in other words in teaching, learning, testing and research.

* The author's e-mail for correspondence: pfmoox@upo.es.

It goes without saying that it does not matter whether we are facilitating, doing, assessing or describing content and language integrated learning; whichever the goal, it is not and cannot be the same as dealing with content learning and language learning as distinct and separate entities/endeavours. Any discussion of CLIL oracy must therefore integrate content and language. The model here proposed attempts to do that by intertwining academic content, here conceptualised as *Cognitive Complexity*; with *Talk*, merging Interaction, Flow and Repair, and – given that one of the underlying goals of CLIL is the fostering of plurilingualism in a multicultural society, *Bilinguality*.

Space precludes any more than a rapid sketch of the map at this juncture. In the sections which follow, I will briefly outline each of the elements of oracy as it is here envisaged and acknowledge CLIL research which has already contributed to the quest.

3. Cognitive complexity

Considering academic content from an oracy perspective, the interest lies not in *what* learners know but *how* they verbalise this knowledge (and concurrently whether, and if so how, they thereby clarify and refine it). In other words we are interested in both 'the verbalisation of experience' and 'the experience of verbalisation' (Wilkinson 1970: 71).

Cognitive complexity (Bieri 1955) is aligned with constructivism and contextualisation (Botella and Gallifa 1995) and implies an ability to differentiate and integrate (Bialystok 2007). The traditional features of 'academic language' – Comparison, Causality, Expansion, Justification, Hypothesising and so on – are all clearly related to cognitive complexity yet it must be remembered that their verbal realisation will differ significantly from their written expression: the former occurs on-line and is interactive, while the latter is produced in suspended time and is reflective. In a similar vein, organisational patterns in the two modes differ; for example, oral argument is frequently cyclical and often features anecdotal evidence (Berrill 1988), and may veer on and off the point (Phillips 1988), but written argument is more likely to be linear, impersonal and more narrowly-focused. What this suggests is that we need to be wary of a tendency to superimpose written norms in oral situations: a 'real-time emergence perspective' obviously requires a distinct approach (Auer 2009). This in turn means we need a clear understanding of the way academic and cognitive functions are realised in talk (Westgate and Hughes 1997).

4. Talk

Talk here encompasses three fundamental organisational considerations: Interaction, Flow and Repair. It should be noted, however, that the three have fuzzy borders and inevitably overlap.
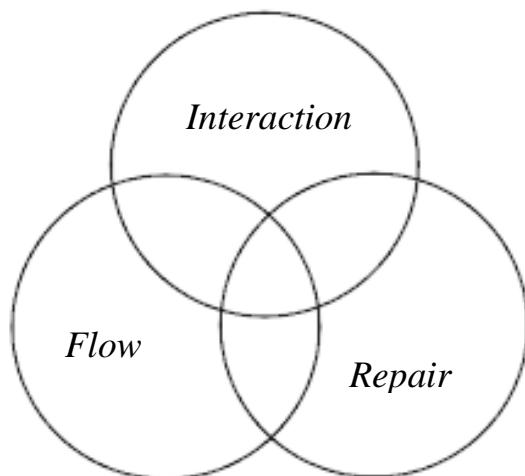

Figure1: The Intersections of Talk

4.1. Interaction

Interaction reinforces the concept of Talk as communicative exchange – with shared responsibilities, and thus conflates with ideas like the Gricean Co-operative Principle (1975); Listenership (McCarthy 2002; Knight and Adolphs 2008); Participatory output (Coyle 1999: 51) and Reciprocity (Westgate and Hughes, 1997; Wilkinson 1970: 76). Paring the concept down to a base frame, interaction can be said to operate on two planes: the physical (turn-taking) and the metaphysical (intersubjectivity).

i) *Turn-taking* in educational discourse is characterised by highly context specific patterns which vary according to the number of participants – ranging from whole class to paired interaction. Regarding the former, research has already identified differences in the way that the ubiquitous tripartite IRF exchange (Initiation-Response-Feedback/Follow-up) appears to operate in CLIL classrooms (Dalton-Puffer 2007; Nikula 2007). Yet, however many speakers are involved, the ultimate goal must be to prepare learners for *hors* classroom use; which implies turn-taking as a more chaotic (albeit rule-governed), often competitive enterprise.

Student-centred CLIL classrooms tend to include periods of group and pair work and should therefore provide greater opportunities for learners to engage in more conversational-like peer exchanges. This will enable them to hone 'real world' turn-taking strategies to deal with features like interruptions, overlapping, abandoned contributions and topic shift. Preliminary research suggests this may be occurring (see the examples in Gassner and Maillat 2006). In addition, the content focus in CLIL means that learners may well be involved in projects or field trips which will allow them to engage in authentic information gathering and exchange outside the school itself and to gain direct experience of extra-mural turn-taking.

ii) On one level, *Intersubjectivity* relates to 'conflict avoidance' (Goodwin and Heritage 1990), yet while it is true that all interpersonal exchanges are likely to imply some form of intersubjectivity, researchers have identified 'degrees of intersubjectivity' (eg. Wertsch 1988), and higher degrees tend to correlate with more successful interaction. Matusov identifies three strands of intersubjectivity which general education could be expected to foster (2001: 384) and which CLIL might address:

> i) *the recognition of "having something in common", and thus sharing knowledge*
> ii) *the "co-ordination of participant contributions", which obviously overlaps with turn-taking*
> iii) *the development of "human agency", or making choices and decisions and considering the consequences of one's actions*

Intersubjectivity is manifest in collaborative talk, where participants achieve 'a shared understanding of the task' (Chang and Wells 1988: 98-9). Features of collaborative talk include acknowledging and expanding upon peer input; more latching and overlap – including completion of other's utterances, and more follow-up questions (Galazci 2008). Once again, group and pair work can be expected to foster the development of more collaborative interaction.

4.2. Flow

The idea of *Flow* is here envisaged on two levels. On one hand, we have Flow *à la* Csíkszentmihályi (1991) which ties in closely with questions of motivation and, from an oracy perspective, with engagement and participation. Here it is worth observing that the fact that CLIL focuses on content rather than language is said to reduce anxiety among learners and

result in more L2 talk (eg. Pihko 2008). This alone should facilitate the development of oracy.

From a narrower perspective we can consider Flow as emanating both from and between speakers in discourse. Flow, or Automaticity, in an individual speaker's output is reflected in a variety of features including speed and intelligibility, pause patterns – including the use of filled pauses, and the use of organisational devices such as linkers and discourse markers. We should also address two-way Flow, which clearly overlaps with interaction but is here envisaged more from the perspective of keeping the exchange going or 'confluence' (McCarthy 2006) and implies features like the use of minimal response tokens as backchannelling devices, high frequency chunks and adherence to socio-culturally appropriate adjacency pairs.

4.3. Repair

As environments which explicitly integrate content and language, CLIL classrooms offer interesting insights into *Repair*. There has been much debate within the field of bilingual education (including North American Content-Based Teaching and Immersion) regarding the need for and operationalisation of form-focused repair. Yet to some degree the European model differs from its transatlantic cousins, with the primary focus generally on content rather than language. Research suggests that this could be reflected, in a generalised model of CLIL repair, with meaning taking precedence over form (although of course there is significant potential for variation at the grassroots level) (Dalton-Puffer 2007; Serra 2007). On one hand this has positive corollaries as it reflects *hors* classroom practice more accurately; but it also gives rise to concern regarding accuracy in learner output. In fact, this is probably where the potential for tension between content and language is most clearly in evidence.

Research into repair paradigms has traditionally focused on a four-way potential of initiation and realisation – between self and other (McHoul 1990) although CLIL research has already expanded this paradigm (Dalton-Puffer 2007). Regarding who initiates the repair trajectory, it seems that form-focused repair is more likely to be initiated by an 'other' (usually the teacher) whereas meaning-focused repair more frequently involves self. The finding that meaning-focused repair is more frequent in CLIL classrooms goes some way to accounting for the fact that they are characterised by a higher incidence of learner self-initiated repair than L2 classrooms (Dalton-Puffer 2007). The tendency for group work noted above may also contribute here as

learners' perception of their roles has been shown to influence repair just as much as their linguistic capabilities (Liebscher and Daily O'Cain 2003).

5. Bilinguality

Promoted by policy-making in Strasbourg and Brussels, CLIL is also designed to contribute towards the education of European citizens. Qualities such as multicultural awareness and plurilingual competence are clearly crucial to the success of the European Project. It follows that they should be incorporated into the model here being elaborated and for now, at least, this is organised under the banner of *Bilinguality*. While it is true that the term might appear reductionist – focusing on duality rather than multiplicity – it is also true that CLIL is frequently glossed as 'bilingual education'.

5.1. Multicultural awareness

Two of the most widely disseminated organisational paradigms for CLIL - the 4Cs framework (Coyle 1999) and the CLIL Compendium's 'Five Dimensions of CLIL' (http://www.clilcompendium.com) both explicitly incorporate cultural awareness-raising. From the perspective of oracy, this question implies pragmatic competence and familiarity with socio-cultural norms such as politeness strategies, taboo language and, harking back to interaction, turn-taking. CLIL programmes frequently involve learners becoming involved with target language speaker peers – through initiatives such as e-pals, exchanges or collaborative projects, and thus provide opportunities to gain first-hand experience in this area.

5.2. Plurilingual competence

One approach to plurilingualism is akin to multi-monolingualism, in as much as each of the languages in a speaker's repertoire may be considered separate entities in a collective. From this perspective we can certainly talk about developing L2 competence, although we should probably do so within international, rather than native-speaker, parameters. Seidlhofer (2003:11), for example, points out, that EIL (English as an International Language) is the "default option" in NNS classrooms. Thus far, work on international models is still in its infancy, and dominated by English, yet CLIL research could make a significant contribution here, both by contributing towards the elaboration of an international model of English and by widening the field to include other languages.

In addition, plurilingual competence needs to address the question of bilingual competence. If CLIL classrooms are idealised as bilingual (rather than dual-monolingual) spaces, it opens the door to bilingual strategies such as the use of L1 in repair and as a solidarity marker. Research conducted with bilingual speakers has identified 'felicitous' bilingual linguistic behaviour – for example the free-morpheme constraint (Poplack 1980/2000) and an apparent preference for single nouns and discourse markers in code-switching (Anderson and Toribio 2007; Marian and Kaushanskaya 2007) – and if CLIL aims to produce functional bilinguals, it should also be both aware of and promoting this behaviour.

6. Conclusion

On the premise that it represents a fundamental concern in education, this article has attempted to draft a preliminary framework for Oracy in CLIL. As previously noted, this model is posited as multi-faceted. That means that if it is to work, we should be able to discuss each of these elements from diverse perspectives including CLIL research, planning, implementation and evaluation. Within the constraints of the current piece, and at an early developmental stage, the model is of necessity incomplete, yet if this discussion is taken up and develops, it will have served its main purpose.

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Teachers' questions in CLIL contexts

Irene Pascual Peña*

1. The present study

The present study is framed within the UAM-CLIL project (Universidad Autónoma of Madrid – Content and Language Integrated Learning), whose general aims are to identify the linguistic needs of CLIL learners of social sciences (History and Geography) in secondary education and to provide teachers with support and useful tools in order to face their students' linguistic needs. The specific aims of this project are: analysis of learners' output (both written and oral production per year about a topic belonging to the social sciences syllabus); analysis of the input students get (mainly the textbook and the teacher); comparison between CLIL students and Spanish native students on the same topics and of the same age.

Given that teachers' language use has an influence on their students' output and that questions may be one of the most important features of teacher language, the types of questions teachers ask can influence the quality of students' output. This is something that some linguists have previously claimed: certain types of questions require responses that are longer and of a better quality (Long and Sato 1983, Stubbs 1983, Brock 1986).

One of the objectives of this paper is to offer a perspective on the type of questions that teachers use in CLIL classes. Three different typologies that respond to different criteria have been in use: referential vs. display questions (Mehan 1979); open vs. closed (Barnes 1969); and questions for facts/questions for explanations/questions for reasons/questions for opinions/meta-cognitive questions (Dalton-Puffer 2007: 199). These typologies are used in order to find out what patterns of questions appear in CLIL classes in Spain and, at the same time, to find out whether the type of question influences the quality of the response (a question to be addressed in future research). The second objective is to find out whether there are significant differences regarding the use of questions between the two CLIL

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* The author's e-mail for correspondence: irenepascual84@hotmail.com.

teachers in our data. Since they have different backgrounds, it can be hypothesised that differences will arise.

2. Data

The data come from the UAM-CLIL project, for which data is collected in CLIL classes at two different high schools in Madrid. It consists of eight CLIL lessons in which the content subjects taught through English are Geography and History. There are two different teachers in the data: four sessions belong to the group taught by one teacher; the other four to the second group taught by another teacher. There is a great difference between them: one of them (Teacher A) comes from a language background, that is, she is a specialist in both content and language, whereas the other one (Teacher B) is only a specialist in content. Therefore, it will be very interesting to compare how these two teachers use questions.

The four sessions per teacher were collected over three consecutive years (from 1st to 3rd year) with roughly the same students. There are two sessions from the first year (one on History, another one on Geography) and one session from each of the two following years (on History).

In each case, the data belong to an end-of-topic whole-class session: students were divided into small groups and given time to think about some questions related to a topic they had studied previously (the same prompt was used by both teachers). Thereafter, the questions were discussed with the whole class.

3. Theoretical framework

Asking questions is the key to knowledge (Postman 1979). Therefore, if we focus on the school context, questions are going to be a key element for both teachers and students.

According to McCormick and Donato (2000: 183), questions are "a fundamental discursive tool for engaging learners in instructional interactions, checking comprehension and building understanding of complex concepts".

3.1. Open vs. closed questions

This typology was introduced by Barnes in 1969. The difference lies in the amount of freedom that the questioner gives the responder for the answer. Closed questions are those whose possible answers are limited. Normally, they require a yes/no answer. If a limited range of answers can be determined for a given question (normally, only two or three possible answers), that

question will be considered as closed as well. The rest are considered as open questions. They typically start with a wh-word (*why, what, when, where, who, how*) (Dalton-Puffer 2007), and they require longer answers.

3.2. Display vs. referential questions

Mehan (1979) introduced the typology of display and referential questions. Display questions are questions the answer to which is known by the questioner, whereas the questioner does not know the answer in referential questions (Mehan 1979, Long and Sato 1983). Answers to display questions are often just one-word answers. They are very frequent in educational contexts: in fact, many studies show a tendency that display questions are used by teachers more frequently than referential questions (Long and Sato 1983: 283, Musumeci 1996: 299).

On the other hand, referential questions normally trigger more complex and longer answers from the students. They are said to be real (Dalton-Puffer 2007) because the questioner does not know the answer to the question, so the purpose is getting some kind of information that the questioner lacks. This is the commonest purpose of questions in real-life conversations.

3.3. Questions for facts/questions for opinions/questions for reasons/questions for explanations/ meta-cognitive questions

The third typology is the one proposed by Dalton-Puffer (2007: 98). This classification depends on the type of information which is being looked for. Questions for facts ask for objective happenings (*what happened with the floods*?); questions for opinions ask for the students' personal opinion about a fact or issue (*do you think there were economical reasons*?); questions for reasons look for arguments or causes why something happened (*why along rivers*?); questions for explanations ask about how something happened (*how did that affect*?); and, finally, meta-cognitive questions are those which engage the learner in an extended dialogue to argue a particular position or to be aware of their own mental processes (*what do you mean*?) (Dalton-Puffer 2007)

4. Results

Table 1 shows the mean percentages of open and closed questions uttered by each teacher. It can be observed that the mean percentages are very similar for both teachers, although Teacher B's percentage for open questions is slightly

higher; in the same way, Teacher A's percentage for closed questions is higher than that of Teacher B.

	Teacher A		Teacher B	
	no.	%	no.	%
Open	309	79.8	229	87.7
Closed	78	20.2	32	12.3

Table 1: Mean percentages (%) and frequencies (no.) of both teachers regarding the open-closed typology

Results of the second typology (display and referential questions) can be seen in table 2. As with the first typology, the mean percentages of both teachers are quite similar. Nonetheless, Teacher A gets a higher mean for display questions whereas Teacher B's percentage for referential questions is higher.

	Teacher A		Teacher B	
	no.	%	no.	%
Display	320	82.7	189	72.4
Referential	67	17.3	72	27.6

Table 2. Mean percentages (%) and frequencies (no.) of both teachers regarding the display-referential typology

Table 3 shows the results of the analysis of the third typology of questions. We find that questions for facts are the most frequent ones for both teachers, with the frequency being higher for Teacher A. Also Teacher A asks more questions for explanations, while Teacher B is the one who has higher percentages and total frequencies regarding the other three types of questions: questions for reasons, for opinions and meta-cognitive questions.

Teacher A	Total	Mean(%)	Teacher B	Total	Mean(%)
Facts	257	73.6	**Facts**	162	63.3
Explanations	20	5.7	**Explanations**	15	5.9
Reasons	32	9.2	**Reasons**	45	17.6
Opinions	37	10.6	**Opinions**	32	12.5
Meta-cognitive	3	0.9	**Meta-cognitive**	2	0.8

Table 3: Total numbers and mean percentages of both teachers regarding the third typology of questions (Dalton-Puffer's typology, 2007)

By correlating the typologies, three types of questions that reveal differences between the two teachers could be identified, which are the following: Open Display questions for Reasons (e.g. *Why can droughts transform some areas into deserts?*); Open Referential questions for Opinions (e.g.. *What would you do to help after an earthquake?*); and Open Referential questions for Reasons (e.g. *Why do you think the volcano is the worst natural disaster?*). As illustrated in Table 4, teacher B has considerably higher mean percentages for all three types and also asks more questions.

	Teacher A (mean numbers)	Teacher A (%)	Teacher A (%)	Teacher B (%)
Open Display questions for Reasons	32	9.2%	41	16%
Open Referential questions for Opinion	25	7.2%	31	12.1%
Open Referential questions for Reasons	0	0%	5	2%

Table 4: Types of questions (correlating the three typologies) where bigger differences between teachers are found

5. Discussion of findings

First of all, the results regarding the first typology of questions (open/closed) reveal similarities and differences between the use of these types of questions by both teachers. It is clear that both of them ask much more open questions than closed ones. Dalton-Puffer (2007: 101) discovered that CLIL teachers in her data also made more open than closed questions, although her percentages for open questions were not as high (63%) as the percentage of open questions found here (79-87%). Romero and Llinares (2001) led a study in which they compared the types of interrogatives made by teachers in a bilingual school and a non-bilingual one at the nursery level, and they found that the teacher in the non-bilingual school asked more open questions (65.1%) than the teacher in the bilingual one (43.3%). In the present case, even though the percentages are quite similar, it can be noticed that Teacher B has a higher percentage for open questions and lower for closed questions than Teacher A.

As regards the second typology, the same tendencies seem to operate. Both teachers ask more display than referential questions, something which

other studies have also proved to be the case (Long and Sato 1983, Musumeci 1996), although Dalton-Puffer (2007:123) reports that in her data, referential questions are more frequent than display questions. Romero and Llinares (2001) found that display questions were more frequent in both bilingual and non-bilingual schools, although the percentage was higher for the non-bilingual school (95.4%) than for the bilingual one (64.7%). Again, in our case, Teacher B has a higher percentage of referential questions and a lower one for display questions than Teacher A. It was claimed before that both open questions and referential questions are more likely to promote more complex answers on the part of the student (Long and Sato 1983, Stubbs 1983, Brock 1986). The fact that Teacher B obtains higher percentages for these two types of questions may make a difference in the quality of the responses offered by Teacher B's students as opposed to Teacher A's. At first sight, one could think that, since Teacher A has a language background, she would ask more open and referential questions. Due to her profile, she might be more aware of the importance of language, and so she may ask these types of questions more frequently than the other teacher to obtain more elaborated answers on the students' part at the linguistic level. The present data proves this initial impression not to be true.

In the third typology, Teacher A's total frequencies and percentages are considerably higher with regard to questions for facts and questions for explanations. This contrasts with questions for reasons, for opinions and meta-cognitive questions, where we can observe that teacher B's means and percentages are higher than teacher A's. The presence of questions for opinions is something crucial in order to establish the interpersonal metafunction of language (Halliday 2004) and also to use the foreign language in a way which is closer to a natural use, as opposed to the use of it in other educational contexts, such as EFL contexts. Dalton Puffer (2007: 125) claims that questions for facts are the most frequent ones. This is true in the present data too, though the rest of the questions are also present. Dalton-Puffer (2007:101) found out that 89% of the questions in her data were questions for facts and 11% were questions for explanations, for reasons, and for opinions. Even though the percentage of questions for facts in this study is the highest (73% for Teacher A, 63% for Teacher B), there is still room for other types of questions to appear.

By comparing the three typologies of questions, it is observed that all types of questions have a higher percentage and a higher mean with Teacher A. Teacher A simply asks more questions of all types. The only three types of questions that teacher B asks with more frequency are open referential

questions for opinions, open display questions for reasons and open referential questions for reasons.

For future investigation, it would therefore be really interesting to analyse students' responses and see whether the type of question asked prior to the response has an influence on the students' output. Maybe certain types of questions trigger more complex responses on the students' part than others, and maybe the differences discovered between teachers turn out to correlate with differences between both groups' performance regarding the quality of the responses.

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Language Functions in CLIL Classrooms: Students' Oral Production in different classroom activities

Amanda Pastrana Izquierdo*

1. Introduction

The need to create a context where language is learnt through really *participating* in using the language was one of the reasons that took CLIL to schools. From this it follows that oral production of students is an important concern in CLIL. In a foreign language context like the bilingual schools of Madrid, for the majority of the students the CLIL classroom is the only situation where they have an opportunity to use the foreign language with a purpose other than practicing the language itself (as in the foreign language class) (Llinares 2007). The overall communicative goal is also reflected in the *CLIL Compendium* where one of the aims formulated in the language dimension is to "develop the oral communicative skills" (www.clilcompendium.com, December 2009). However, while this need is implicit in the objectives of CLIL it is sometimes forgotten in the *real* classroom. This study was conceived with the concern of fully exploiting the CLIL classrooms as real communicative contexts where students can take an *active* role in the practicing and learning process. It is a way of conceiving of the CLIL classroom "as an opportunity for importing the element 'learning language in the street' into formal education" (Dalton-Puffer 2007: 8).

In order to fully exploit this context I thought it necessary to leave the *whole class* traditional methodology behind and use more group activities where students could really *participate* in the *communication*. I believe that a more varied use of language functions and school registers is related to class methodology. Gassner and Maillat (2006) related the higher amount of student output to the use of certain didactic strategies by the teacher, for example role-play. Moreover, I think that small group discussion and role-

* The author's e-mail for correspondence: mandu82@hotmail.com.

play favour the varied use of registers and functions independently of the age group. To test this hypothesis I set up a comparative analysis of students' language production in three group activities as compared with a whole class session. I intended to find the answers to two main research questions:

1. Do small group discussions and role-play activities favour the use of communicative functions independently of age?
2. Do they promote the use of different registers?

2. Theoretical background

When approaching the research questions it was clear that in order to analyse the language I needed to use a theoretical framework that focused on how language is used. The Systemic Functional Framework was chosen as the main basis of the study, taking into account two aspects: the registers (instructional or regulative) and two main functions: the mathetic (Heuristic, Informative, and Personal) and the pragmatic (Regulatory, Instrumental, and Interactional) as in the taxonomy developed by Llinares (2006). The first category analysed were classroom registers. When speaking about the pedagogic discourse of the classroom, Christie refers to curriculum genres and macrogenres. She argues that this discourse has to be analysed and understood in terms of the operation of two registers:

> […] a first order or regulative register, to do with the overall goals, directions, pacing and sequencing of classroom activity and a second register, to do with the particular 'content' to be taught and learnt (Christie 2002: 3)

Christie's definition of registers (Christie 2002) was used at this level of analysis. But I also took into account a lower or more concrete level of language analysis: language functions. To do so I used Llinares' taxonomy of functions of children's interlanguage in EFL preschool contexts (Llinares 2006). LLinares adapted Halliday's and Painter's classification of the protolanguage of the child to the second language preschool conditions present in her study. She decided to take the two macrofunctions described by them in the second stage of the child's language development: the mathetic (Heuristic, Informative, and Personal) and the pragmatic functions (Regulatory, Instrumental, and Interactional). The mathetic corresponds to the ideational function in the adult's language and the pragmatic corresponds to the interpersonal (2006: 176). Due to the similarities between the contexts, Llinares' (2006) taxonomy of functions is also employed in this study:

2.1.Mathetic function

The mathetic function is the function we use when we speak about the world and it includes heuristic (demand information), informative (give information) and personal function (give opinions, talk about personal world). This function is very common in classroom discourse as it represents all the language choices used to transmit knowledge. They tend to be the most frequent functions in the classroom. In the tables below, the right column represents the functions: H stands for heuristic, IF for informative, and P for personal.

Heuristic examples from primary school students (Grade K):

- María L: How do you say it in English %X%?	I	H
- María L: What do you want	I	H

Informative examples from secondary school students (Grade 10):

- that kings and nobles are the most benefied	I	IF
- They have land but part of their land	I	IF

Examples of the personal function from primary school teachers (Grade K):

- that´s a good idea but not %X%..	I	P
- Teacher: very good, this group have shown the idea of recycling	I	P

2.2. Pragmatic function

The pragmatic function represents the language used to interact with others. This category is seen very seldom in classroom discourse and therefore it is the one we hope to promote with group activities. It includes the regulatory (used to control the behaviour of others), the instrumental (to control the behaviour of others for a personal benefit) and the interactive functions (language used for phatic purposes). In the last column we can see: RE for regulatory, IS for instrumental and IT for interactional:

Use of the regulatory function by secondary students (Grade 10):

- Elena: We got to discuss,	R	RE
- we just have	R	RE
- to give the reasons	R	RE

Use of the instrumental function by primary students (Grade K):

- Patricia I: Lidia! Lidia! Do you sit with me %X% in informatic?	R	IS
- Elena: Shhh! We are.. we are discussing, Mariola	R	IS
- Jose: I don't understand!	I	IS

Use of interactive function by secondary teacher (Grade 10):

- Shaun: Okay, thank you, they didn't have any rights,	I	IT-IF
- so thank you everybody	R	IT

3. Methodology and data

The methodology used includes a more qualitative analysis where the data was classified into the different registers and functions and a more quantitative part where the results were compared.

The data used for this study was taken from a corpus of spoken English as a foreign language in CLIL contexts. This corpus was collected at a private bilingual school in the outskirts of Madrid and comes from two classes: a second year of primary class (grade K) in which the researcher was also the teacher and a second of secondary class (grade 10) with a native teacher.

The secondary and primary data were collected by the researcher and a colleague in April 2008 and May 2009 respectively. In the primary class the researcher and her colleague were both teachers and observers. The primary data is part of a larger corpus of three grade K classes but the present study only analyses one of these. The data comes from a private school where children receive a total of three and a half to four hours of English a day at the primary level and the whole school day minus one hour (more or less six hours a day) at the infant level (from three to six). None of the children in the observed classes are native speakers of English although some have been attending the school from the beginning and others have not. This fact has not been considered relevant for the study. The primary students have EFL class and Science (Conocimiento del Medio in the Spanish curriculum) in English. They are in the second year of primary school (grade K) and are 7 and 8 years old. The recordings took place in the Science class, as it is the class where English is used as the medium of instruction. EFL and CLIL classes are both regularly taught by the same two teachers who collected the data. One of the teachers and also researcher of the present study is a bilingual teacher and the

other is a foreign language speaker of English. At the secondary level the students receive a total of five hours to seven hours a week of English of which five are of EFL class and two are of History and Geography where English is used as a medium of instruction (CLIL). The recordings of the second of secondary class (grade 10) were done in the History class. The students of this class are 15 and 16 years old.

At both levels, primary and secondary, the data analysed was recorded in two sessions. Both sessions were elaborated and planned in collaboration by the researcher and teachers of the subjects. In the first session the students took part in a small group activity where they had to discuss the answer to a questionnaire on a previously introduced topic. After that the teacher did a whole class summing up session. In the second session two group activities were done: a role-play preparation in which the students were grouped by roles and a role-play in the original groups. All activities except the whole class session and the role-play preparation were done in the same original small groups (from 4 to 6 members). The groups in the role-play preparation were bigger (from 7 to 10). The whole class session was done with the whole group, 26 in grade K and 23 in grade 10.

Both the primary and secondary sessions contained the same type of activities and were organised in a similar way but because of the curriculum and age difference it was impossible to work on the same or similar topics. The units of the curriculum chosen were the ones the students were following at the time. In second of primary the topic was Pollution and in second of secondary the topic was feudalism.

The collection of the data was done as follows. Both sessions were audio recorded by the researcher and her colleague. All groups were recorded in the primary session but unfortunately and due to technical inconveniences only three of the five groups were recorded in the secondary session. The recorded groups were chosen at random. In the primary data the sessions were also conducted by the researcher and colleague, but the secondary sessions were conducted by a native teacher. The researcher and her colleague also went round the class as observers and took notes. In the primary class the teachers were forced to intervene much more than in the secondary class, where students were more used to working independently and in groups. In the primary sessions, however, there had to be a previous training time on these types of activities as the students were not used to this type of methodology. In the training, two similar activities were done with different classroom topics in order to familiarize the students with group work and set a few indications to help them organise themselves. Another problem that had to be solved at the primary level was to make students speak English with their

peers. These CLIL classes are conducted exclusively in English but the primary school children normally switch to Spanish when working on a task and speaking to their peers. They use English only to speak to the teacher, no matter the topic (organisational, personal or content-related) but they address their peers in their L1. To make them understand and get them used to speaking English with their friends, a working methodology called "Englishland" was introduced[1]. While the class was in "Englishland" all children had to speak English and a "speaking police" was assigned in order to make sure this rule was followed. I must add that the children were highly motivated with this methodology and there was an enthusiastic switch to English not only in the activities prepared but also in general.

4. Findings

4.1. Qualitative analysis

In the first part of the qualitative analysis I analysed the register. I found that the instructional register is the one mostly used in the classroom by both students and teachers. These are some of the examples found in the analysis:

Example 1: Instructional register: teacher (T) of grade K:

(1)   T (1): So if we have a car, it brings smoke into the air, and that is the way it pollutes

Example 2: Instructional register: student (P1) of grade 10:

(2)   P1 (2): They have land but part of their land they give them to their nobles and to %X% and the king …

The regulative register was also present in the classroom but was normally in the hands of the teacher, although in certain activities it could also be used by the students.

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[1] This methodology was adapted from a proposal described by Barbara Buchholz (2007).

Example 3: Regulative register: teacher of grade 10:

(3)   So start talking now…The important thing is talking, you have to talk

Example 4: Regulative register: group of students (P1, P2, P3) of grade K:

(4)   P1: .but don't say it to anybody, eh?
         P2: Your turn, Cristobal! Cristobal, your turn! ..
         P3: No, your turn! (I)

In the second part of the qualitative analysis I classified the clauses in terms of functions according to Llinares' (2006) taxonomy. I found examples of all of the functions in the data.

Example 5: Heuristic function by a student of grade K:

(5)   What do you want?… Do you know or no?

Example 6: Informative function by a student of grade 10:

(6)   and knights they are benefied but %X% that kings and nobles are the most benefied…

Example7: Personal function by a teacher of grade K:

(7)   Very good, this group have shown the idea of recycling

Example 8: Regulatory function by a student of grade 10:

(8)   We got to discuss, to discuss…we just have to give the reasons,

Example 9: Instrumental function by a group of students of grade K:

(9)   P1: I don't hear!...
         P2: I don't understand!
         P3: I don't understand you

Example 10: Interactive register by a teacher of grade 10:

(10)   Okay, thank you, they didn't have any rights, so thank you everybody

4.2. Quantitative analysis

In order to obtain a general view of the differences between whole class and group activities, the first aspect we analysed was the total amount of clauses uttered by teachers and students. As expected, the quantity of oral production of students and teacher was very different in the whole class and the group activities. Most of the talking in the whole class activity was done by the teacher whereas in the other activities the students were the main speakers.

The first aspect I analysed were the registers. When I analysed the number of regulative and instructional clauses used by teachers and students in the classes I also found a similar distribution of the Teacher-Student pattern. The number of the respective clauses per class and participant type (T or S) is charted in graphs 1 and 2, as regards whole class activity and group activities respectively.
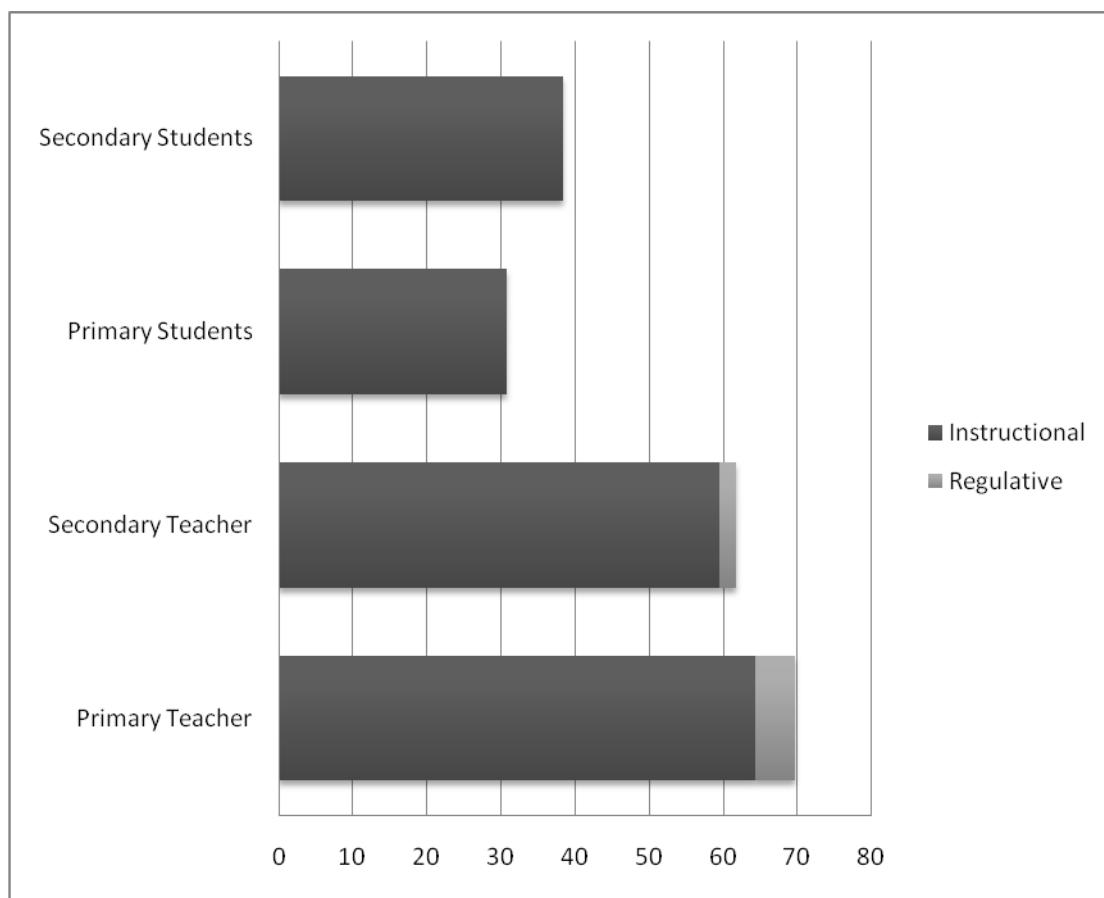

Figure 1: Register usage in whole class activity
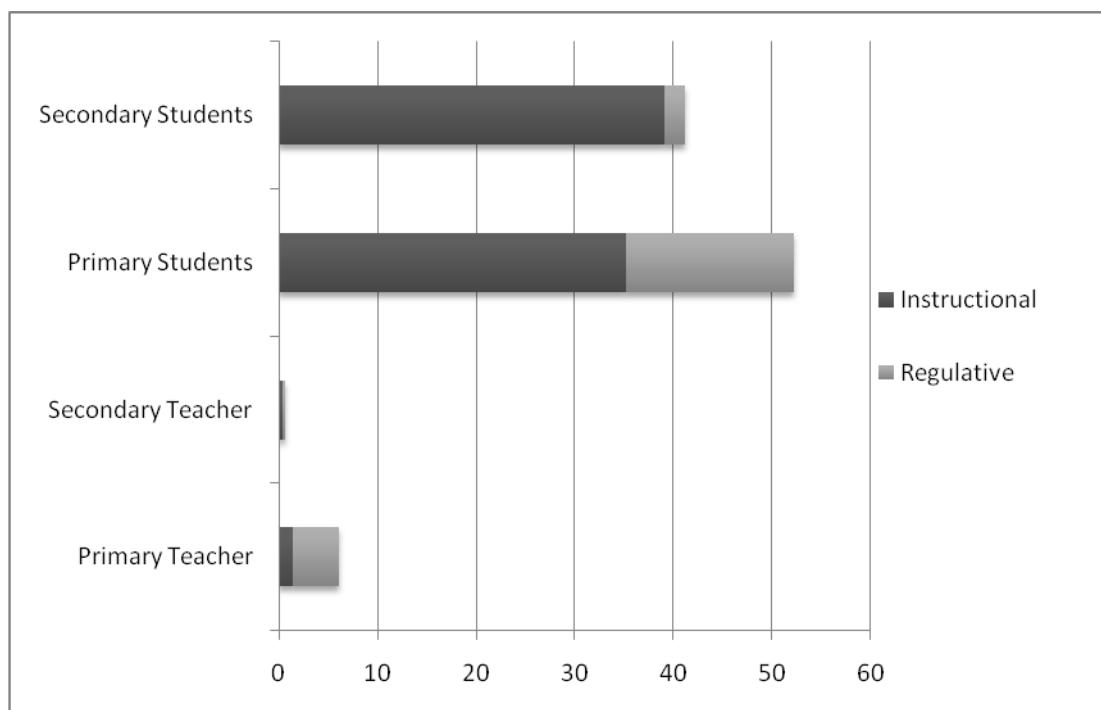
Figure 2: Register usage in three group activities

As we can see in the first graph, in the whole class activity, the instructional register was present in both the students' and the teachers' production but the regulative register tended to be in the hands of the teacher. However, in the three group activities represented in the second graph, students not only became the main participants, which we saw before in the distribution of the oral production, but also started to use the regulative register which was previously in the hands of the teacher. They had to do group tasks and as the teacher was not there to organize the activity they had to organize it themselves.

The way students used the regulative register to organise themselves was limited to giving commands in the primary class, here we have one example of this type of use:

Example 11: A group of students (P1, P2, P3, P4, P5 and P6) of the primary class try to organize themselves in the first group activity (answering five questions about the topic after briefly discussing it)

(11)   P1: Give two ideas to
        P2: No! It's not your turn!
        P3: Patricia, read number five
        P4: give two…
        P5: No, but wait, wait
        P3: Adrián don't read, it doesn't read

P6: Yes , he reads
P2: yes, yes reads
P6: The third.. you read Teresa..

The second aspect analysed were the functions. As expected, the most common function found in the whole class activity data was the informative. The second most common was the heuristic function and the third the personal. This pattern seems to be very similar in the primary and in the secondary classes. It also seems to follow the traditional I-R-F pattern described by Sinclair and Coulthard (1975). The IRF pattern is very common in this type of class where the interaction between teacher and students tends to be quite hierarchical. The Teacher speaks, has control of the class, addresses certain questions, gets the expected response or not, evaluates and continues. This kind of session tends to have a scarce and brief participation of students, who only give responses to the teacher's questions. They are mainly composed by utterances in content-informative, question-heuristic and feedback-personal function. An example of this pattern can be seen in the following example of the second of secondary class:

Example 12: Teacher and students (P1 and P2) of the second of secondary class in the whole class session

(12)   T: To get more power, how did they get more power? Sofia
        P1: By getting more land
        T: By getting more land so is, more soldiers, more land, more taxes.. Did knights benefit from feudalism? Why? Rocio
        P2: In part they benefit and in part not, they benefited because (…) but they didn't benefit because they had to go to fight.
        T: Okay, they had to go to fight, okay, That's good

In contrast, the oral production of teachers in the group activities was almost non-existent and when I analysed the distribution of the number of clauses assigned to each function I noticed that apart from the three mathetic functions students seemed to start using other functions like the regulatory and instrumental function as well.

Example 13: Instrumental function used by primary students in the group activity, answering and discussing several questions.

(13)   P1: And you read, Daniel, you read
        P2: One moment!
        P1: You read

P2: One moment

Example 14: Regulatory function used by primary students in the role-play preparation activity.

(14)   P1: Read!
         P2: How do you say it in English %X%?
         P3: you have to say a thing about what you read

5. Conclusions

This study shows that the register phases and communicative functions used by primary and secondary teachers and students appear to follow similar patterns. It also seems to show a more frequent change of registers and the use of a wider spectrum of functions by students in group activities (student to student and without much intervention by the teacher) than in the whole class teacher-student interaction. This led me to the conclusion that the experimental, student-centred lessons designed for this study seem to create an alternative and more naturalistic environment than the classical whole class sessions. However the data analyzed in this study is insufficient. More examples of CLIL classrooms need to be studied to make these statements conclusive. It would perhaps also be interesting to take a further look into longer stretches of classroom discourse, for instance a whole unit stretching over several weeks.

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A comparison of the effect of CLIL and mainstream instruction on German L1 speakers' pronunciation skills

Birte Felicitas Varchmin*

1. Introduction

Because of the increasing necessity to communicate in English, new teaching methods such as Content and Language Integrated Learning (CLIL) have been developed in European countries such as Germany. While the effects of CLIL on many areas of language learning such as the students' morphology, vocabulary, and reading and writing skills have been researched intensively, pronunciation has hardly been observed. This neglect of pronunciation is surprising considering that a native-like accent, arguably, is valued as highly prestigious by many language learners (see e.g. Dalton-Puffer, Kaltenböck & Smit 1997). In this light, this paper, which summarizes the results of the empirical study the present author conducted for her Master thesis (Varchmin 2008), focuses on features of pronunciation of German CLIL and mainstream students of English.

The two features of pronunciation chosen for observation can be troublesome for German learners of English due to variations in the phoneme systems of English and German and differences in the rules of English and German phonology. The first feature looked at is the dental fricatives (DF), which German speakers of English often replace by other sounds as the DFs do not exist in German. The second feature is final devoicing which is typical in German, but not in English, and is often transferred to English by German L1 speakers. Although speakers of some native varieties of English do pronounce the voiced dental fricative as an alveolar plosive (Mesthrie et al. 2005: 173), they are more consistent and fluent than NNS of English, who often hesitate and use a mixture of the target and non-target like pronunciation. In general, the DFs and final voiced consonants (FVCs) are

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* The author's e-mail for correspondence: BirteVarchmin@web.de.

taught at German schools, and are expected to be pronounced according to the dominant varieties of English (see research by Kufner 1971, Söll 1981, Kucharek 1988, Kenworthy 1992).

2. Hypothesis

The underlying hypothesis of my study is that German students of English who make fewer errors when pronouncing the DFs and FVCs have understood or unconsciously acquired the rules of English and are better at communicating in English. Therefore, if CLIL equips students for international communication, CLIL students should make fewer errors than mainstream students.

3. Methodology

To find out whether this is the case, several ninth graders of a Gymnasium (German secondary school from grade five to thirteen) were given a questionnaire on the basis of which ten CLIL and ten mainstream students were then interviewed. The questionnaire was concerned with the languages the students know, as well as their interests and time they spend reading books, watching television, listening to radio and CDs, and talking to others in English. Questions about pronunciation were not included so that the students would not become aware of the focus of the research and would thus not pay too much attention to *how* they speak during the interview.

On the basis of the students' answers to the questionnaire, i.e. their language background – they had to be L1 speakers of German and had to have an average interest in and contact with English –, ten CLIL and ten mainstream students were selected for a one-on-one interview. The students were limited in number due to the fact that they had to fit certain criteria and that the aim was to gather qualitative data from each student. The students were interviewed individually so that each speaker could be identified, and would talk for about the same amount of time and about similar topics. Further, because there is often assimilation towards other speakers, a one-on-one interview with the researcher guaranteed that students did not adopt errors or correct pronunciations of their peers. Because the same researcher was present in all interviews, the preconditions are the same for all students, so that variations cannot be explained by the interaction partner.

The interview can be subdivided into three parts: The first part, which is called 'chit chat', consists of some warm-up questions about the students' holidays, their hobbies, the questionnaire, and their opinion about school uniforms. It was expected that to give their opinion at the end the students

would have to concentrate on the content without concentrating on the language. Because the words and phonemes uttered by the students can only be controlled to a limited degree during chit chat, students were additionally given a reading exercise in the second part of the interview, which is referred to as 'reading'. The combination of spontaneous speech and a reading activity has been recommended, among others, by Gut (2003), who wrote the story "The tiger and the mouse" for her Learning Prosody in a Foreign Language (LeaP) project (Gut 2003: 22). Because Gut's story contains all phonemes of English and concerns an easily accessible topic, unrelated to CLIL, it has also been used in the present study. To avoid possible anxiety while reading, the students were allowed to read the story silently and to ask questions before the story was recorded. They were given an excuse for the need to read the story: They were told that they had to judge how adequate the story was for school and that other people would listen to the discussion and needed to know what it was based on. The third part of the interview, then, was a short 'discussion' about the content, form and language of the story. All three parts of the interview were audio-recorded and transcribed in Praat.

4. Findings

For the evaluation, mean scores of the instances of correct articulations of the DFs and FVCs were established during the whole conversation, 'chit chat', 'reading', and 'discussion'. As the sample of ten students from each teaching context is small, the results outlined here are only tentative, and do not allow generalizations valid for all CLIL and mainstream students.

On average, about half of the dental fricatives were articulated correctly by both groups of students: CLIL students produced between 5.74% and 85.71% of the dental fricatives correctly with an average of 56.35% correctly; mainstream students pronounced between 0% and 89.36% percent correctly with a mean of 49.49%. The worst and the best student are in the mainstream group, and no significant differences in the performance can be found between mainstream and CLIL students. Distinguishing between voiced and voiceless sounds, CLIL students surpassed their peers when articulating the voiced DF: they articulated 61.30% correctly; mainstream students 52.10%. In contrast, mainstream students outdid CLIL students when producing the voiceless DF: mainstream students pronounced 43.72% correctly; CLIL students 37.97%. The variance in performance within each group is about the same for DFs in general as for the voiced and voiceless DFs. Even though CLIL and mainstream students varied in their articulation of the DFs, the difference was not significant.

Compared to mainstream students, CLIL students were minimally but not significantly better at the pronunciation of the DFs during 'chit chat', 'reading' and 'discussion'. The situations that were favourable for one group of students were also favourable for the other group of students: both groups were best during 'chit chat', followed by 'discussion' and 'reading'.

The success in the articulation of the DFs was not mirrored in the students' pronunciation of the FVCs: whereas some students showed similar results in the articulation of both features, others performed differently.

CLIL students articulated between 25.6% and 41.54% of the FVCs correctly, with a mean of 32.19%. They were thus slightly weaker than mainstream students who pronounced 18.27% to 50% of the FVCs correctly, with a mean of 35.64%. With a high standard deviation, the correlation between the success in FVCs and the teaching method was weak and insignificant. Looking at the individual FVCs, CLIL and mainstream students performed similarly when articulating the final /d/ and /g/: CLIL students pronounced 40.58% of the final /d/ correctly, and mainstream students 42.4%; CLIL students articulated 41.99% of the final /g/ correctly, mainstream students 45.33%. In contrast to the small correlation between the teaching method and the pronunciation of the final /d/ and /g/, there was a significant correlation between the final /v/ and /z/ and the teaching method: CLIL students articulated 35.1% of the final /v/ correctly; mainstream students surpassed them with a mean of 47.03%. Similarly, mainstream students were better at pronouncing the final /z/ – they pronounced 3.43% correctly, CLIL students only 1% – it may be speculated that this was just a coincidence. The final /b/ only occurred in the speech of one student, so that no generalizations can be made about this sound.

Considering the pronunciation of the FVCs during 'chit chat', 'reading' and the 'discussion', CLIL and mainstream students' results were again comparable. Both groups of students articulated the FVCs best during 'reading', and were weakest during 'chit chat'. Since they behaved similarly, there was no strong correlation between the teaching method and the pronunciation in these situations.

5. Conclusions

The data gathered revealed that a connection between the teaching method and the students' success in the pronunciation of two features, i.e. the dental fricatives and final voiced consonants, did not exist for this sample. Both groups of students behaved similarly in regard to the individual phonemes and situations. CLIL and mainstream students, who pronounced about half of the

DFs correctly, were especially successful during spontaneous speech, but less successful during reading. Their pronunciation difficulties in regard to the DFs could be due to the opaque spelling-to-sound correspondence. In contrast to the DFs, students, who pronounced about a third of the FVCs correctly, were best at the articulation of the FVCs during reading and worse during spontaneous speech. The difficulties during spontaneous speech are likely to be caused by a lack of attention to or awareness of the final letter/sound.

Due to the fact that a small sample of students has been interviewed in order to investigate the students' pronunciation skills in regard to the DFs and FVCs, further research is necessary to get more reliable data that allows further and more detailed generalizations to approve or disprove the findings. In addition to that, more sounds and possibly reasons for the outcome (e.g. the Critical Period, the role of pronunciation in CLIL and mainstream classrooms, letter-to-sound-correspondence while reading, etc.) should be considered.

On the basis of the small sample, however, it can be said that CLIL does not seem to enable students to pronounce English more target-like than other students.

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Study of linguistic transfer in CLIL students' oral discourse

Amaya Vázquez Díaz*

Many a researcher advocates the need for more specific objectives in Content and Language Integrated Learning. CLIL stakeholders and educational authorities are called on to draw up a clearer set of learning goals in CLIL frameworks (Dalton-Puffer 2007, Hajer 2000, Lyster 2007, Llinares & Whittaker 2006, among others) so that a balance may be kept between language and content. At present, though, it is the latter that usually comes to the fore while language learning remains in the background. Yet, there are many who claim that the target language should not be underestimated and this research piece offers evidence suggesting that some second language features are particularly hard to learn without a more explicit emphasis on formal aspects of the target language.

The present study thus investigates the most frequent, lingering types of language errors in CLIL students' interlanguage. As it turns out, these errors seem to be the upshot of first language influence resulting from cross-language formal differences that eventually give way to transfer phenomena. Most of the transfer errors made by the subjects may be easily ascribed to split and coalescence differences (Ellis 1994) between the first and the second language, and this analysis attempts to answer such specific questions as the following:

1. Are split transfer errors more frequent than coalescence errors or vice versa?
2. Is grammar transfer more common than lexical transfer or vice versa?
3. What are the most frequent transfer types?

The theoretical foundations of this research are to be found in language transfer descriptions that can be traced back as far as the 1980s and 70s. Ever

* The author's e-mail for correspondence: avazquez@lasallecampus.es.

since Uriel Weinreich (1953) and Robert Lado (1957) coined the concept of cross-linguistic influence into being, linguists have been widely concerned with the phenomenon of language transfer and the role it plays in second language acquisition. In the early 70s there were several transfer studies such as the ones by Schachter (1974) – who followed a contrastive analysis approach –, and Dulay & Burt (1974), who, having embraced the error analysis methodology, claimed that second language acquisition proceeded in the same way as first language acquisition. However, it did not take long for researchers to realize that language transfer could not be underestimated and further pieces of evidence in favour of cross-linguistic influence soon appeared (Cancino, Rosansky & Schumann, 1978). Language transfer also raised the interest of generative grammarians. Schwartz and Sprouse (1996) devised the Full Transfer/Full Access Model, whereby L2 acquisition is claimed to start off with an L1 grammar; and Selinker and Lakshmanan (1992) put language transfer errors down to a lack of positive input in second language acquisition. Further, cross-language interference provided a strong theoretical underpinning for prototype theories. In the early 80s Kellerman (1986: 39) found that everyday word senses were more transferable than 'esoteric' ones and Ringbom (1986) provided evidence suggesting that saliency was one of the underlying factors of language transfer.

Recently, though, language transfer research has delved deeper into new cognitive models such as the one put forward by MacWhinney (1992), namely the Competition Model. This theory accounts for phonological transfer as involving "the accretion of new lexical items based on an old set of phonological units" (375) and predicts massive L1 transfer in the early stages of L2 learning. Moreover, it expects more positive transfer between formally similar languages. Syntax, on the other hand, is said to be acquired through translation by way of a one-to-one lexical mapping strategy whereby learners make direct correspondences between lexical items from the first language and those of the second language. Yet, this strategy may eventually result in transfer errors because straight correspondences across languages might not always be available. If the one-to-one lexical matching does not apply, the learner is faced with one-to-many mappings, or else many-to-one mappings. The former phenomenon can be defined as a cross-language split difference, the latter as coalescence.

A rather straightforward realization of a split difference can be found in the breaking of Spanish infinitives into two English structures. Spanish uses one infinitival form regardless of the syntactic arrangement, whereas English uses either an infinitive clause or else a gerund structure:

Spa: Voy a **hacer** los deberes
        Hacer los deberes es aburrido.
Eng: I'm going **to do** my homework
        Doing my homework is boring.

However, a split difference can be realized in other ways and so it is necessary to sketch all the possible scenarios for splits to occur. A cross-language split difference takes place in any of the following settings:

1. When a one-word lexeme from the L1 appears as two or more L2 semantic units. An example would be the breaking of the English verb lexeme *agree* into the Spanish verb phrase *estar* de *acuerdo*. Notice that the split arises as English speakers attempt to learn Spanish as a second language.

2. If, on the other hand, a Spanish speaker were to learn English as a second language, he would be faced with the opposite phenomenon – otherwise known as coalescence; a semantic-unit-merging aspect of cross-language difference and one which, according to some researchers (Ellis 1994; Odlin 1989, 2003), should pose somewhat fewer transfer problems at that.

3. When a polysemous L1 lexeme – or else a multi-function grammar category – gives way to several L2 lexemes or grammar categories, each one bearing a shade of meaning or function otherwise encapsulated by the L1 unit. An example would be the splitting of comparative forms from L1 Spanish to L2 English.

   Spanish [*más + adjective*] → English [*more* + long adjective] / [short adjective + (*-er*) morpheme].
   Spanish *ser* or *estar* → English *to be*

I began by analyzing CLIL learners' social science oral output in two secondary state schools following an integrated curriculum in order to find the most common triggers of language transfer phenomena. The data analyzed comprised a set of six one-to-one interviews with the students per year, school and topic[1]. The 2005/06 oral production amounted to 24 ten-minute personal interviews, half of which were about the topic of natural disasters – these were recorded in the spring of 2006 –, and the other half about ancient

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[1] This piece of research made use of available data from the UAM-CLIL Corpus of Learner English, a project financed by the Autonomous University of Madrid and the Autonomous Community of Madrid (09/SHD/017105), and coordinated by Dr. Ana Llinares García and Dr. Rachel Whittaker.

civilizations, recorded in the summer of 2006. The 2006/07 data, on the other hand, consisted of 12 interviews about the topic of feudal Europe only – recorded in the spring of 2007. Notice that the last two years of secondary schooling, i.e. the data collected in 2008 and 2009, remain to be analyzed.

	Feb 2006		Apr/May 2006		Apr/May 2007		Apr/May 2008		Mar 2009	
	Geography: natural disasters (1st ESO)		History: ancient civilizations (1st ESO)		History: feudal Europe (2nd ESO)		History: Phillip II (3rd ESO)		History: World War I (4th ESO)	
Class Discussions (30 min)	A 4967 words	B 3549 words	A 3946 words	B 1952 words	A 3588 words	B 2808 words	A 2041 words	B 1645 words	A (To be transcribed)	B (To be transcribed)
Written Texts (20 min)	A 26 texts	B 17 texts	A 26 texts	B 25 texts	A 24 texts	B 23 texts	A 22 texts	B 17 texts	A (To be transcribed)	B (To be transcribed)
Interviews (six students)	**A 1665 words**	**B 2012 words**	**A 2214 words**	**B 2316 words**	**A 3802 words**	**B 5139 words**	A 4166 words	B 3794 words	A (To be transcribed)	B (To be transcribed)

Figure 1: UAM-CLIL Project: Data.

All the topics under discussion had been recently dealt with in class as part of the official syllabus of the Geography & History subject, and the students were questioned about it by a research team member who followed a guideline or prompt as the following:

1. *Why and where did cities appear?*
2. *Why did ancient civilizations become empires?*
3. *What do you know about pharaohs and kings in ancient civilizations?*
4. *Why were Egypt and Mesopotamia so important at the time?*

As has been explained above, the present study aims to analyze transfer phenomena in the students' interlanguage across a four-year time stretch. So far, though, I have only looked at the data corresponding to the first two years of compulsory secondary schooling, but the ultimate goal of this study is to keep track of transfer errors in the students' interlanguage throughout the four years of compulsory secondary education and so have a longitudinal picture of their linguistic resources when immersed in a CLIL program.

The subjects who took part in the study were immersed in a joint project by the Spanish Ministry of Education and the British Council. In 1996 an agreement was signed in order to start up the nation-wide implementation of a pilot bilingual project and so far this educational enterprise has been quite

successful. In the Autonomous Community of Madrid 10 primary and 10 secondary schools took part in the initiative, which has been running for over ten years now. The curriculum is an integrated one wherein subjects are taught both in English and Spanish, and the first group of students who took part in the project have recently finished CLIL secondary education and moved on to Baccalaureate. Although the integrated curriculum is still on trial, students attend ordinary EFL classes while learning other content subjects through English - usually Social Science and another subject, if content-language specialist teachers are available in the school.

This research piece, then, focused on the spoken English output of the first generation of students who completed secondary education within the aforementioned integrated curriculum, and the research questions it attempts to answer are in keeping with the overall goals of the UAM-CLIL project, which are:

1. To identify the linguistic needs of CLIL learners of Geography and History.
2. To describe formal features of the learners' interlanguage.
3. To provide support as well as useful materials for secondary teachers setting up CLIL projects.

The main aim of this particular study, though, is to explore formal features of cross-language differences that usually spark off transfer processes. Having analyzed over 15000 words of learner talk, I was led to a rather specific, recurring, formal feature of cross-language difference which seemed to underlie most instances of negative carry-overs from the L1 to the L2. The non-availability for quick translation of one-to-one mappings was found to be behind most of the transfer errors registered in the students' interlanguage samples, and the results so far suggest that split transfer errors are more frequent than coalescence transfer errors, i.e. that the learners find it harder to "break up" an L1 unit into several L2 units than to do it the other way round, thereby making more split transfer mistakes. Moreover, grammar split transfer types were found to be more frequent than lexical split occurrences. Among the latter there were errors such as the following:

STUDENT 1: Only **the construction of the houses**, and technology but...
STUDENT 2: In... I **listen** that in Nueva York for example, they are, em, em, they are, they are, in the sea, and, em, mm, %L1 Que no sé L1% … and … mm %L1 No sé L1%.
STUDENT 3: The governments can bi-, but, mm, eh, governor, eh, governors, em, don't want to be, eh, get, in, in **problems**, in trouble. They…

Students 1 and 3 are overusing cognates (i.e. *construction* and *problems*) to the detriment of Germanic words, namely, *building* and *trouble*. Student 2, on the other hand, chooses the wrong verb instead of using the verb *hear*, thereby showing that he makes no difference between both lexical items, which also remain undifferentiated in his mother tongue. There used to be semantic differences between Spanish *oír* and *escuchar*, but these differences are being gradually smoothed out. English, on the other hand, still keeps distinct semantic collocations for each verb, but the student transfers the undifferentiation to the target language nonetheless.

Unlike lexical split transfer instances – which were hardly ever repeated by different students –, grammar split transfer types kept reappearing throughout the data. Thus I set out to identify the most frequent types and to classify all the tokens according to a grammar split transfer taxonomy, which included the following phenomena:

1. Article misuse:

> **RESEARCHER**: There is famine. OK. In certain countries because…?
> **STUDENT:** **The, the** pollution, eh, kill, a lot of animals.

2. Subject dropping:

> **RESEARCHER**: Yes, yes. But you don't know. OK. Um… What are the consequences of… earthquakes, for example?
> **STUDENT**: The consequences. That, eh, **((they)) destroy** many places.

3. Preposition misuse:

> **RESEARCHER**: Exactly ((Laughs)). Good. And do you…? What, what do you personally do to, to am, to prevent...? I mean, are you conscious about, natural disasters and you…? There are things that you do to prevent them, ah? Or not? In general. Any natural disaster.
> **STUDENT**: Mm. Natural disasters. %L1 Bueno L1%. We can prevent drought, eh, **((by)) using** less water, but, me personally, I am a disaster and…

4. Object dropping:

> **RESEARCHER**: In the sea. OK. And… and… what is…? Or how do you…? How did you feel when you watched the news and you saw… so many people running and…?
> **STUDENT**: I don't, **I don't like.**

5. Negative structures:

> **RESEARCHER**: Why, why are you a disaster? What kind of things do you do that you shouldn't do?
> **STUDENT**: Sometimes I… mm… lose the tap open.
> **RESEARCHER**: Ah.
> **STUDENT**: But…
> **RESEARCHER**: Is it because you forget, about it?
> **STUDENT:** Or because I don't, em, close it with... ((With the help of bodily language he tries to explain what he means)). I just…((the student makes a gesture)) and…
> **RESEARCHER**: Do it quickly.
> **STUDENT**: Ah, sometimes. **But no very much.**

6. Gerund/infinitive structures:

> **RESEARCHER**: Right .. OK. [...] For example, is there anything we can do to prevent companies to use these chemical products or, or not?
> **STUDENT**: **Don't buying them**.

7. Comparative structures:

> **RESEARCHER:** Why do you think they use too many? Because they want to, cause problems to their environment or…?
> **STUDENT**: I think that no. That because they are **more, cheaper** and…

8. The Saxon genitive:

> **RESEARCHER**: Mm… OK. But, um, um, didn't the king or the pharaoh, get them to fight for him? Mm? Didn't they have to fight?
> **STUDENT**: To the… to **the family of the pharaon**, and… people that worked to the pharaon.

It turned out that article split transfer types amounted to the largest number of transfer tokens instantiated by the learners and the longitudinal analysis of the first two years of CLIL-immersed secondary schooling suggests that this error type is most difficult to overcome. Article split transfer errors were realized in a number of different ways, all of which dovetail with the article split mapping devised by the author. In the following example the student overuses the overt definite article *the* due to the influence from his mother tongue and so carries it over to a target language slot that should already be filled with the zero article, which is the one due in the case of generic plural count nouns.

(1) STUDENT: The power of all the world was centered in those cities, because they, they were kings and the most important people, **the** noblemen, **the** priests, **the** scribes…

These results are of a piece with the evidence found by Llinares, McCabe and Whittaker (2008). Albeit from a different perspective, they analyzed the same data and found a rather frequent nominal group error in the students' interlanguage consisting of the presentation of new participants as if they were already known by the listener.

In other cases, the students overuse the nativelike alternative – usually the definite article *the* – to fill in the gap that should otherwise be filled by a possessive determiner or, again, by the zero article. Notice that, unlike Spanish, English demands possessive determiners for body part singular count nouns or else null articles for uncount nouns:

(2) STUDENT: When you brush **the** teeth, eh, switch off the water.
(3) STUDENT: **The, the** pollution, eh, kill, a lot of animals.

The study is still in progress and so far only the first two years of CLIL secondary schooling have been analyzed. However, it is intended as a long-term research aimed at tracking the evolution of split transfer errors in the students' interlanguage in an integrated curriculum of English-taught Social Science. By following both a longitudinal and a cross-sectional approach I intend to compare not only subjects from different socio-economic backgrounds, but also students with different mother tongues, as the soundest evidence in favour of transfer processes is always to be found in cross-L1 comparisons. Further, I mean to compare the students' output with both the teacher and textbook input in order to determine if there is any relation whatsoever between the students' transfer patterns and the foreign language sources they are exposed to.

Transfer research has traditionally focused on contrastive methodology and the analysis of written data, but has rarely dealt with spontaneous learner interaction. Hence, corpus research may provide the ideal setting to analyze realized error tokens and so look for common transfer-triggering patterns. What is more, Content and Language Integrated Learning is a relatively new, groundbreaking educational framework and mapping out the learning process in such contexts is all but crucial at the moment, all the more so because many have expressed their concern that language learning could be lagging behind content (Dalton-Puffer 2007, Hajer 2000, Lyster 2007, Llinares and Whittaker 2006, Llinares, McCabe and Whittaker 2008).

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Content and Language Integrated Learning (CLIL) in the mathematical setting

Nadja Wilhelmer*

1. Introduction

The integration of content and language has become an important issue in the Austrian educational system over the last decade, as the need to enhance language proficiency has been felt with increasing strength. To expand the field of language teaching to subject areas other than EFL classes, more and more schools have introduced bilingual education in their school profile (Darn 2006; Dalton-Puffer and Smit 2007: 7-11; Eurydice 2004/05).

English as a lingua franca is used all over the world and functions simultaneously as the international language for the natural sciences, which results in the need for students to be able to express themselves not only in everyday language situations, but also in content-specific conversations. More precisely, this means that Austrian students will require their English skills "in a variety of workplace-related settings" (Eurydice 2004/05), as they will be facing an increasingly international job market. Furthermore, the introduction of bachelor and masters programmes in Austrian universities has opened up the possibility of international studies for which a high level of subject-related language competence will prove most beneficial. CLIL thus offers a valuable qualification for the students' future lives, improving both their educational and professional prospects. This is also the case in the mathematical context and therefore the question arises why mathematics is frequently excluded from CLIL practices in Austria.

In a mathematical setting the language used is highly specialised, complex, and precise; one could even say that mathematics possesses its own language, with its specific vocabulary and structures as well as its visual and symbolic aspects such as symbols, graphs, tables, and sketches (Dale and Cuevas 1987: 12; O'Halloran 2005: 94).

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* The author's e-mail for correspondence: nadja.wilhelmer@wu.ac.at.

This twofold character is a good starting point for CLIL, because students' understanding of the target language is naturally supported by visual aids. Generally speaking, however, new words, conventions, and a new symbolism need to be learned in both German and English. For this reason, the mathematical setting provides an authentic and specific context in which students interactively construct their knowledge of language use and practices. This implication serves as a rationale for CLIL in mathematics from a constructivist point of view (Mardziah Hayati 1998, Wadsworth 1996).

These arguments form part of the underlying learning theories of CLIL and thus represent main reasons for using this approach also in mathematics. So the brief theoretical sketch above clearly indicates that mathematics is, in fact, well suited as a CLIL subject in secondary schools. The present paper elaborates on this issue and shows that a fruitful realisation of CLIL is also possible in the specific learning environment of mathematics.

2. Research design

The basis of argumentation is a qualitative study consisting of semi-structured interviews with five mathematics teachers who were asked to describe their experiences with CLIL.[1] More specifically, an open questionnaire was used to elicit and gather data from teachers who are experienced users of English in their maths classes in order to account for the associated effect of CLIL on teachers and their students (Cohen et al. 2001: 266-275). On the one hand, this questionnaire addressed the teachers' perspectives on motivations and solutions, as well as problems and difficulties, and on the other hand, benefits and influences pertaining to the students.

Name	Sex	Subjects	CLIL experience
G	female	Maths, English	16 years
M	male	M, Physics, computer science	9 years
R	female	M, English	14 years
S	female	M, Physics, Chemistry	1 year
W	male	M, German	10 years

Table 1. Teachers interviewed

[1] This analysis is based on my M.A. thesis (Wilhelmer 2007), which was written at the Department of English at the University of Vienna under the supervision of Christiane Dalton-Puffer.

Table 1 provides a description of the context in which the interviews took place by giving an overview of the teachers interviewed and their background. It is interesting to note that only two teachers teach mathematics *and* English, which reflects the fact that no formal qualifications are usually required to work as a CLIL teacher at Austrian schools and that there is only a limited number of training courses available to prospective and in-service teachers at educational institutions. Aside from the noticeable difference in terms of the teachers' educational background, the number of years dedicated to CLIL also differs greatly, ranging from one to 16 years.

3. Findings

The varied contexts of the interviewees promised diverse perspectives and opinions to be captured in the interview material. For the purpose of this paper, however, only two main findings have been chosen which relate to the impact of CLIL on the linguistic and mathematical level, respectively, since these issues reflect typical misconceptions about implementing CLIL in mathematics.[2]

3.1. Linguistic demands

In Austria, teachers are not usually trained to teach mathematics in a language different from their mother tongue. Thus, all teachers interviewed had to acquire the specialist mathematical language autodidactically. In other words, in almost all CLIL situations it depends on the teachers' own initiative and motivation to master not only mathematical terms and expressions, but also to achieve a level of general English competence sufficient for teaching an entire lesson in the target language. Teachers admit that this was a great challenge when they started to teach maths in English. In order to overcome this initial lack of knowledge, they suggest consulting school books for mathematics written in English, as those constitute the best sources for specialist language in context, and help to find typical expressions and formulations needed to explain certain topics.

    Another difficulty teachers encountered was to give precise descriptions of a mathematical concept in the target language and to be as exact as in German when explaining some highly complex details. Additionally, it is quite hard at the beginning to give multiple explanations or to paraphrase definitions in English. This is the case because lesson plans, or teachers' preparation in

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[2] For a more detailed discussion on the analysis of the interviews see Wilhelmer (2008: 83-106).

general, usually focus on one way of expressing mathematical ideas. So if the standard explanation/definition is not enough for the students to understand that concept, the rest needs to be improvised, and for this, a good command of the language is needed. Extensive practice and experience help to resolve these initial struggles and the competence to handle mathematics in English is soon developed.

What is more, as maths teachers are becoming more confident in their roles as bilingual teachers, they no longer hesitate to admit when they face language problems, and if so, switch to German. This represents another very important finding, namely that the L1 is used in almost every lesson: headlines are given in both languages, content is specified, personal matters are discussed, and especially when it comes to comprehension and clarification checks, participants frequently use their L1. One could say that using the mother tongue often represents a source of support and relief for both teachers and students. Moreover, all interviewees follow the slogan "Mathematics comes first" (G), pointing to the fact that mathematics takes priority and that although they want to improve their students' English competence as much as possible, it is not their main objective.

With regard to linguistic mistakes that come up when students use English, all teachers questioned claim to only correct those if they impede communication and if doing so does not inhibit students' fluency and interfere with their train of thought. At the beginners' level, too much correction would only hinder students' development. Rather, it is more a matter of encouraging them to use English freely and with a low anxiety-level – in an environment which minimises students' *affective filter* and positively influences language acquisition (Krashen and Terrell 1984: 37-39). Generally, teachers introduce English decidedly slowly to beginner classes, starting with numbers and basic arithmetical operations. According to my interview partners, the rest develops and improves with extensive exposure and practice, which is why teachers do not get the impression that the use of CLIL creates a substantially greater burden for students. If some students fail to understand particular concepts, it is usually attributed to the subject itself. Students mainly face the difficulty of expressing mathematical facts in their own words or of translating their own ideas or word problems into appropriate mathematical symbols. This is the case both in monolingual and in bilingual classes. Teacher M nicely summarises this viewpoint by saying: "The big problem isn't language, but mainly mathematics itself. The translation from language to mathematics and vice versa – that's the same in English as in German."

3.2. Influence of CLIL on students' mathematical competences

After years of experience teachers have come to realise that students' knowledge is not negatively affected by CLIL, even though it may result in certain simplifications. On the one hand, this simplification relates to language, which is reflected in word problems, for instance. The complexity of German formulations (especially in terms of sentence structure) seems to be reduced, as teachers usually translate exercises and thus create short and concise expressions in English. This yields teachers' impression that English is more user-friendly than German. On the other hand, CLIL also reduces the complexity of the mathematical content. Since it is very time-consuming to discuss mathematical topics in both languages, many teachers complain about a constant shortage of time that results in a reduction of content taught. There is also a positive side to this dual focus (i.e., the need for explanations in both languages), as it brings about multiple discussions of mathematical phenomena, which in turn increases the probability that students finally understand them. So despite the fact that some details might get lost, teachers believe that this approach helps students to comprehend the essentials, i.e., the main aspects of the curriculum, and as long as these are covered, CLIL students do not face any disadvantages over others.

4. Conclusion

By analysing and summarising the findings mentioned above, three main conclusions could be drawn. First of all, teachers need not be scared off by linguistic demands. Difficulties concerning the language needed in mathematics are part of the initial struggles and are familiar to most teachers who introduce CLIL, since teacher training programmes do not offer sufficient preparation of this kind. Consequently, it depends on the teachers' initiative to learn and acquire these skills, which demands a great deal of work during the initial phase, but in mathematics these problems are resolved rather quickly. In fact, this process is simplified and truncated by the repetitiveness of the language used in maths lessons and the consistent support of visual aids. One teacher nicely summarised this point of view:

> *Maths teachers who are not perfect in English still manage to teach mathematics in English, because it is a very active subject in which graphics and other visual aids can be used. Teachers should know some English, but they do not need to be perfect English speakers. (M)*

Secondly, a dogmatic use of the target language is neither desirable nor useful, because the L1 provides assistance and facilitates students' understanding of mathematical subject matter. Although CLIL asks for a strong focus on the second or foreign language, one should not forget that this type of bilingual education can be classified as belonging to the enrichment model (Baker 2006; Wilhelmer 2008: 12). In this way, CLIL aspires towards additive bilingualism, not only aiming "at maintaining the speaker's first language but also developing and extending it" (Mejia 2002: 44). Cummins' *iceberg analogy* also underlines the assumption that teachers do not need to prevent their students from using their L1, because skills acquired in either of the languages can be transferred to the other language, as both "operate through the same central processing system" (Baker 2006: 169). Hence, using the first language is regarded as beneficial, not as restricting.

Finally, the use of CLIL seems neither to create additional difficulties for the students nor have a negative effect on their general mathematical competences. All teachers interviewed manage to discuss the main curriculum in their CLIL classes, and therefore believe that CLIL students do not face disadvantages in terms of content knowledge. On the contrary, positive effects are triggered when implementing CLIL; students' English competences are better developed, for they become fluent, self-confident and experienced speakers of English in various areas. Their skills are not restricted to what they have learned in EFL classes and they are thus also able to competently apply English in many subject areas.

All the arguments mentioned represent good reasons and prime motives for implementing CLIL in mathematics. Therefore, I suggest that mathematics does indeed seem to be a good starting point for the realisation of CLIL in secondary education. This said, there is still plenty that needs to be done to support future maths teachers. In this sense, the present paper creates the basis on which further research can build in order to further the development of CLIL in the mathematical setting.

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How to contact us:

VIEWZ

c/o
Institut für Anglistik & Amerikanistik der Universität Wien
Universitätscampus AAKH, Spitalgasse 2-4, Hof 8 .3
A – 1090 Vienna; Austria

fax	**(intern.) 43 1 4277 9424**
eMail	**ute.smit@univie.ac.at**
	christiane.dalton-puffer@univie.ac.at
w³	http://anglistik.univie.ac.at/views/
	(all issues available online)