This article presents CLIL teachers with a principled approach to integrating the teaching of content with that of the language of their discipline. First the paper focuses on raising awareness of language, and of the difficulties students experience when reading the abstract language of a subject, by using an example from a CLIL history text from an early secondary class in a school in Spain. It then presents a genre-based programme for working on literacy across the curriculum, Reading to Learn, and describes the different steps a teacher may take to integrate reading and writing into the class activities. The first stage of the programme is illustrated by a CLIL science teacher’s introduction of a text to her class, and the final stage, by a text written by a student in the class, showing the result of the teacher’s work. In the student text, a science report, we see not only the learning of content but also of the language of the subject. The paper closes with a discussion of the Reading to Learn pedagogy from the perspective of teachers who attended seminars on the method given by the European Comenius project TeL4ELE, and implemented it with their students.

**KEYWORDS:**
reading to learn pedagogy, school genres, literacy across the curriculum
Introduction

CLIL teachers are, by definition, innovators. They (you?) have taken up a challenge and you (or they) look for support to face that challenge, support which goes beyond improving proficiency in the foreign language in which the subject is taught. With that challenge, however, comes a privileged perspective on one of the keys to education: the knowledge that the language of the discipline is not transparent to the students, and so requires special focus. While this is also true for students learning through the language they use at home, it is much more difficult for teachers to perceive the opacity of academic register for students in classes taught in L1 (Escobar Urmeneta, 2009). Even when teachers are aware of the difficulties, as in the case of CLIL, they often feel at a loss as to what to focus on, and so take “a stab in the dark”, as they have reported in interviews (Cammarata & Tedick, 2012). This paper presents an approach to working with the language of school disciplines based on a linguistic model of how language makes meaning in subject texts, with examples from the work of CLIL teachers.

Language in CLIL Subjects

Nouns

The obvious problem in learning through a foreign language, that of subject-specific vocabulary, is dealt with in textbooks, and by the teachers, with glossaries, which put key terms in focus on the page, or on the board. Students have, then, a good start, a small set of linguistic bricks, in front of them. Most of these items will probably be nouns, the most important word class in academic language, but the type of noun, will, of course, depend on the discipline and the level of conceptual complexity. The nouns will be either concrete or abstract, and may stand alone or be modified in different ways. Consider the following nouns or noun phrases from CLIL textbooks:

- settlements
- food
- wealthy Romans
- sickle cell allele
- two similar well-watered potted plants
- the origin of agriculture
- rate of transpiration
- water algae
- metal objects
- drug addiction

Which ones are concrete? Which ones are abstract? Which nouns are modified by adjectives? Which ones are modified by a preposition phrase? Which nouns are used to modify or classify another noun? Our students have to be able to know the answers to these questions to understand their textbooks as they read. And to do this, they need to recognize the noun which is the head, or centre, of the noun phrase, and its modification. Then they can start to build in their heads a picture, a sort of model, of what the text is about.

Verbs

We learn that verbs are “doing words”, but when we look at school texts we find that this class of word often doesn’t represent an action, but some type of relation.

Consider some verbs in these extracts from grade 7 Biology and History (see pages at the end of the article). The first text block in the biology text is build around the verbs be and have: “(Fungi) are... (Some) are... form... have...”. The sentences in the first paragraph of the text on the Neolithic Age have as their verbs: “(the age) began, (the word) means, ...(it) was ... , (people) developed...”. Only this last verb can be considered an action, though it’s hard for readers to picture a specific activity those people might be doing.

Other verbs do represent actions. In the biology text: “fungi feed on...” and in History; “people learnt... , settled...., began to breed animals...”. And others represent logical relations, as we will see below.

With these bricks -the nouns and verbs of their school subjects- students have to build a mental structure of scientific knowledge, that is, knowledge outside their everyday experience.

Logical relations and text structure

How do those bricks fit together? In scientific texts, the items of meaning relate to each other in different logical ways, for example, part-whole, sequence, cause-consequence, condition, purpose..., so the students need some kind of grammatical knowledge to understand or express those relations. That is, they need the mortar to fix the bricks together to create or understand these meanings and know how each brick (each meaning) relates to another in sentences, and, at a higher level, in paragraphs and texts.

The way in which the written texts that build the knowledge of a discipline are structured is very different from the way we organize everyday texts like anecdotes or recounts of events that happened to us. For example, in Science, texts often develop complex taxonomies based on differences we do not perceive when we look at the world around us, as in the Fungi text. And in History, texts are often structured by time, like stories are, but chronology is often combined with cause-consequence, or may be left completely implicit, as the writer considers a series of factors and interprets them as more or less responsible for a historical event. This happens even though the historian is writing a textbook and so is aware that s/he is presenting history to inexpert readers who are learning this new discourse and content.
Difficulties in the language of CLIL subjects

Let’s take a look at an example from a CLIL history text written for students beginning secondary school. Thus, the way school texts are structured to build disciplinary knowledge is very distant from the students’ everyday experience of the world. Some students are able to deal with the challenge, but for many it represents an invisible barrier to success at school (see Escobar Urmeneta, 2009). CLIL contexts, where language is a part of the learning objectives, and so is visible, are ideal for a focus on the language of the subject at different levels: word, sentence and text. The way school texts are structured to build disciplinary knowledge is very distant from the students’ everyday experience of the world. Some students are able to deal with the challenge, but for many it represents an invisible barrier to success at school.

“Observing the behaviour of animals led to their domestication”

Food production and sedentary life

People in the Neolithic age learnt from nature that new plants grew from buried seeds. This was the origin of agriculture. Observing the behaviour of animals led to their domestication. People began to breed animals in captivity, which was the beginning of livestock farming.

The men and women of the Neolithic Age settled in ...

Extract 1
A difficult sentence.

Sentences are all short, but have different levels of difficulty. The students found the third sentence, “Observing the behaviour of animals led to their domestication”, especially hard to understand. The simple grammatical structure of subject-verb-object has compressed a series of actions carried out by humans and animals, and related by cause. The teacher had to devote some time to this sentence. She guided the students with questions to help them recover the events as actions carried out by agents in some location: people who observed, animals that behaved (fed, slept, reproduced...), people who domesticated them (trapped the animals and put them into enclosures for the purpose of providing food). All this is represented in a single sentence which is built around two abstractions, behaviour and domestication. Besides, it expresses the logical relation of cause-consequence by a verb, led to, (which in this context is not, an action, perhaps related to the “animals”, as inexperienced readers might expect).

This way of representing events is typical of academic register and has the function of organizing information logically, but it obscures meaning for many students. Students meet this type of language as they move into the study of school disciplines, when they have left behind the period of “learning to read” and are expected to “read to learn” without assistance. Many studies show that this is the moment when some children begin to fall behind at school, and often never manage to catch up (e.g. Chall et al, 1990). Learning through a foreign language means students have a more limited vocabulary in which to search for meanings in school texts, though brings the advantage of their teachers’ awareness of their limitations, and their support. The question is: How can a teacher identify language problems systematically, and make the hidden process of reading visible while focusing on teaching content?

Reading to Learn pedagogy

Reading to Learn (Rose, 2017; Rose & Martin, 2012) is an explicit pedagogy for working on reading and writing in all areas of the curriculum, which has been used successfully in a number of countries around the world. First developed in Australia by functional linguists working with Aboriginal pupils in a non-literate society, the programme Reading to Learn (R2L) is based on research into the text types, or genres, and the language students have to read and write throughout their school years, and on applying Vygotskyan principles of modelling and scaffolding to strategies for teaching reading and writing. This approach means that in the typical classroom activity of working with an extract from the subject textbook, instead of asking comprehension questions—that is, testing, which means assuming the students can read the subject matter efficiently—the teacher accompanies the students during the process of reading, helping them identify key content and language, and modelling aloud what goes on in the head of a proficient reader. The activity sequence involves all the class in interrogating and interpreting the text and highlighting key information. The highlighted words and phrases will later be used as notes from which to rewrite the content of the text, first as a whole class activity, in which information and linguistic choices are discussed, and later as a small-group or individual activity. This intensive work on reading and writing leads to deep learning of the topic and the language which constructs it (Rose, 2010), which students then reuse to write about new topics of their choice or from the curriculum.
Preparing for Reading

Let’s take a glimpse of the first step in the process, which is Preparing for Reading a new topic in the textbook, in a CLIL biology class with secondary school students in their first year (i.e. grade 7). Extract 2 was written by a teacher who was preparing her lesson on fungi during a course for teachers on Reading to Learn pedagogy in Spain (see Whittaker, 2014; Whittaker and Acevedo, 2016; Whittaker and García-Parejo in press, for more information on the project).

In Extract 2 we see how the teacher carefully guides the students round the colourful double-page spread (Figure 2), which is full of images and diagrams which break up the short chunks of text, in order to prepare them to read it. Not only does she remind them of knowledge from previous topics they will need, as all teachers do, but she also focuses on each image and segment of text, presenting its function and content orally before they read. As she gives the scientific information, she includes reference to the way it is presented, that is, about the text itself, using metalanguage like description, classification, report, and helps the students ‘talk’ science by practising the pronunciation of fungus/fungi.

At the end of the script she wrote for this Preparation for Reading, she specifies the writing task students will have to do after studying the chapter, making explicit (rather academically, but we will see what she meant when we comment on the example of student writing in Extract 3) the features of the genre they will write after researching the new topic for their texts.

After an overview like this of the material to be read, the R2L teacher may work through the text with the students, giving an oral summary before reading each paragraph aloud, and helping students identify and highlight key information, discussing the content, relating paragraphs to images. The teacher would probably also choose a part of the text which carries important information for the subject, and language which is challenging for the students, for more detailed study, applying the strategy of Detailed Reading.

TEACHER:

It is a description of the type of living beings that form the fungi kingdom. Everybody say Fungi [Explain the two pronunciations]. This is the third kingdom that we are going to study. As we already know, all the living things that belong to the same kingdom share specific characteristics.

The yellow box is the definition of the fungi and a classification according to the number of cells that their bodies have.

We have some examples of each type of fungi.

Point 3.2 begins with a description of the fungi body, explains how cell are found and the specific names that biologists use.

The drawing on the next page shows the body part.

The remaining paragraphs on this page explain how fungi perform the three vital functions:

Beginning with how fungi feed and the different types of nutrition.

• The next one is how they reproduce, and here also we will use the drawing of next page to understand better this process.

• The last one is about interaction. But this paragraph has little information; therefore I will explain more to complete it.

• Finally, we’ll classify the fungi with the aid of the drawing and images of the next page.

I will read aloud this page, asking some questions and you’ll answer them and highlight the key words.

At the end of this activity, you should be able to write the description of these living beings without looking the book and using the vocabulary that we are going to study.

All the descriptions in science (science reports) have the purpose of organizing the information in categories (taxonomies), by parts through a description or listing of properties and parts. These science reports use technical terms, generic participants, and timeless verbs in simple present and passive tenses.

Extract 2

Teacher’s preparation for reading the double page on the Fungi Kingdom from the textbook
Detailed Reading

Detailed Reading is the stage in the Reading to Learn cycle which advances students’ control of content language most, the “turbo-engine” as the author calls it. A short, intensive reading activity is prepared with the aim of focusing the students on key information and language which will be used later for a rewriting activity. The aim is to make sure that all the students in the class without exception are able to identify the key words and phrases. As the author of the pedagogy explains, success motivates and opens up the possibility for learning, while failure de-motivates, leads to self-exclusion and closes the way to learning (Rose, 2017). The prompts to elicit the words, then, have to be carefully designed. In the activity there is also a moment planned for Elaboration, when the teacher expands the information in the sentence, discusses language features, asks the students to relate what they are learning to their experience, to other subjects, to what is going on in the world…, depending on the objectives of the lesson or the unit. We will take a glimpse at how this works now with an example from the fungi text.

“Success motivates and opens up the possibility for learning, while failure de-motivates, leads to self exclusion and closes the way for learning. (Rose, 2017)”

In this activity, the sentence is taken as the unit to work with. It is a unit of meaning, and is easily recognizable by student readers. Here is an example of the teacher’s preparation for the interaction around one sentence from the chosen extract. As with the whole page spread, preparation for the task is paramount, so that before reading each sentence, the teacher gives an oral summary. “Now we are going to describe the fungus body and its parts. This is only for the multicellular ones”.

She then reads the sentence aloud: “Some multicellular fungi are made up of fine threads called hyphae”, before asking students to identify key words in the text: “Who can see the word that means filament or long fibre? It’s just after the preposition of”. The question is phrased as looking for recognition of a written word which is visible to all in the class, rather than asking for knowledge which not all may possess. It uses two types of cues, synonyms -filament, fibre-, and position in the sentence -“after the preposition of”. The synonyms given are cognates with their Spanish equivalents, making it easier for the students to recognize them, and so associate them with the non-cognate thread. These questions give all the students an opportunity to participate without being afraid of being wrong, and, what is more, to receive praise from the teacher. The teacher then directs the class to highlight the word, a moment when she can check at a glance that all the class is participating correctly, and gives all pupils a small action to do. Her next prompt calls for a technical term: “What is the scientific name of this filament? Who can identify this word?”

After the students have highlighted the word hyphae, she moves to the Elaboration phase in which the sentence is used as a springboard to expand on the content and on the language. She starts with a focus on the language of science, both written and oral: “This word is plural. Could you guess what the singular is? Let’s write it: Hypha. Repeat.”

Then she gives the students a brief activity, which also allows her to check they all understand the term: “Let’s make a drawing of one hypha. Could you make a drawing of hyphae?”. She also includes a question for inference: “Where are the cells in the hyphae?”, which gives an opportunity for more advanced students to shine. She also uses this phase to make sure the students have noticed a useful verb phrase from general academic language, not specific to the topic, “made up of”, by asking “Which is the verb that means to be formed by? It is in the middle of the sentence. We are going to use this in the descriptions; you should also notice that the description uses passive voice”.

The activity of sentence-by-sentence reading, preparing the content, identifying of key words and elaborating by discussing language features and extending students’ knowledge of the topic in different ways, is applied to a complete, but reasonably short segment of the text the teacher has chosen.

Joint Rewriting

After this stage of guiding the students to identify key content and language, the R2L teacher moves aside as the students begin to take over the job of re-writing the content they are working on. They take turns to write on the board, or type into the computer for projection, the key words they highlighted, while other students name and, perhaps, spell them. They then build new sentences with these words and phrases to make a coherent paragraph. This is not as simple as it sounds, and certainly not a mechanical activity. They have to decide together how to organize the given and new information in each sentence coherently, using the grammar (of English) correctly. The teacher’s task here is to be prepared (by having practiced the re-writing and foreseeing possible difficulties when preparing the lesson) to propose sentence beginnings or closures which allow students to complete the task successfully. As we all know from experience, writing, especially in a foreign language, is a struggle, and many students are used to no more than “fill in the blanks” (articulated by the students as one word “fillinblanks”!), often without any discussion of their choices. At the same time, with preparation, the cognitively complex task of writing a text, when carefully prepared, can be made satisfying for them, as the teachers in the R2L project in Spain found and reported.
Individual (Re)writing

Once the students have a model text, which they have copied as they participated in the Joint Rewriting, and have also rewritten the same text in small groups or individually, most will be ready to research on a new topic and write a new text in the same genre on their own. This means the teacher will be free to help other students who need more support. In the fungi lesson, as the teacher announced in the Preparation for Reading stage, the students were required to do individual research and write a new text in the same genre without support. Extract 3 is the work of one of the students in the class:

The intensive work on the structure and language of the science report shows in the use of language features which had been discussed explicitly as the teacher guided the students’ reading. The text includes many technical terms, uses the passive to maintain topic continuity (they are found...), generalises with generic participants (plurals, and pronouns most are, some are...). Also, as a report of accepted knowledge about a topic, the text is all in the simple, or timeless, present. Some students will learn how to write in this way simply from repeated contacts with the genre of the science report, but to many, without explicit guidance, these characteristics will remain invisible. However, they are an integral part of learning science, inseparable from its “content”.

Extract 3.
Successful text by a student in grade 7 on fungi.
Reflections on using R2L strategies in CLIL classes

After this brief introduction of R2L’s linguistic approach to working on language in CLIL classes, this section includes snippets of the reactions of the main actors who have appeared in this paper, the teachers who attended R2L courses and seminars and their students. It closes with the voices of the authors and researchers who designed the pedagogy.

For the teachers, the approach helped them bring their implicit knowledge of the texts of their subjects to the surface, and showed them how linguistic choices make meanings about content. It gave them categories and names which they could use to prepare texts for class and share with their students. In fact, though the linguistic model on which the pedagogy is based was not focused on in the sessions, once they started preparing lessons on texts especially when designing the questions for a Detailed Reading sequence, the content teachers themselves demanded more knowledge about language. I still remember clearly an episode during a R2L seminar in which this happened. The protagonists were the group of science teachers from which the example preparation in Extract 2 and Extract 3 come from. They were working hard around a big table struggling with two science genres, a procedure for an experiment and a classifying report. “Rachel, Rachel!” they called urgently. “What is the theory, the theory?” It took me some moments to realize they were asking about the grammar that made the meanings of the different text types. In their lesson plans, some of them included information from my answer – an explanation of the grammar of the genres – in their directions to the students, as in the example in Extract 2. In general, all the teachers involved reported that the experience with R2L changed the way they chose and prepared texts for class, and made them rethink the way they asked questions (Coffin, 2013), and questions are, as we all know, teachers’ main prop to move the class forward.

Students, especially those with more difficulties, appreciated the confidence they found in the routine given by the Reading to Learn cycle, and the satisfaction of being able to participate with all the group, as they are carefully guided to identify meanings in the text they are reading. Close work on reading, with clear tasks, engaged students, though some said they found it tiring. With regard to writing, which usually produces resistance, here, as the complexity is broken down into steps and is both shared with all the class and supported by the teacher, all participated and proposed options for phrases to include. Teachers reported that students asked if they were going to “look for words again today” (i.e. do Detailed Reading), or reminded them of the writing stage (i.e. Joint Re-writing) when the pressure of the syllabus made them leave the phase out. As to the explicit teaching of the stages and language of an explanation genre for a writing task, a CLIL geography teacher reported that one of his students said at the end of the class: “Well if that’s what you wanted, why didn’t you tell us before?”.

Students, especially those with more difficulties, appreciated the confidence they found in the routine given by the Reading to Learn cycle.

“Students, especially those with more difficulties, appreciated the confidence they found in the routine given by the Reading to Learn cycle”
Finally, voices from the field of teacher education. To some -even many- in education faculties today, such a planned, guided activity with explicit discussion around language is like going back a hundred years, and taking away students’ ‘creativity’. However, the authors of the pedagogy describe their approach as “both visible and interventionist, with a strong focus on the explicit transmission of knowledge about language with the aim of empowering disenfranchised groups” (Rose & Martin, 2012:318). The groups we are focusing on here, students learning content through a foreign language and their teachers, certainly benefited from knowing and naming the genres of the texts and the language which creates knowledge in their subjects, and working with the principled set of strategies to teach reading and writing.

Notes

1. Grateful thanks to María Barrio, (IES Joan Miró, Alcobendas, Madrid) for this example. The complete page can be seen in Figure 1.

2. An example of Preparing for Reading a page like this, including the interaction in class, can be found in Rose & Martin 2012: 177-184.

3. David Rose during R2L session in the EU Teacher Learning for European Literacy Education project 2011-2013 tel4ele.eu


5. Research has identified a number of different types of explanations (Rose & Martin 2012:130, knowledge of which teachers found very useful.

6. A huge research programme on learning (Hattie, 2009, 2016) has found that explicit teaching with clearly stated tasks and achievement criteria, and modelling before independent practice -all found in R2L- lead to most learning, while methods which leave students to discover by themselves is least successful.

References


Literacy across the curriculum in different languages and contexts: functional approaches to teaching and reading/ Aprendizaje integrado de la(s) lenguas(s) y los contenidos: aproximación funcional a la lectura y a la escritura. October. Universidad Autónoma, Madrid. Available at http://www.telcon2013.com/wp-content/uploads/2014/03/TEL4ELE-evaluation-presentation-CAROLINECOFFIN.pdf.


To read more

The website for Reading to Learn is a mine of information: www.readingtolearn.com.au. It has many downloadable articles on the linguistic model, the pedagogy and its results. It includes short video clips of teaching using R2L and gives a preview of some of the material for R2L courses for teachers.


This book summarizes the research into the texts students read and write during the years of schooling led by the linguist, Jim Martin in Australia, which is the basis of the knowledge of language in the pedagogy of R2L. The fourth chapter, of over 100 pages, presents in detail, through exemplification, a complete overview of the discourse and grammar of school subjects used to analyse texts in R2L.
Chapter 5 covers background to the pedagogy, shows it in practice, with examples of the interaction cycle between teacher and pupils for the inclusive teaching advocated in R2L.


This pack guides teachers learning the R2L programme though the different steps, from selecting and analysing texts (with answers), the different R2L strategies teachers can use depending on their objectives, the students’ needs etc.. It can be bought through the web site.


This book, based on recordings and written material from CLIL classes in Spain and other European countries, offers a theory-based view of class interaction and the structure and linguistic features of written texts used in school.

**Practise**

- Take a look at the readingtolearn.com.au page to see videos of teachers working with the pedagogy in class. Then try preparing a short set of questions to elicit key words from two or three sentences from a text you are going to use. Two golden rules: 1) ALL the children, without exception, must be able to identify the words from your two clues: meaning and position. 2) It must be possible to write sentences with the same meaning but different grammar using the words you choose. Test this yourself first!

- Look up the typical genres of your subject in Rose and Martin 2012, or in Llinares et al. 2012, for example, and see if you find representative extracts in the textbooks books or supplementary material you use.

- When you think about the background knowledge you are going to activate as you start a new lesson, look at the pictures or diagrams on the page of the textbook. Students need to learn how to ‘read’ those images too, and be shown how they relate to the content in the text itself. Include this information when you prepare your students for reading the new topic.