Abstract | This article introduces a literacy programme based on a linguistic approach to teaching reading and writing across the curriculum, Reading to Learn (Rose, “Reading to Learn: Accelerating Learning”; Rose and Martin), with proven effectiveness for accelerating literacy development in both the L1 (e.g. Rose and Acevedo, among other studies) and for L2 in Content and Language Integrated Learning (CLIL) and programmes. Underlying the pedagogy are powerful theories of language, educational psychology and sociology which are applied to text analysis, lesson preparation and classroom interaction around reading and writing. Teachers starting to use the pedagogy see immediate results in students’ engagement and learning, and the written texts they produce. The pedagogy is based on a functional analysis of a text from the curriculum – its structure and the way its language makes meaning in that subject-, and on scaffolding/ modelling the processes of reading and writing with the whole class. In this paper, we offer a brief presentation of some strategies from the R2L pedagogy, and provide examples of text analysis, teacher preparation and application in state bilingual schools in Spain.

Key words | Genre, Reading to Learn, CLIL, literacy across the curriculum
1. Why Teach Literacy in the CLIL Classroom?

Working in the context of Madrid, where about half of all primary schools and more than half of secondary education programmes are now implementing Content and Language Integrated Learning (CLIL), we are surrounded by teachers and students who face the challenges of working on Science, Geography, History, Arts, Technology and other curriculum areas through the L2 (English in the great majority of cases). It is quite easy to think of reasons for the explicit teaching of literacy in these programmes: of course students require specialised language for the different subjects that they learn in the foreign language (hereon, L2), and this entails developing reading and writing. However, the tendency for content teachers to identify less with being responsible for language learning than they are for content learning can lead to a much greater emphasis on spoken, rather than written, language development. Content lessons which are taught through the L2, such as those mentioned above, require active student participation, frequently involving hands-on tasks. They are full of spoken interaction and negotiation around activities, and written language may have a low priority or not often be part of the central lesson focus.

Prioritising spoken language is one of the hallmarks of CLIL, since dialogue and interactive tasks are seen as crucial to ensuring students can understand the content and acquire subject-specific language (Nikula). Yet there is a cost for this emphasis, since written tests and exams are the main source of assessment and evaluation of students. This leads to the question of whether the input and scaffolding of learning that teachers provide are clearly related to the outcomes that are being assessed. Such a correspondence should be clear and explicit. Evaluating skills we do not teach certainly does not help to ensure an efficient learning process.

To get a picture of the kind of distance that exists between the spoken language in which students participate during CLIL lessons, on the one hand, and the written language that they grapple with alone (as it is often the basis of homework or evaluations), on the other, let’s consider an example of each. In Llinares, Morton and Whittaker (246), examples of how the input provided through spoken and written language can differ can be found, such as the following, from the UAM-CLIL corpus. A teacher of Technology in a first-year class at a Madrid Secondary CLIL
programme, busy overseeing a practical classroom task involving students building a wooden toy in groups of four, interacted with a group like this:

1) Teacher (T): Glue it, here. Just put this there, tie it tight, not just stick it to the wood but (...) it. Let’s see. That’s it, and the other, [name]?
Student (S): This is in here.
T: That’s it, then it’s (...) And then you can (...)…
S: Yeah.
T: You give it back, you (...) it again.

Example 1 shows a typical fragment of the kind of language that is employed during many hands-on CLIL lessons like those that a subject such as Technology would often require. A brief look at the characteristics and structures produced is enough for us to notice how context-dependent it is. In other words, without being present, and actually seeing what the teacher and students are talking about, one can only get a very vague idea of the meanings being expressed. The discourse features many deictic expressions (this, that, then, here, there, it…) and a very low proportion of content words – in fact only 8 words out of the total of 50 shown here.

However, students also have to work on written language and build an understanding of the subject-specific genres that teachers ask them to read and expect them to learn to produce. Input like (1) can be contrasted with texts like (2), a written task given to students by the same Technology teacher, cited in Llinares et al. (247).²

2) I. Tilt the shape and the limit angle beyond which the vertical from the CG (= Centre of Gravity) moves outside of the base area, which is the limit beyond which the figure would topple over.
II. Find out whether the given limit angle corresponds to the actual limit angle in the true object.

If we compare this text with the spoken interaction shown in (1), there are a number of very noticeable differences. The lexical density of this written text from the subject-specific field of Technology makes it clear that, without help, the challenges that understanding, and especially, producing this type of written register may be a source of frustration for many students. This means that intervention directly aimed at supporting CLIL students’ subject-specific literacy development is an essential task for teachers concerned about how to address their students’ needs effectively, and especially, the needs of those who have difficulties and may be at risk of failure.

As mentioned earlier, another reason why teachers in CLIL programmes should emphasise literacy development as one of their overarching objectives emerges when we look at how we assess our students. What are the assessment strategies that are being used in different CLIL subjects? When students sit written exams, to what degree are the teachers’ criteria for formulating questions and assessing the responses based on subject-specific literacy instruction that the students have already received? Do we, as teachers, ask questions without deciding in what genre the students must write, and exactly which assessment criteria will be applied to judging their writing?

Example 3 contains some writing prompts taken from exams in Spanish schools implementing CLIL programmes:

3)

a. Explain the water cycle.

b. Explain Spartan society.

c. Write all you know about Shakespeare’s life.

d. Write a story with this title: The Wrong Bus.
These questions show typical features of examinations we have encountered in primary and secondary schools in our area. Specifically, (i) a single verb (like “explain”) can be used to elicit different kinds of texts; (ii) the genre which the prompts are intended to produce is not named (like in (3c); prompts like d) rarely produce a complete narrative, but rather a recount with no resolution.

Let's look in more detail at these questions. First, the instruction to explain in questions (3a) and (3b). The verb has several different but related meanings, for example “to make known”; “to make plain or understandable”; or “to give the reason or the cause of”. Yet each question creates certain, fairly specific, expectations about how the answer should be structured. An explanation of the water cycle presents a sequence of causes and effects structured by time. However, when asking students to explain Spartan society, the teacher probably expects a text describing the parts that make up the whole of this society, rather than a process explaining how this society came to be.

If we have a systematic approach to the metalanguage students learn and then are asked to use in examinations, our assessment of writing will measure the progress that it is intended to evaluate, rather than just detecting which students can intuitively work out what teachers expect, and which students are not so lucky, or have had less support with their homework. The types of texts that are elicited in these two questions would be a sequential explanation, for (3a), and a compositional report, for (3b) – since the latter is probably intended to produce a text naming and describing different component parts (constitution, social groups, etc.) that make up an entity (Spartan society).

Regarding question (3c), there is no explicit reference to the kind of text students need to compose in their answer; however, experienced readers will recognise that the answer should be structured as a biography, organized chronologically. Less experienced students may take the prompt literally and write a series of unstructured facts about Shakespeare, with the result that they are given lower scores for their texts which do not respond to the teachers’ unwritten expectations.

What students are being required to do when they face exams with prompts like the ones we have seen is complex, to say the least. Not only do they have to reproduce facts that they
have memorised, but they also have to identify – perhaps by guessing, or by trying to imitate textbook materials they have had to study – the way their writing should be organised. At the same time, and at another level, they have to pay attention to the foreign language, with lexical searches and applying spelling and grammar rules and patterns of the L2. And to achieve top marks, additionally, they are probably expected to use subject-specific terminology, to adopt an objective, scientific register, or to achieve literary effects, among other demands teachers or examiners consciously or unconsciously place upon students.

This complexity may be an advantage: having high expectations of our students is known to be a positive factor that can help them to progress and succeed. However, if teachers do not provide instruction on the diverse competences that have to be put into practice in written exams, it is not possible for schools to achieve their purpose.

All in all, considering the challenges that students face in CLIL programmes in relation to reading and writing, it is clear that teachers need evidence-based approaches to ensure the progress and success of all of their students, and especially to enable them to provide support that has proven effectiveness. The next section offers a brief overview of such a programme.

2. Reading to Learn: Putting Theories into Practice

The Reading to Learn (R2L) approach (Rose and Martin) to literacy pedagogy has strong theoretical underpinnings. On the one hand, systemic functional linguistics (Halliday and Matthiessen) is the model that informs the understanding of the organisation and language of written texts. Based on Jim Martin’s research projects in Australia (see e.g. Rose, “Writing as Linguistic Mastery”), a large-scale study of the texts students had to write over the years of primary and secondary schooling led to a classification of school genres, that is, recurrent configurations of meaning (Martin). The social function of a text, its main goal, was shown to determine the way that the text is organised into parts or stages (see section 3, below). Each school subject is characterised in part by the genres that learners read and learn to write, and the development of teachers’ explicit understanding of subject-area genres is a fundamental basis for R2L pedagogy.
This pedagogy takes a socio-cultural view of learning that springs from Lev Vygotsky’s view of the central role of social interaction in cognition. By way of teacher-led conversation focusing on different aspects of a written text, beginning with building context by bringing up the background knowledge learners already have, discussing the topic of the text, and later more specific features of the text, the R2L pedagogical cycle offers strong scaffolding to prepare students for independent reading and writing. Teacher-led discussion about how the text is structured and about the language resources that the author has used, and the effects the author’s choices create, serves as a model for the ways students can think about what they read. During this process, the teacher is helping students focus on information that they can use when they face the task of writing a text in the same genre. The text that is being used for discussion and reading will also serve as a model for that task. This activity is also carefully prepared by the teacher beforehand and scaffolded as the students take over the task of writing a new text using lexis and phrases they have learnt during the reading activity, and following the stages and phases of the genre. The teacher, then, breaks the highly complex task of writing a text into steps and works with the students, letting them take over the task little by little.

The third pillar of the R2L approach is knowledge of types of language and the way that teachers use discourse in the classroom. Based on work by Basil Bernstein on pedagogical discourse, and its purpose of both controlling the activities in the classroom – regulative discourse – and teaching content – instructional discourse –, R2L offers teachers tools to prepare interactions which allow all pupils to participate successfully, rather than only the small group of “good” students. The approach takes into consideration the need for all children to build positive learner identities and, in particular, the teacher’s role in contributing to this process.

As Rose and Martin explain, R2L pedagogy is explicit and interventionist, and was designed and developed by observing classes, collecting data and taking robust theories directly into the classroom.

As to its efficiency, the results documented when the R2L pedagogy is implemented in classes over a sustained period show its success in “closing the gap” between top and bottom
students. Data collected in a large professional development programme in Australia (originally reported in Rose, “Writing as Linguistic Mastery”) show accelerated learning for all pupils, with lower achieving pupils advancing at four times the expected rate. The pedagogy is very successful in northern Europe (Acevedo), and in a number of South American countries, as well as in multilingual contexts like South Africa. In Europe teachers who participated in a R2L project, many of whom were CLIL teachers, noted improved written production, and also highlighted the positive effects of the pedagogical routines they participated in on their students’ engagement in the reading and writing (Whittaker and Acevedo, Whittaker and García Parejo). In a university experience, student teachers specialising in EFL and CLIL who received training in this approach also valued R2L for its potential for teaching reading comprehension and contextualised treatment of the teaching of writing, grammar and spelling (García Parejo et al.).

3. The Genres of Schooling and CLIL Classes

Knowledge of R2L pedagogy is especially relevant to CLIL teachers; after all, to be true to the spirit of these programmes – namely the integration of content and language learning – requires teachers to have strong awareness of the specific characteristics of the language of each school subject (Ahern). This is even more necessary, of course, when a foreign language is used for instruction, as occurs in CLIL contexts. In this section we provide some information about the R2L classification of school genres, and then consider some examples of the subject-specific genres that are the means by which learning takes place at school – and at home when text-based homework is assigned.

The first step towards developing the knowledge needed for teachers to gain competence in the R2L approach is to look carefully at the texts that we ask students to work with and consider their overall structure and the features that characterise them. The genre map developed over the years by Jim Martin and the researchers working in his different projects (Rose, “Reading to Learn: Accelerating Learning”; Rose and Martin) shows the classification of school genres
according to purpose, depicting the relationship among different genres and the way that they are organised into stages. Table 1 contains a few examples.

<table>
<thead>
<tr>
<th>Genre Family</th>
<th>Genre</th>
<th>Purpose</th>
<th>Stages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engage</td>
<td>Personal recount</td>
<td>Recounting events</td>
<td>Orientation, Record of events</td>
</tr>
<tr>
<td></td>
<td>Narrative</td>
<td>Resolving a complication in a story</td>
<td>Orientation, Complication, Resolution</td>
</tr>
<tr>
<td>Inform</td>
<td>Explanations</td>
<td>Explaining a sequence</td>
<td>Phenomenon, Explanation</td>
</tr>
<tr>
<td></td>
<td>Sequential explanation</td>
<td>Explaining a sequence</td>
<td>Phenomenon, Explanation</td>
</tr>
<tr>
<td></td>
<td>Procedures</td>
<td>What to do and what not to do</td>
<td>Goal, Rules</td>
</tr>
<tr>
<td></td>
<td>Protocol</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reports</td>
<td>Describing one kind of thing</td>
<td>Classification, Description</td>
</tr>
<tr>
<td></td>
<td>Descriptive report</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 1. Examples of some Genres and their Stages (Adapted from Rose and Martin, 130)

The information in the table should be read beginning from the far left-hand column. Here we can find two of the three genre families proposed in R2L: genres whose main purpose is to engage, to inform, or to evaluate. Within each of these three families are a variety of genres that share the same overarching purpose, but are distinguished by way of more specific, sub-purposes. Column 2 gives the name of the genre, and column 3 the specific purpose. The map allows us to pick out differences between members of a genre family. For example:

- Both a personal recount and a narrative share the general purpose of engaging the reader, but a recount has a simpler configuration because it does not include a complication and resolution, as a narrative does.
• A descriptive report and a sequential explanation share the general purpose of informing. But an explanation informs about causes and effects; in the case of a sequential explanation, about cyclical sequences of causes and effects. On the other hand, reports are intended to inform readers by describing things. A descriptive report describes one kind of thing, or phenomenon, by presenting characteristics of different aspects of the object of the description.

• Procedures are also informative, but they are intended to direct the reader, by informing about how to do an activity. Within this class, we also find protocols, which express what to do and what not to do in a context, rather than steps needed to achieve a goal.

Finally, in the right-hand column of table 1, we find the stages needed for the text to achieve its purpose: a narrative, for instance, includes the stages of Orientation, Complication and Resolution. A sequential explanation provides information by identifying a Phenomenon, then an Explanation stage, accounting for cause-effect relationships. These functional stages at the macro-level are then made up of phases which are motivated by the field of the text, as shown in the examples below.

3.1. Genres in the Primary School CLIL Classroom
In this section, two examples show an analysis of texts typical of the materials teachers use for the primary CLIL classroom, in the area of Natural Science. Firstly, related to the animal world, we include a text about stick insects; and then an example of a text on a topic from the same subject suitable for the 3rd year of primary school: keeping healthy. This type of analysis is always the first step in the teacher’s preparation of reading and writing on the topic.

Text 1, Stick Insect is an example of a Descriptive Report example. In this text, the Classification stage is made up of just the three words at the top, Arthropod, Stick insect. The
rest of the text is the Description stage, and is divided into a fact-box, followed by descriptions of stick insects’ appearance, behaviour, nutrition, etc. These are typical phases for this subject area.

<table>
<thead>
<tr>
<th>Arthropod</th>
<th>Stick insect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area</td>
<td>All continents except Antarctica</td>
</tr>
<tr>
<td>Habitat</td>
<td>Tropical forests and woodlands</td>
</tr>
<tr>
<td>Food</td>
<td>Leaves</td>
</tr>
<tr>
<td>Size</td>
<td>Body is 1 to 22 inches long, depending on the species</td>
</tr>
<tr>
<td>Babies</td>
<td>Nymphs must get their own food after they hatch</td>
</tr>
</tbody>
</table>

These thin insects are named for what they look like – a stick. But a stick insect doesn’t just look like a twig, it acts like one, too!

During the daytime a stick insect usually stays perfectly still. But if it does need to move, it sways as it walks so it looks like a twig being moved by the wind.

Stick insects feed at night. When they eat leaves, it triggers the plant to create more. In this way, stick insects work like gardeners of the forest, helping to keep trees, bushes, and vines healthy!

Because they eat so much, stick insects can cause problems in places where they are not from. […]

The Stick Insect text is representative of the kind of texts students in primary school CLIL programmes are often presented with in learning materials for the subject of Natural Science. With teachers’ guidance, enabling learners to identify the stages of this genre and the language features that characterise it, students can begin to develop the subject-specific literacy, the reading and writing skills, which will be expected and required at higher complexity levels in secondary school.

Text 2, on the topic of “keeping healthy”, which is part of mid-primary school curriculum in Spain, is again an example of the materials many teachers have available (taken from Cambridge Kid’s Box EFL textbook (Nixon and Tomlin 52)).
Example text 2. A Healthy Body

1) For a healthy body, it's very important to eat the right food. We need to eat different kinds of fruit and vegetables every day. Drinking water is good for us and we need to drink lots of it every day. Eating a lot of sweets, cake and chocolate is bad for our teeth.

2) Exercise is good for our bodies. We can run and swim or play sports like basketball and tennis. It's important to move our bodies to be healthy.

3) Our bodies need rest too. Everyone needs to sleep and children need to sleep about 10 hours every night.

Text 2 is also intended to inform, but in this case, to direct the reader about how to stay healthy. The text tells us what to do and what not to do in order to have a healthy body. It is a particular type of procedure, in which the instructions are not organized around a process taking place through time - an experiment - , but how to behave, so it belongs to the genre of protocols. As in the descriptive report, here we find the Purpose stage expressed in an abbreviated form: “For a healthy body”, a preposition phrase rather than a clause. The second stage of the protocol, as shown in Rose and Martin (26), is expressed in the phases which make up the rest of the text, in which the reader is informed about things that are “good for us”, and things that are “bad for us”, yet which are not sequenced in time, which differentiates protocols from other procedural genres.

Knowing the genre and its stages offers support to students when they write their version of the same type of text.

4. Applying R2L Pedagogy

This approach to literacy instruction follows a cycle in which scaffolding is provided for students at each of the steps of the teaching-learning sequence. What teachers do, at each step of the sequence, is to prepare students for the tasks that they will be asked to complete independently later on. The R2L pedagogical cycle begins with the teacher’s selection of a text in the genre that the students need to learn. Before students read the text, they are guided, by way of a “think-
aloud” style discussion led by the teacher, to activate their knowledge that will contextualise what they read and to take into account the visual features that frame the text, such as tables, pictures or differences in font, a process exemplified in the next subsection.

The cycle continues with a close reading of a short segment of the text, chosen for its importance for the learning objectives the teacher has fixed. This may be related to content or to language in the case of stories or evaluative genres. In this R2L strategy, known as Detailed Reading, the teacher helps students understand each sentence, and discusses the wordings and other meaning-making resources. During detailed reading, students identify and then highlight key words and expressions, which they use to make notes that serve as a skeleton for rewriting the text under the teacher’s guidance, in activities of Joint Construction or Joint Rewriting. Finally, students are prepared to begin writing a similar genre, the content of which they research or generate, now writing independently, using the support they have received and the understanding attained in the previous stages.

4.1. Preparing for Reading in a Primary CLIL Science Classroom

Taking as an example the text about stick insects (example 1, above), this section shows how a teacher might talk to students in preparation to work on reading comprehension with this text, and later on, to write texts in the same genre. The teacher, by means of discourse like that which is shown here, leads the students to visually “walk around the page”. In addition, in contrast with everyday classroom interaction, in this interaction, the teacher introduces the kind of wordings that they will find in written science texts.

Now we’re going to read about the Stick Insect. You see on the right at the top of the page the insect sitting on a shiny green leaf. It looks just like a stick! On the left of the photo, in orange, is the class, or phylum that the insect belongs to. It’s an Arthropod. [Linking with previous topics, as is usual practice].

[Guiding students round the page] In the box on the left of the photo are the basic facts about this insect. First the areas in the world where it lives. Does it like the cold? Then the type
of habitat it lives in. Does it need plants around its home? Then we see the food it eats […] the scientific name for the baby insects, who can find this name? Yes, nymphs.

[Giving information about the genre, which students use later to structure their texts when they write; different from usual practice.] This is a descriptive report. It describes a class of things. It starts with the Classification. In this text, it's not in a sentence, it's just there at the top. Who can read it? Good!! We could say "A stick insect is an arthropod" as a more complete definition. Then, in the Description stage, we have the summary, that we've looked at, with different types of information about the insect.

[Guiding students round the page. Preparing orally for what they will read.] Now we're going to read the text below the photo and the fact box. It has different types of information: what the insect looks like, how it moves, and then what, when and how it eats…

As this example shows, the teacher verbalises the way a skilled reader prepares to read a new text, skimming the whole page (or screen), to identify what is expressed, some key words and the way the text is structured. This strengthens the learners’ comprehension skills and reinforces their confidence in different ways, leading them to eventually apply the same techniques independently.

4.2 Detailed Reading in a CLIL Mid-secondary Content-rich Language Classroom Working towards the Global Classrooms Competition

As an example of what the author of the pedagogy calls its “turbo-engine”, the Detailed Reading strategy, we show a snippet -just part of one sentence. The context is a grade nine class which was working towards writing a position paper as part of the "Global Classrooms" competition which many of the state bilingual secondary schools in the Madrid Region participate in. The teacher decided to focus on the most important part of the position paper, the proposal stage, in the model text, and uses the detailed reading strategy to help the students understand and interiorise the language.

First, she prepares the sentence orally, so that the students know what it is about as they try to identify the meanings in the complex administrative register of the document: "The next
sentence tells us that Vietnam is going to propose a law for factories and it says that factories should take half of the energy that they use from renewable energies. Look at the sentence while I read it.” She reads, "We uphold the creation of a law requiring every factory built to be maintained at least in half by renewable energies such as solar or hydroelectric power ", and then begins to guide the students to key phrases. The students’ task is to identify wordings by using clues as to position and to meaning, and highlight them (bringing in physical action) for use later at the rewriting stage. "Who can see the word at the beginning of the sentence that means we propose the creation of a law for factories?". The teacher has used a cognate, "propose", to help students understand and focus on "uphold". All the students can answer correctly, and highlight the word.

Once students have identified the word or phrase, the teacher may elaborate on the language or the content. Here, she could comment on the composition of "uphold", give an example of holding something up, and point out the formal register of "to uphold". Then, to get the students to understand "to be maintained", she asks: "Which three words tell us that the factory has to function with renewable energies?". Then, after focusing on other words or phrases which will be needed for the writing task, the teacher asks "Which two words at the end of the sentence refer to two types of renewable energies?". The identification of "solar or hydroelectric" is an opportunity for work on language: "such as" introduces an example; the word "SOlar" in English is stressed on the first syllable, unlike Spanish "solAR". At this point, she can also elaborate on the content, taking the topic beyond the text, to the students' experience: "Spain produces renewable energy. What methods have you seen in the countryside. Where? Why is renewable energy important for Spain? Do you know of other renewable energies?".

This type of carefully prepared detailed work on a short segment permits real integration of work on language and content. The writing activity which would follow allows students to take an active role in the use of the language to create a new text.
5. Conclusions

This paper has shown why CLIL teachers should work on literacy in their classrooms, and presented a theoretically robust and well-tested pedagogy allowing them to integrate this work with the teaching of the content of their classes. Knowledge of the subject-specific genres can be applied to scaffolding pupils at primary or secondary school in reading and writing texts in the L2. Reading to Learn pedagogy is flexible, yet complete, since it offers a choice of strategies from which teachers can select according to their objectives, and a metalanguage to help pupils in the complex task of writing in a school discipline. With periodic, but consistent, use of this approach, teachers can impulse greater equity and opportunities for all their students to progress in literacy skills across the languages that they use, and through which they learn the different school curriculum areas.

Notes

1 Thanks to the EU for funding the project Teacher Learning for European Literacy Education (TeL4ELE) and to the project leaders, Claire Acevedo and Ann-Christin Lövstedt (tel4ele.eu, telcon2013, formule.com)

2 Grateful thanks to technology teacher for sharing his work with the UAM-CLIL research team.

3 Merriam-Webster online dictionary (consulted 27 November 2018 at www.merriam-webster.com/dictionary/explain).

4 From the San Diego Zoo website, accessed 14 October 2017 (No longer online).
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