

A rubric model to analyse CLIL textbooks in Primary Education

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ABSTRACT: The implementation of Content and Language Integrated Learning (CLIL) in Primary Education requires efficient planning, in which materials and resources play a paramount role. In fact, research in the field has brought to the fore that teachers consistently identify the lack of specific materials and resources as a major difficulty in their classes. Strikingly, CLIL materials and resources have received scant scholarly attention to date, even though many teachers complain about the quality of CLIL textbooks. This study presents the results of the analysis of six CLIL textbooks used in Primary in the Principality of Asturias bilingual programme. The research tool was a rubric designed ad-hoc to gather information on the organization, methodology and integration of the 4Cs framework of the textbooks. The results of the content analysis report evidence on the adequacy of CLIL textbooks to the methodological principles which characterise this approach, also providing teachers with an efficient and practical tool for the selection of the most adequate textbook according to their educational context.

Keywords: CLIL, bilingual programme, textbooks, primary education, rubric

Una rúbrica para analizar libros de texto AICLE en Educación Primaria

RESUMEN: La implementación del Aprendizaje Integrado de Contenidos y Lenguas Extranjeras (AICLE) requiere de una planificación eficaz, en la cual los materiales y recursos juegan un papel importante. De hecho, la investigación en este campo señala que el profesorado identifica la escasez de materiales y recursos de AICLE como una de las principales dificultades en sus clases. Sorprendentemente, los materiales y recursos de AICLE han recibido escasa atención, a pesar de que los docentes reconocen la escasa calidad de muchos libros de texto. El presente artículo incluye los resultados análisis de libros AICLE utilizados en educación primaria en el programa bilingüe del Principado de Asturias. El instrumento de recogida de información fue una rúbrica de evaluación ad-hoc con la que registrar información acerca de la organización, metodología e integración del marco de las 4Cs de los libros. Los resultados obtenidos proporcionan información precisa sobre la adecuación de los libros de texto AICLE a los principios metodológicos característicos de este enfoque, facilitando también al profesorado un instrumento práctico y eficaz para su uso propio de cara a la selección del libro de texto que más se ajuste a su contexto educativo.

Palabras clave: AICLE, programa bilingüe, libro de texto, educación primaria, rúbrica

1. INTRODUCTION

Content and Language Integrated Learning (CLIL) or teaching content subjects through an additional language has mushroomed in Europe based on the reported benefits for students in terms of language gains, exposure to the L2, language awareness, and motivational factors, among others (Cenoz et al., 2014; Fernández-Costales, 2023; Pérez-Cañado, 2012; San Isidro, 2019). In Spain, CLIL provisions have been implemented since 2010 in primary and secondary education. Research has reported positive outcomes in terms of student achievement, language gains, and attitudes towards the L2 (Barrios & Acosta-Manzano, 2020; Buckingham et al., 2022; Pérez-Cañado, 2018) but studies also underline the heterogeneous application of CLIL and the lack of common guidelines and policies (Fernández Sanjurjo et al., 2019).

The implementation of CLIL requires efficient planning (Coyle, 2005), in which materials and teaching resources play a paramount role. However, as suggested by prior studies, there is a shortage of CLIL materials (Banegas, 2016; Coyle et al., 2010; Morton, 2013). In this sense, Moore and Lorenzo (2007) proposed three alternatives to cope with this shortage of specific CLIL resources: create original materials, use authentic materials, and adapt authentic materials considering the teaching-learning objectives.

Another critical issue to be further explored is the suitability of CLIL resources and materials, as this is a research avenue that has received scant attention in relation to other topics (Banegas, 2014; Banegas and Tavella, 2021) and it directly affects the selection of CLIL textbooks to be used in the classroom. In Spain, this problem is emphasised, as the 17 autonomous regions have different curriculums for each subject and there are frequent changes in educational policies. Publishers try to keep up and create specific textbooks for each area, but sometimes the amount of time and effort necessary for this purpose render it an impossible task (Medina, 2016). Considering that teachers need to apply a set of criteria to select, adapt or design the most adequate resources for their classroom, an evaluation rubric for CLIL textbooks can be an efficient tool that facilitates textbook selection.

It has to be noted the present research is part of a larger investigation focused on the analysis of CLIL in Asturias and the use of materials and resources in Primary Education. This paper aims to contribute to CLIL research by analysing the textbooks used by teachers in schools of Primary Education in the Principality of Asturias, assessing if these materials comply with the methodological and pedagogical tenets of CLIL and evaluating their suitability to teach contents through an L2 in Primary Education.

The objectives of the article are the following: 1) examine the organization and design of CLIL Science textbooks used in Primary Education; 2) evaluate how CLIL Science textbooks integrate CLIL's core methodological principles; 3) analyse the use of the 4Cs framework in CLIL Science textbooks; and 4) examine possible differences between textbooks published according to the latest education laws in Spain (LOMCE and LOMLOE)¹. Our analysis will be based upon Coyle, Hood and Marsh's (2010) 4Cs framework (content, communication, cognition, and culture) and we will include books published under the two most recent education laws in Spain (LOMCE and LOMLOE).

¹ Ley Orgánica 8/2013, de 9 de diciembre, para la mejora de la calidad educativa (LOMCE); Ley Orgánica 3/2020, de 29 de diciembre, por la que se modifica la Ley Orgánica 2/2006, de 3 de mayo, de Educación (LOMLOE). In 2022-2023, LOMCE is still applied to even grades (2nd, 4th and 6th) and LOMLOE to odd grades (1st, 3rd and 5th).

2. LITERATURE REVIEW

As Banegas (2016, p. 22) states, “one of the challenges -but, at the same time, opportunities- of CLIL is the limited number of context-responsive materials available”. However, as claimed by Banegas and Tavella (2021, p.2), “coursebooks are an important tool for CLIL provision”. Most research in CLIL textbook evaluation deals with content analysis, which refers to an analysis based on what is included and excluded from a textbook, for example, the pedagogical theories or the common themes (Harwood, 2013) and is focused on different aspects related to the methodological principles that underpin this approach. However, as claimed by Banegas and Tavella (2021), there is a shortage of studies devoted to the evaluation of CLIL materials, especially in Primary Education. Below, we review some of the existing studies related to textbook evaluation in the international and Spanish contexts.

Banegas (2014) explored four Foreign Language Learning (FLL) textbooks used in Secondary Education in Argentina that included CLIL sections to analyse their coherence with the methodological principles of CLIL. His results showed that CLIL sections consider the CLIL approach as peripheral to the textbooks, mostly as an “extra”. These textbooks were characterised by the oversimplification of contents which did not correlate to any L1 curriculum and the lack of integration between content and language, including mostly reading activities which promote the development of Lower Order Thinking Skills (LOTS). Therefore, he concluded that these types of textbooks did not efficiently integrate the CLIL approach and its mention in the textbooks was mostly a marketing strategy overstretching the scope of CLIL.

Czura (2017) focused on the analysis of twenty-five CLIL textbooks considered as directly translated versions of regular textbooks written in learners’ first language (L1). Considering the 4Cs framework, she demonstrated how this type of textbooks did not fulfil the requirements of the CLIL approach. These textbooks focused on the content of the subject, omitted the linguistic objectives, were not adequate for students’ linguistic level, did not foster students’ cognitive dimension and did not promote students’ intercultural education. In addition, this author proposed some guiding principles for developing CLIL learning resources: integration of content and language, focus on productive skills and communication, extensive vocabulary practice, judicious use of learners’ mother tongue, enhanced visualization of meaning, the development of language learning strategies and study skills, control over cognitive processes, raising intercultural awareness, and humanising CLIL resources.

Banegas and Tavella (2021) analysed how CLIL was included a series of four general English coursebooks series of Primary Education with a CLIL component marketed and usually adopted in Argentina. They consider the 4Cs framework (Coyle, 1999) as the centre of their analysis. In the content dimension, they found that the textbook topics were adequate at a language and content level for Primary Education students and treated content in a similar way to the L1 curriculum. In the communicative dimension, the textbooks promoted the development of the four communicative skills, although they tended to prioritise reading skills. In the cognitive dimension, textbooks promoted a progression from less to more cognitively demanding tasks, giving priority to LOTS in the first levels and moving to HOTS (Higher Order Thinking Skills) in the higher levels. However, the textbooks did not integrate the cultural dimension in the CLIL pages, presenting it in a different section.

Martin del Pozo and Rascón (2015) led a study in which they analysed twenty-five Science and Arts textbooks used in Primary Education in Spain, following a qualitative methodology. Their objective was to ascertain if textbooks' linguistic and content objectives were present in an equal amount of the textbooks. They found that textbooks tended to focus on the curricular content and relegate the linguistic objectives to a secondary role. Therefore, the dual-focused approach of these textbooks was not conveyed.

Dealing with the cognitive dimension, Santo-Tomás (2011) examined four Natural Science textbooks used in the 2nd year of Primary Education in Madrid, following a qualitative methodology. This evaluation, based on Bloom's (1956) taxonomy, revised by Anderson et al., (2001), showed that textbooks tended to promote the development of LOTS, except one that promoted HOTS. In this sense, Peyró et al. (2020) led a study in which they analyse six Natural Science textbooks destined to the 6th year of Primary Education from Spanish and British publishers. They used Bloom's revised taxonomy and found out that 66% of the textbooks did not promote HOTS, with the British editorials being the only ones that kept a balance between LOTS and HOTS.

The results of the aforementioned studies lead to the conclusion that most textbooks do not exactly approach CLIL principles, as there is no integration of language and contents, and the intercultural dimension is frequently overlooked. Moreover, most textbooks consist of an oversimplification of contents or a direct translation from L1 materials and the cognitive processes of students are not stimulated.

Designing quality CLIL materials has been an area of concern among different authors. Mehisto (2012) created a list of ten criteria for the development of quality CLIL materials: make the learning intentions (language, content, learning skills) and process visible to students; systematically foster academic language proficiency; foster learning skills development and learner autonomy; include self, peer and other types of formative assessment; help create a safe learning environment; foster cooperative learning; seek ways of incorporating authentic language and authentic language use; foster critical thinking; foster cognitive fluency through scaffolding of: 1) content, 2) language, 3) learning skills development, helping students to reach well beyond what they could do on their own and help to make learning meaningful. Meyer (2010) also proposed a series of strategies and a tool for CLIL quality lesson planning and material construction, based on the 4Cs framework (Coyle, 1999) and called "The CLIL-pyramid". The strategies are: rich input, scaffolding learning, rich interaction and pushed output, adding the (inter)-cultural dimension, make it H.O.T and sustainable learning.

Being aware of the lack of specific tools for evaluating the coherence of textbooks within the CLIL approach, in the Spanish context, Medina (2016) created a checklist to analyse CLIL textbooks. Evaluation instruments designed for FLL textbook evaluation (Mukundan, et al., 2011) and studies related to quality CLIL materials (Mehisto, 2012) were considered to elaborate this checklist, which was also redefined in 2021 (Medina, 2021) incorporating the input provided by a focus group of five CLIL teachers. This redefined checklist includes a Likert scale with four levels of response and consists of 60 items divided into the following seven sections: general (structure, supplementary materials, physical and utilitarian features), content, cognition, communication, culture, language and integration.

In conclusion, the analysis of materials and resources in CLIL has received scant attention and further research is required, especially if we consider the relevance and the large

corpus of papers devoted to other dimensions in CLIL. We feel our study can contribute to enhance the field by providing empirical data on the analysis of CLIL materials used in Primary Education in a context where CLIL has been widely implemented and where no prior studies have been conducted on the topic.

3. THE CURRENT STUDY

The current research was conducted in the Principality of Asturias, a region with a similar curriculum to most regions in Spain. The Bilingual Programme was launched in 2005 and, today, there are 215 Primary Education schools included in the programme.

3.1 Research tool

A CLIL textbook evaluation rubric has been designed *ad hoc* to analyse the selected textbooks. To design this rubric, CLIL methodological principles have been considered. In this sense, special attention has been paid to the integration of the 4Cs framework proposed by Coyle (1999), together with the principles established in the CEFRL (Common European Framework of Reference for Languages) and collected by Sanchez-Reyes (2011), the principles of Project-based Learning (PBL) (Blumenfeld et al., 1991; Thomas, 2000), Cummins' (1980) concepts of Basic Interpersonal Communicative Skills (BICS) and Cognitive Academic Language Proficiency (CALP), the Blooms' taxonomy or "The CLIL Matrix" proposed by Coyle, Hood and Marsh (2010). Previous studies based on criteria for producing quality CLIL materials (Mehisto, 2012; Meyer 2010) and already-made checklists for CLIL textbook evaluation (Medina, 2016) were considered.

The rubric consists of 54 items divided into three sections: "general aspects", "methodological and evaluation aspects" and "the 4Cs framework". The first section is composed of 18 items divided into three subsections "structure and organization of the textbook" (organization according to the Asturian curriculum, index of contents, units temporalization, structure, objectives...), "supplementary resources" (teacher guidance, workbook, ICTs, reinforcement, extension and evaluation resources, authentic materials) and "design and access" (cover, images, fonts, market accessibility, affordability). The second section includes 8 items related to methodological and evaluation principles to be analysed. Finally, the third section evaluates 28 items and issues related to the 4Cs framework. A five-point Likert scale was used: 1) very poor; 2) poor; 3) neither poor nor good; 4) good; 5) excellent.

Furthermore, different descriptors for each item were written to provide a great level of detail, upscaling from a checklist to a rubric and creating in that way a complete, straightforward, and accessible tool for evaluating CLIL textbooks. These descriptors specify each item and allow for the evaluation of the item using the Likert scale. For example, in item 2.1, "Integrates the 4C's (Content, Communication, Cognition, and Culture) in each unit," the following descriptors are provided:

1. The 4Cs are not integrated, and only one of the Cs is developed.
2. Only two of the Cs (generally content and communication) are developed, but in an isolated manner

3. Three Cs are developed, but in an isolated manner. They are only integrated in a few activities.
4. The 4Cs are integrated in each unit. However, one of the Cs is usually left behind
5. The 4Cs are integrated in each unit, and Content, Communication, Cognition, and Culture have the same level of importance.

The rubric was subjected to expert validation, with four independent judges –researchers working in educational research, and CLIL teachers of Primary education– assessing the suitability of the tool. After receiving the suggestions of the experts, the rubric was fine-tuned through item analyses and some minor changes were made to ensure internal consistency. Subsequently, the rubric was considered appropriate for the current research.

3.2 Sample

The research sample includes six textbooks of Natural Science for the 3rd grade of Primary Education from different publishers that are used in the bilingual programme in Asturias. The main reason for selecting Science textbooks is that it is the most widespread subject in the Asturian bilingual Programme. The textbooks were elaborated considering the last two Spanish educational laws. Different factors have been considered for the selection process. First, the list provided by the Regional Ministry of Education of the Principality of Asturias of the schools that offer the bilingual programme in Asturias was consulted, and their web pages were registered. Then, the researchers checked the list of textbooks used in Natural Science in 2021-2022 and 2022-2023. The six CLIL textbooks selected were: *SM Más Savia (SMS)*, *Oxford Think Do Learn (OTDL)*, *Santillana Basics (SB)*, *SM Revuela (SMR)*, *Oxford CLIL World (OCW)* and *Santillana World Makers (SWM)*.

4. RESULTS

Next, we present the results of the analysis of the six textbooks after using the assessment rubric. First, in Graph 1, the results obtained are presented as a general overview. It can be seen that *SMR* (LOMLOE) is the textbook that obtains the highest result according to the rubric and *SB* (LOMCE) is the textbook that obtains the lowest result.

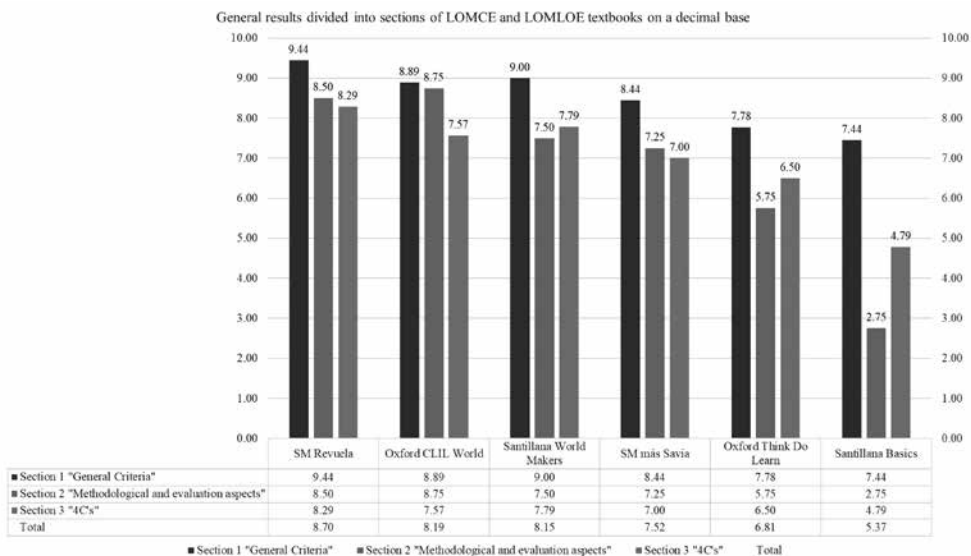


Figure 1. General results divided into sections

The main findings are shown in the following tables of contents which correspond to the three sections that compose the rubric. Each table displays the results obtained by the textbooks for each item, along with their corresponding mean and standard deviation. The table includes the total score of the books for each section (90 in the first section, 40 in the second section and 35 in the last four sub-sections). The scores are also presented on a decimal basis for all sections.

To properly understand the results obtained and how they were reached, an interpretation of data is provided considering the results of the textbooks in each item of the rubric and their connection with previous research.

4.1 Section 1 “General aspects”

As shown in table 1, *SMR* (LOMLOE) obtains the highest result in this section according to the rubric, whereas *SB* (LOMCE) obtains the lowest result.

Table 1. Section 1 “General aspects”

Section 1: General Criteria	1.1.1	1.1.2	1.1.3	1.1.4	1.1.5	1.1.6	1.1.7	1.2.1	1.2.2	1.2.3	1.2.4	1.2.5	1.2.6	1.3.1	1.3.2	1.3.3	1.3.4	1.3.5	Total Score	Total Score (Decimal base)	
SM Más Savia (SMS)	5	5	1	5	1	5	5	5	5	5	5	4	1	4	5	5	5	5	5	76/90	8.44
Oxford Think Do and Learn (OTDL)	5	5	1	5	1	3	5	5	1	5	5	4	1	4	5	5	5	5	5	70/90	7.78
Santillana Basics (SB)	5	5	1	5	1	2	5	5	1	5	5	2	1	4	5	5	5	5	5	67/90	7.44
SM Revuela (SMR)	5	5	1	5	5	5	5	5	5	5	5	5	4	5	5	5	5	5	5	85/90	9.44
Oxford CLIL World (OCW)	3	5	1	5	5	5	5	5	1	5	5	5	5	5	5	5	5	5	5	80/90	8.89
Santillana World Makers (SWM)	5	5	1	5	1	5	5	5	5	5	5	5	4	5	5	5	5	5	5	81/90	9
Mean	4.67	5.00	1.00	5.00	2.33	4.17	5.00	5.00	3.00	5.00	5.00	4.17	2.67	4.50	5.00	5.00	5.00	5.00	5.00	76.50	8.50
Standard Deviation	0.82	0.00	0.00	0.00	2.07	1.33	0.00	0.00	2.19	0.00	0.00	1.17	1.86	0.55	0.00	0.00	0.00	0.00	0.00	6.89	0.77

Structure and organization (items 1.1.1 to 1.1.7)

LOMCE textbooks have a consistent organization according to the curriculum of the Principality of Asturias (item 1.1.1), as well as *SMR* and *SWM*. However, *OCW* is not organised into learning situations –i.e., activities and situations that imply the use of key competences and specific competences that contribute to their acquisition and development of them–. This shows that these textbooks can be used in Asturian schools in the Natural Science subject, although the teacher has the responsibility to check Decree 57/2022 (for the LOMLOE books) and Decree 82/2024 (for the LOMCE books) for the elaboration of their year planning.

The index of contents facilitates the interaction with the textbooks (item 1.1.2) and there is a lack of temporalization in the units (item 1.1.3). These units tend to follow the same structure in each book (item 1.1.4). LOMCE textbooks do not specify the learning objectives in each unit, and neither does the LOMLOE textbook *SWM*. However, *SMR* and *OCW* specify their objectives (item 1.1.5), allowing students to know their goals. LOMLOE textbooks and *SMS* indicate the main aspects at the beginning of every unit (1.1.6), whereas in the other LOMCE textbooks, the specifications are not so clear and explicit. Furthermore, all the textbooks include summaries and concept maps or invite students to elaborate them (item 1.1.7), synthesizing information and working on different learning techniques.

Supplementary resources (items 1.2.1 to 1.2.6)

All the textbooks include didactic guidance for teachers (item 1.2.1) and *SMS*, *SMR* and *SWM* include an activity book for students (item 1.2.2). They include a great variety of Information and Communication Technologies (ICTs) resources (item 1.2.3) and reinforcement, extension and evaluation resources (item 1.2.4). However, in *SB* there is a shortage of these

resources. They also include web links (item 1.2.5) from their digital environments and external web links in the case of the LOMLOE textbooks. These resources allow the adaptation to the different students' rhythms and contribute to their digital competence. LOMCE textbooks do not include authentic materials (item 1.2.6), whereas LOMLOE textbooks include resources such as videos and animated stories (especially *OCW*), which provide a context from which to understand content through a foreign language comprehensively and memorably and help to develop the 4Cs (Ioannou-Georgiou and Ramírez, 2011).

Design and access (items 1.3.1 to 1.3.5)

LOMCE textbooks include attractive covers and structures for students (item 1.3.1), although they do not include familiar visual elements such as photographs or real characters, something that LOMLOE textbooks do include. Their colourful and attractive images accompany the text and facilitate its comprehension (item 1.3.2), efficiently using fonts and colours (item 1.3.3) and following Czura's (2017) criteria related to the provision of visual support. Finally, these textbooks are accessible on the market (item 1.3.4) and are affordable (item 1.3.5), facilitating their acquisition by families.

4.2 Section 2 “Methodological and evaluation aspects”

Table 2 shows that *OCW* (LOMLOE) is the textbook that obtains the highest result in this section according to the rubric, whereas *SB* (LOMCE) is that which obtains the lowest result.

Table 2. Section 2 “Methodological and evaluation aspects”

Section 2: Methodological Aspects	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	Total Score	Total Score (Decimal base)
SM Más Savia (SMS)	3	5	5	3	5	4	3	1	29/40	7.25
Oxford Think Do and Learn (OTDL)	2	4	5	2	1	5	3	1	23/40	5.75
Santillana Basics (SB)	1	3	2	1	1	1	1	1	11/40	2.75
SM Revuela (SMR)	4	5	5	4	2	5	5	4	34/40	8.50
Oxford CLIL World (OCW)	5	5	5	4	2	5	5	4	35/40	8.75
Santillana World Makers (SWM)	4	5	5	4	2	4	5	1	30/40	7.50
Mean	3.17	4.50	4.50	3.00	2.17	4.00	3.67	2.00	27	6.75
Standard Deviation	1.47	0.84	1.22	1.26	1.47	1.55	1.63	1.55	8.92	2.23

Concerning the integration of the 4Cs in each unit (item 2.1), LOMCE textbooks only promote the development of three of the 4Cs (Content, Communication and Cognition) in *SMS*; two of the 4Cs in *OTDL* (Content and Communication), and only one in *SB* (Content). LOMLOE textbooks tend to integrate the 4Cs proposed, although culture is usually relegated to a secondary role except for in *OCW*. LOMLOE. LOMLOE's textbooks and *SMS* include more communicative activities (projects that foster the 4 communicative skills, oral games, and experiments) and make a balance between the development of students' communicative competence and their content acquisition (item 2.2), considering language and content their key elements (Marsh, 2000). *OTDL* includes less variety of these activities and *SB* more so.

LOMCE (except *SB*) and LOMLOE textbooks promote a student-centred approach (item 2.3). Textbooks establish a structure that allows students to activate prior knowledge, investigate, reflex, debate, acquire new knowledge and relate them to their own experiences, including communicative and practical activities related to the real world that help acquire meaningful learning. Concerning Cooperative Learning (item 2.4), it is not usually promoted by LOMCE textbooks, whereas LOMLOE books tend to include activities that promote its development and consider Mehisto's (2012) criteria related to quality CLIL materials.

Dealing with PBL (item 2.5), only *SMS* includes projects based on its principles and characteristics (Thomas, 2000). Projects included in the LOMLOE textbooks are peripheric to the unit and do not follow the PBL principles. Moreover, *OTDL* and *SB* neither include projects nor follow this methodology.

The Scientific Method (item 2.6) is taken into account in the textbooks (except in *SB*) with lots of practical activities and experiments. In *SMS* and *SWM* some of the steps are omitted, such as the formulation of hypotheses. In any case, these activities promote the development of students' scientific and investigation skills that will accompany them through all the Primary Education stage and throughout their life.

Regarding self-evaluation activities (item 2.7), LOMCE textbooks such as *SMS* and *OTDL* include some of them, something which *SB* does not. Furthermore, these textbooks do not include peer-evaluation activities (item 2.8). LOMLOE textbooks include a great variety of self-evaluation and peer-evaluation activities (except in *SWM*), following Czura's (2017) principles of quality CLIL materials.

4.3 Section 3 “4Cs Framework”

Table 3. Section 3.1 “Content”

Section 3.1: Content	3.1.1	3.1.2	3.1.3	3.1.4	3.1.5	3.1.6	3.1.7	Total Score	Total Score (Decimal base)
SM Más Savia (SMS)	4	1	5	5	1	4	4	24/35	6.86
Oxford Think Do and Learn (OTDL)	4	1	5	5	1	3	5	24/35	6.86
Santillana Basics (SB)	4	1	4	5	1	2	1	18/35	5.14
SM Revuela (SMR)	4	5	5	5	5	5	5	34/35	9.71
Oxford CLIL World (OCW)	4	1	4	5	5	5	5	29/35	8.29
Santillana World Makers (SWM)	4	1	5	5	5	5	5	30/35	8.57
Mean	4.00	1.67	4.67	5.00	3.00	4.00	4.17	26.50	7.57
Standard Deviation	0.00	1.63	0.52	0.00	2.19	1.26	1.60	5.65	1.61

SMR obtains the highest result in this subsection according to the rubric, and SB has the lowest result. Both LOMCE and LOMLOE textbooks cover the contents and basic knowledge established in Decree 82/2014 and Decree 57/2014 (item 3.1.1), except those related to Asturias. LOMCE and LOMLOE textbooks (except SMR) do not include the learning objectives related to the content (item 3.1.2), so they do not follow Mehisto’s (2012) criteria related to this aspect. The textbooks include a variety of content scaffolding techniques (item 3.1.3) (introductory paragraphs, graphic organisers, modelling...) although they are less frequent in OCW and SB, following Mehisto’s (2012) criteria. The contents are adequate and relevant for students in 3rd grade (item 3.1.4), being those established in Decree 82/2014 and Decree 57/2022.

LOMCE textbooks do not include cross-curricular contents (item 3.1.5) whereas LOMLOE textbooks do, following in that way the cross-curricular approach adopted in CLIL. The activities proposed in the LOMCE textbooks are not varied (item 3.1.6), although SMS includes more varied activities in its projects and LOMLOE textbooks include a great variety of activities among the different units to reach meaningful learning, providing students with different challenges in the unit and avoiding the automatization of activities. Finally, LOMLOE textbooks include a great variety of activities related to real life (item 3.1.7), as does OTDL does, allowing students to link contents with their interests and real-life experiences and promoting meaningful learning, according to Mehisto’s (2012) criteria. SMS also includes a variety of these activities, whereas SB does not.

Table 4. Section 3.2 “Communication”

Section 3.2: Communication	3.2.1	3.2.2	3.2.3	3.2.4	3.2.5	3.2.6	3.2.7	Total Score	Total Score (Decimal base)
SM Más Savia (SMS)	5	5	1	5	4	5	4	29/35	8.29
Oxford Think Do and Learn (OTDL)	4	4	1	3	3	2	2	19/35	5.43
Santillana Basics (SB)	4	4	1	3	2	3	2	19/35	5.43
SM Revuela (SMR)	5	5	1	4	5	5	4	29/35	8.29
Oxford CLIL World (OCW)	4	4	1	3	4	4	4	24/35	6.86
Santillana World Makers (SWM)	5	5	1	5	4	4	4	28/35	8.00
Mean	4.50	4.50	1.00	3.83	3.67	3.83	3.33	24.67	7.05
Standard Deviation	0.55	0.55	0.00	0.98	1.03	1.17	1.03	4.76	1.36

SMR and *SMS* obtain the highest results in this subsection according to the rubric and *OTDL* and *SB* obtain the lowest results. The language included in the textbooks is natural and real (item 3.2.1), using a variety of linguistic scaffolding techniques (item 3.2.2) to facilitate the texts’ comprehension and the development of oral and written production activities (especially in *SMS*, *SMR* and *SWM*), considering in this way Mehisto’s (2012) criteria related to this aspect. Linguistic learning objectives (item 3.2.3) are not included in any of the textbooks, so they do not follow Mehisto’s (2012) criteria related to their inclusion in quality CLIL materials. The vocabulary appears contextualized and highlighted to facilitate its presentation (item 3.2.4), including a glossary with key vocabulary, definitions, and images in *SMS* and *SWM*. These are linguistic scaffolding techniques considered by Mehisto (2012) and Czura (2017) as key elements in quality CLIL materials.

Dealing with the integration of the four communicative skills in real-life and meaningful contexts (item 3.2.5), *SMR* stands out for the inclusion of a great variety of communicative activities, promoting students’ communicative competence. However, *SB* does not promote this kind of communicative activities, promoting a maximum of two of them (usually listening-speaking or reading-writing) in non-real-life or significative contexts. *SMS* and *SMR* include a great variety of activities that promote the development of BICS and CALP (item 3.2.6), considering Mehisto’s (2012) criteria of “systematically fostering academic language proficiency”, whereas *OTDL* includes only a few activities that integrate both BICS and CALP as it usually promotes the development of CALP. Regarding communicative activities (item 3.2.7), *SMS*, *SMR*, *OCW* and *SWM* include a variety of communicative activities that promote communication individually, in pairs, in groups and with all the class. They omit teacher-student communication although some activities could be developed in that way. There-

fore, they follow Mehisto’s (2012, p. 22) criteria of “seeking ways of incorporating authentic language and authentic language use” and Czura’s (2017, p. 41) criteria of “focusing on productive skills and communication”. *OTDL* and *SB* include a few communicative activities, but there is a lack of pair activities in the former, and a lack of group activities in the latter.

Table 5. Section 3.3 “Cognition”

Section 3.3: Cognition	3.3.1	3.3.2	3.3.3	3.3.4	3.3.5	3.3.6	3.3.7	Total Score	Total Score (Decimal base)
SM Más Savia (SMS)	5	5	5	5	4	2	5	31/35	8.86
Oxford Think Do and Learn (OTDL)	5	5	3	3	5	4	5	30/35	8.57
Santillana Basics (SB)	1	2	2	2	1	3	4	15/35	4.29
SM Revuela (SMR)	5	5	5	5	5	5	5	35/35	10.00
Oxford CLIL World (OCW)	4	5	4	4	5	5	5	32/35	9.14
Santillana World Makers (SWM)	5	5	4	4	5	5	5	33/35	9.43
Mean	4.17	4.50	3.83	3.83	4.17	4.00	4.83	29.33	8.38
Standard Deviation	1.60	1.22	1.17	1.17	1.60	1.26	0.41	7.23	2.07

SMR obtains the maximum result that could be obtained in this subsection (35 points) according to the rubric and *SB* obtains the lowest result with only 15 points in this subsection. *SMS*, *SMR*, *OTDL* and *SWM* include a great variety of learning scaffolding techniques (item 3.3.1), as does *OCW*, although this textbook does not include the modelling of activities. Therefore, all except *SB* follow Mehisto’s (2012) criteria related to this aspect. All the textbooks (except *SB* which only include a few) include a great variety of previous knowledge activation activities at the beginning of the unit (item 3.3.2), allowing students to link the previous and the new knowledge and build meaningful learning, which is one of Mehisto’s (2012) criteria.

SMS and *SMR* establish a balance between the linguistic and cognitive levels (item 3.3.3), considering *The CLIL Matrix* proposed by Coyle, Hood, and Marsh (2010) in their activities, including a great variety of activities of the four quadrants and promoting a progression to high demanding cognitive activities. *OCW* and *SWM* also establish this balance, although they include fewer activities related to the four quadrants. *OTDL* does not reach this balance as it includes activities that mainly deal with quadrants 1 and 4 and some activities of quadrant 3, promoting a progression to highly demanding cognitive activities. *SB* neither reaches this balance nor promotes a progression to highly demanding cognitive activities, as it usually includes activities focused on LOTS.

In relation to the development of LOTS and HOTS (item 3.3.4), *SMS* and *SMR* establish a balance between activities that promote both kinds of skills, something that also occurs in *OCW* and *SWM*, although these textbooks mainly promote the development of LOTS. Therefore, these textbooks consider Bloom’s taxonomy, Mehisto’s (2012, p. 23) criteria of “fostering critical thinking” and Meyer’s (2010, p. 20) principle of “make it HOT”. *OTDL* does not reach this balance as most activities included promote the development of LOTS and few of them the HOTS. *SB* does not reach this balance either as most activities promote the development of LOTS and relatively few focus on HOTS. *SMR*, *OTDL*, *OCW* and *SWM* include a great variety of activities in which the students must reflect on the teaching-learning process (item 3.3.5), thus following Mehisto’s (2012) criteria related to the inclusion of self-evaluation activities that promote critical and creative thinking, discussion, and student autonomy. However, *SMS* only includes the reference to these activities to be developed in the activity book and *SB* does not include this type of activities.

LOMLOE textbooks include a great variety of activities in which the students must practice different study skills (item 3.3.6) such as concept maps or Venn diagrams, following Mehisto’s (2012, p.19) criteria of “fostering learning skills development and learner autonomy”. These activities appear in less proportion in *OTDL*, in even less proportion in *SB*, and are practically omitted in *SMS* which includes already-made summaries and concept maps. Finally, LOMLOE textbooks and *SMS* and *OTDL* include a great variety of input (item 3.3.7) in different formats (oral, written, visual, audio-visual) which allows adapting students’ different learning styles, following Meyer’s (2010, p.13) principle of “rich input” which brings out the relevance of multimodal materials. *SB* includes less variety as it does not include audio-visual input.

Table 6. Section 3.3 “Culture”

Section 3.4: Culture	3.4.1	3.4.2	3.4.3	3.4.4	3.4.5	3.4.6	3.4.7	Total Score	Total Score (Decimal base)
SM Más Savia (SMS)	3	1	1	3	2	3	1	14/35	4.00
Oxford Think Do and Learn (OTDL)	2	1	1	5	5	3	1	18/35	5.14
Santillana Basics (SB)	1	1	1	5	5	1	1	15/35	4.29
SM Revuela (SMR)	2	2	1	5	5	2	1	18/35	5.14
Oxford CLIL World (OCW)	4	1	2	5	5	3	1	21/35	6.00
Santillana World Makers (SWM)	2	1	1	5	5	3	1	18/35	5.14
Mean	2.33	1.17	1.17	4.67	4.50	2.50	1.00	17.33	4.95
Standard Deviation	1.03	0.41	0.41	0.82	1.22	0.84	0.00	2.50	0.72

OCW is the textbook that obtains the highest result in this subsection according to the rubric, and *SMS* that which obtains the lowest result. *OCW* presents a variety of specific cultural content and activities (item 3.4.1), whereas *SMS* includes some of them and the rest of the textbooks only include only a few examples. Considering Mehisto's (2012) criteria, quality CLIL materials should promote cultural knowledge of different cultures helping the student establish cultural links, something that *OCW* incorporates in a better way.

Although the textbooks include some references to foreign cultures, only on a few occasions are these references linked with the students' specific culture (item 3.4.2), as sometimes happens in *SMR*. There is no balance between students' cultural references and other cultures (item 3.4.3) in any of the textbooks, although *OCW* is closer to this balance as most cultural references are related to foreign cultures and students' cultural references are rarely included. This hinders the establishment of connections between cultures, something that Coyle et al. (2010) consider necessary to delve deeper into the concepts of "otherness" and "self" for the development of students' intercultural competence in CLIL. Meyer's (2010, p.19) principle of "adding the intercultural dimension" is not followed either.

Textbooks establish a balance between references to different ethnic groups in their images (item 3.4.4), except *SMS* which includes drawings of people from different countries and ethnic groups but only includes photographs of white people. Furthermore, images and photographs included in the textbooks are free from gender, social class, ethnic or lifestyle stereotypes (item 3.4.5), except in *SMS* which includes some images that promote these stereotypes. Therefore, Mehisto's (2012) criteria related to images is followed except in *SMS*.

SMS, *OTDL*, *OCW* and *SWM* include 2 of the 3Ps (practices and products) of culture (item 3.4.6) on some occasions, whereas *SMR* only includes one of the 3Ps (practices) on few occasions and *SB* does not include any. In any case, the references are minimal and textbooks neither consider the idea of Page and Benander (2016) about culture (which includes the cultural products, practices and perspectives) nor Hall's (1976) vision of culture as an iceberg. Finally, textbooks do not include communicative activities among students from different countries (item 3.4.7), so they disregard the idea of Coyle et al. (2010) about the potential of CLIL as an intercultural experiences' catalyst to develop students' intercultural awareness.

5. DISCUSSION AND CONCLUSIONS

All textbooks obtain the highest results in the first section, which led us to consider that they succeed in terms of organization, provision of supplementary resources, and design and access (especially LOMLOE textbooks). However, as previously highlighted, some textbooks (*OCW*) need improvement in terms of the organization into learning situations, and in the provision of learning objectives (LOMCE textbooks and *SWM*), ICT resources (*SB*) and authentic materials (LOMCE textbooks).

Regarding the second section, the results tend to vary, and *SB* stands out for its lack of coherence with CLIL methodological principles (few communicative activities, omission of a student-centred approach, lack of activities related to Cooperative Learning, PBL, the Scientific Method or self and peer-evaluation).

Concerning the 4Cs framework, the textbooks aim try to integrate the 4Cs proposed by Coyle (1999) but fail mainly in the cultural dimension (except *OCW*) as they do not

promote students' intercultural competence in line with Czura (2017) and Banegas and Tavella (2021). In the communication dimension, the textbooks stand out for the provision of linguistic scaffolding techniques or the integration of the four communicative skills in real-life and meaningful contexts (except *SB*) but none of them include linguistic learning objectives in line with Czura (2017) and Martín del Pozo and Rascón (2015). In the cognition dimension, *SMS* and *SMR* stand out, establishing a balance between activities that promote both LOTS and HOTS, and a balance between the linguistic and cognitive levels, promoting a progression to highly demanding cognitive activities. In the rest of the textbooks (especially in *SB*) LOTS are prominent, in line with the studies of Banegas (2014), Santo-Tomás (2011) and Peyró et al. (2020).

The current study was aimed at analysing the Science textbooks used in CLIL provisions in Primary Education in the Principality of Asturias. Our analysis underlines that LOMLOE textbooks stand out in terms of organization, provision of supplementary resources, and design and access, also integrating more successfully the CLIL's core methodological principles and the 4Cs framework than LOMCE textbooks. However, the cultural dimension is still an area of concern to be further exploited to reach a real integration of the 4Cs in both LOMCE and LOMLOE textbooks. Our study concurs with prior research (Banegas, 2014; Banegas and Tavella, 2021) when underscoring the lack of attention of CLIL textbooks to Coyle's 4Cs and some of the fundamental methodological principles of CLIL. As LOMLOE textbooks are the most recently marketed, we can say that there has been an improvement over time in the development of suitable CLIL materials, although there is still room for improvement in this area.

We acknowledge the current study is limited in terms of the number of textbooks analyzed, but it may serve as an approximation to the CLIL textbooks evaluation panorama in Primary Education, which needs to be further investigated. Prospective research lines in the field include ethnographic studies which delve into the way textbooks are used in CLIL classes, qualitative research analysing teachers' and students' perceptions on CLIL materials and resources, and large scale comparative projects analysing textbooks in several contexts. Research in this field may contribute to an improvement in the materials and resources available for teachers, leading to the enhancement of bilingual education.

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