

Criteria for producing CLIL learning material

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Abstract

This article first describes some general criteria that can be applied to the development of any type of learning materials. Second, the article lists criteria for creating CLIL (content and language integrated learning)-specific learning materials, and provides examples of how to apply each proposed criterion whilst also providing a corresponding rationale with references. Third, additional requirements pertaining, among others, to technical, environmental and social issues that apply equally to CLIL and non-CLIL materials are presented. This article aims to serve as a practical tool for CLIL materials development, hence it uses an atypical format and structure.

Key words: CLIL, learning materials, criteria, social issues

Resumen

Este artículo describe en primer lugar un conjunto de criterios que pueden aplicarse a la elaboración de cualquier tipo de material docente. En segundo lugar, el artículo ofrece una lista de criterios para crear materiales de aprendizaje CLIL específicos, sugiriendo ejemplos de cómo aplicar cada criterio, al tiempo que su justificación teórica. En tercer lugar, presenta una serie de requisitos adicionales relacionados, entre otras, con cuestiones técnicas, ambientales y sociales que pueden aplicarse tanto a materiales CLIL como a otros materiales. Al ser el objetivo del artículo servir de herramienta práctica para la elaboración de materiales CLIL, el artículo presenta un formato y una estructura atípicos.

Palabras clave: CLIL, materiales docentes, criterios, cuestiones sociales

1. Introduction

In educational contexts, learning materials can be defined as information and knowledge that are represented in a variety of media and formats, and that support the achievement of intended learning outcomes. Learning materials are in adherence with the objectives and requirements of a regional or national curriculum.

CLIL is a dual-focused teaching and learning approach in which the L1 (first language) and an additional language or two are used for promoting both content mastery and language acquisition to pre-defined levels.¹ Although CLIL is used to refer to a wide range of programmes from those that use the L2² for teaching one short content module or one content subject such as History or Science to those programmes that use the L2 for teaching half or more of the curriculum (Marsh *et al.*, 2009), nonetheless, these programmes seek in the long term to support students in achieving:

¹ This definition builds on an earlier one by Maljers *et al.* (2007), and has benefited from personal communication with Genesee (2010) and Frigols Martin (2010). Cf. Coyle *et al.* (2010), Mehisto *et al.* (2008) and Ruiz de Zarobe *et al.* (2010) for an overview of CLIL practice. It is noteworthy that if levels of language proficiency to be achieved have not been defined in a regional or a national curriculum, various language proficiency guidelines can be used as a point of departure for their articulation. The American Council of the Teaching of Foreign Languages (ACTFL), the Centre for Applied Linguistics (CAL), Cambridge ESOL, and the Council of Europe all offer such frameworks.

² The term *L2* refers to a student's second language. For simplicity's sake, in this article *L2* refers to an additional language (in addition to the L1) that is used as a medium of instruction. At the same time, it is recognised that for

- age-appropriate levels of L1 competence in reading, writing, speaking and listening
- age-appropriate levels of advanced proficiency in L2 reading, writing, speaking and listening
- Grade-appropriate³ levels of academic achievement in non-language school subjects, such as Mathematics and Science taught primarily through the L2 and in those taught primarily through the L1
- an understanding and appreciation of the L1 and L2 cultures⁴
- the capacity for and interest in intercultural communication⁵
- the cognitive and social skills and habits required for success in an ever-changing world (Mehisto, 2012: 7).

2. General Principles

Ideally, all learning materials are meant to support students and teachers, not restrict them. Each teacher determines how and to what extent a book or other learning materials will be used.

Quality learning materials foster the creation of relational links between intended learning, students' lives, the community, and various school subjects. They help students understand how learning is and can be applied in and outside of school. They seek to build intrinsic motivation to problem-solve and learn. Quality learning materials guide students in seeking out and using other resources (sources) for learning.

They are part of a larger narrative that seeks to progressively develop students' content knowledge and language skills so that they are able to comprehend, conceptualise, systematise, appreciate and contemplate facts and experiences, and so that they are able to effectively communicate their own understandings and opinions through speech and writing. In addition, quality learning materials help students to build learning skills by, for example, making visible learning goals/intended outcomes, and by supporting planning and assessment of progress in achieving those goals/outcomes.

Quality learning materials do more than just communicate information. They promote critical and creative thought, discussion and learner autonomy. At the same time, quality learning materials help students recognise the limitations of their current thinking and learning. They help students to understand when they need additional information and help. They also promote mutual understanding in social situations in order to contribute to joint problem-solving.

Content and illustrations avoid bias and stereotypes which incite social class, gender, ethnic, cultural, life style or racial prejudice. They build intercultural knowledge, skills and constructive attitudes vis-à-vis diverse peoples and cultures. When taken as a whole, quality materials include people of all professions and

individual students from immigrant or minority backgrounds the L2 can be their third (L3) or even fourth language (L4).

³ A Grade is a synonym for a particular academic year, e.g. Grade one of the first year.

⁴ Culture is defined as 'the shared patterns of behaviors and interactions, cognitive constructs, and affective understanding that are learned through a process of socialization' (CARLA 2012). For teachers to consciously integrate elements of culture into CLIL they can draw on the following often interrelated categories -art, attitudes, beliefs, concepts of the universe, cuisine, events, experience, film, hierarchies, knowledge, literature, material objects, meanings, media, music, notions of time, possessions, practices, religion, rituals, roles, spatial relations, and values – in order to help students to engage with part of that culture. At the same time teachers would need to take into account that no cultural construct is likely to be a monolithic symbol embraced by all members of a language community, and that culture is dynamic and therefore constantly changing.

⁵ Each school or school district is advised to define what is meant by intercultural communication, and how a student's intercultural competence can be measured. (Cf. Candelier *et al.*'s 2010 Framework of Reference for Pluralistic Approaches to Languages and Cultures which atomises cultural knowledge, attitudes and skills in the form of measurable descriptors.)

backgrounds making a positive contribution to society. Quality materials help students develop media literacy, as well as to navigate prejudice and build inclusion.

It is important that learning materials help students to understand their role in the family and other groupings, and in society at large so that students can make a positive contribution in those contexts. Quality materials encourage students to treat others with respect, and promote behaviour that reflects an educated, rational and active sense of responsibility. Quality learning materials progressively promote students' sense of belonging and engagement as a citizen of their own country, of supranational organisations such as the European Union, and of the world at large.

3. Specific criteria

CLIL-specific learning materials support the creation of enriched learning environments where students can simultaneously learn both content and language, whilst becoming more adept learners of both.

Quality CLIL materials are cognitively highly demanding for learners who need to assume the additional challenge of learning through an L2. However, excessive cognitive load can be avoided by incorporating enhanced scaffolding and other learner support mechanisms to help students reach well beyond what they could do on their own. Quality learning materials help students build a sense of security in experimenting with language, content, and the management of their own learning. In addition, quality CLIL materials are highly integrative and multilayered and they help increase the likelihood that both content and language learning will be meaningful.

The following ten criteria for the development of quality CLIL materials take into account the added challenges posed by CLIL for both the learner and for educators, and seek to apply aspects of good pedagogy in a CLIL-specific manner. Each of these criteria seeks to maintain a dual focus on content and language.

1. Quality CLIL materials:

- make the learning intentions (language, content, learning skills) & process visible to students.	
For example:	
Content 1. You can name in writing the fifteen major tectonic plates. 2. You can explain how tectonic plates affect one another.	make up the earth's crust form major tectonic plates to be in constant movement pass each other collide into each other move under (on top of) each other melt into molten rock / become magma release gases cause volcanic eruptions
Language 3. You can use analogies in scientific descriptions, including explaining their limitations.	to move as slowly as fingernails grow Shield volcanoes resemble a Roman soldier's shield lying on the ground. They are, however, much wider and taller.
Learning skills 4. You will be able to summarise other students' ideas	'MJ predicts that the next level-seven eruption will occur in Italy in [...], because on average there is a level-seven eruption every [...] years.'
NB: It is important to break intended learning down into short and long-term planned outcomes that are incorporated into learning materials. Furthermore, quality CLIL materials draw links between planned short and long-term language, content and learning skills outcomes. It is also expected that learning outcomes are realistic, but challenging.	

Rationale:

Marzano (1998: 127) and Hattie (2009: 246, 2012: 47-49) both argue that setting clear instructional goals for students, and providing feedback on how students are progressing towards these have a powerful effect on student learning, as well as on improving cognition and student achievement. Wood *et al.* (1987) found that challenging goals significantly increased learning. For students to be able to achieve a learning goal, they need to first know and understand that goal (Black *et al.* 2004: 14). In the domain of language learning both Gardner (1985) and MacIntyre (2002) argue that visible goals are central to building and maintaining learner motivation.

2. Quality CLIL materials:

- systematically foster academic language proficiency.

For example:

Scientific language is drawn to the attention of students by identifying its various component parts in the learning material or by asking students to identify within the materials: its characteristics (tone, unemotional and factual, evidence-based vs personal opinion); its functions (separating and explaining causes and consequences); connectors for comparing and contrasting (however, but, on the other hand, in contrast, in the same way, conversely, on the contrary); subject-specific vocabulary (sternum vs breastbone); words with different meanings (omnivore vs animal that eats all kinds of food); and other subject-specific vocabulary and discourse patterns. In addition, key structures, terminology, phrases and sets of phrases can be highlighted.

As academic language is often decontextualized (little information about context, and meaning is conveyed primarily by linguistic clues), CLIL materials can provide additional contextual information to help students to process the language. Also, as academic language is more precise than the language used for social discourse, CLIL materials can contrast both of these types of language to make them visible to students.

Content subject materials can include intended language outcomes to foster ongoing, step-by-step growth in a student's use of academic language. Short-term language outcomes are linked to long-term outcomes so students can better see the progress they have made and what still remains to be learned.

Rationale:

For students to develop academic language proficiency a systematic effort is required by educators and students across Grade levels (Cloud *et al.* 2000: 14). In general, it is thought that it takes about 4-7 years for immigrant students in English speaking environments to develop academic language proficiency (Hakuta 2000: 10; Cummins 2000: 586). Faced with teaching challenging academic content to students who are far from proficient in their L2, teachers could resort to task reduction and simplification. Cummins (2007: 126)⁷ warns that if teachers make student tasks cognitively easier than foreseen in the curriculum, they may inadvertently trap students in an impoverished learning environment, where they will not be able to learn the language and content they need for academic success. Quality materials that help draw attention to the component parts of academic language and their use, act as a scaffold for content teachers who may also find it challenging to identify and teach the language of their subject.

⁷ Cf. Cummins (2007: 126) referring to Mackay (1992: 162-163).

3. Quality CLIL materials:

- foster learning skills development and learner autonomy.

For example:

Prior to a challenging text, a learning material could contain a think-pair-share exercise requiring students to brainstorm ways of coping with the language and/or the content in a difficult text. Or, in a similar context, the learning material can guide students through a research exercise to find 10 ways of coping with the language and/or content in difficult texts. Or, it could include a pre-reading assignment asking students to skim or scan a text for unfamiliar words and to guess their meaning prior to reading. Or the material could ask students to read a text several times for different purposes such as once for analysing some aspects of language, and a second time to find three key ideas contained therein.

A book chapter can, right at the beginning include an initial exercise that asks students questions about the given chapter's subheadings and diagrams or that asks students to first read the conclusion and to speculate on what is behind key conclusions.

Instead of simply giving a research assignment to students, learning materials can ask students to first plan for undertaking and writing up the research report.

Materials can also include learning skills tips on how to efficiently complete an assignment.

Materials can seek to help students determine what they think and feel, as well as provide some level of choice.

Rationale:

Marzano (1998: 112) states that 'metacognition drives learning' pointing to the need to help students to step back from an activity and analyse their thinking processes. In situations where students are faced with intellectually challenging tasks, Veenman *et al.* (2002: 337)⁸ found that meta-cognitive skills are a greater determinant of student achievement than intellectual ability as measured by IQ tests. Watkins (2005: 80)⁹ reports on a study that reviewed GCSE¹⁰ examination results in England, and found that students who 'plan the least have just 30 per cent of the scores of pupils who plan the most.'

Hattie (2012: 103) stresses that although some simple strategies such as mnemonics can be taught outside a content domain, 'most strategies have to be taught within the content domain'.

Arnaud (1998: 95)¹¹ sees the teacher as a mediator of learning who gradually yields control over the language learning process to learners themselves who are intrinsically motivated. Students' intrinsic motivation or inner motives are undermined when teachers are controlled-oriented, as their instructional agenda 'defines what students should think, feel, and do' (Reeve *et al.*, 2004: 148). Reeve *et al.* (2004: 165) found that the more teachers display 'autonomy-supportive instructional behaviors, the more engagement their students [show].' Similarly, Deci *et al.* (1982: 859) argue that controlling environments are likely to 'impair learning' while 'intrinsic motivation improves learning.'

In the field of language learning numerous scholars argue that students need to be supported in becoming autonomous learners (Holec, 1981; Kohonen, 2009; Little, 2008). Knouzi *et al.* (2010: 24) propose that language learners self-scaffold their own learning developing a form of 'private speech' referred to as 'languaging' so they can better manage their own thinking about and learning of language. Similarly, Edmonson (2009: 178) posits that 'good language learners' are aware of themselves and of how they learn language: they regularly analyse 'grammar, and constantly look for patterns and regularities' and 'analyse the target language as a means of communication, they monitor their progress. They are in a word 'active' learners.' Oxford (2011: 5) suggests that developing meta-cognitive, meta-affective and meta-social strategies plays a central role in helping the language learner to take charge of his or her learning.

⁸ Based on initial inductive learning with a complex computer simulation.

⁹ Cf. Watkins (2005: 80) referring to Atkinson (1999).

¹⁰ General Certificate of Secondary Education

¹¹ Cf. Arnau (1998: 95) referring to Moll (1989).

4. Quality CLIL materials:

- include self, peer and other types of formative assessment.

For example:

Quality CLIL-content materials at various points include reflection on and assessment of the following: achievement of content and language goals (planned outcomes); achievement of learning skills goals; use of language for various purposes (i.e., academic, social, business registers); ability to work with authentic materials, as well as with native and non-native speakers of the CLIL language; willingness to experiment with content and language; ongoing growth of language (avoiding ‘plateauing’).

If a textbook contains an assignment (e.g., a project), the steps of the assignment can include having students develop content and language (self, peer, teacher) assessment criteria for the final product of an assignment. This could also include having pairs of students revisit their peer assessments after students receive the teacher’s assessment. Materials can also build in assessments of drafts prior to work being handed in for a final grade, as the feedback from these assessments has an outlet for immediate application thus helping to increase the possibility that it will be taken into account (that it will be formative).

As well, a textbook can ask students to measure language growth over time by encouraging them to plot their marks and needed learning on a grid. Students could then be asked to draw conclusions, set targets, and develop plans for meeting those targets.

Rationale:

Assessment is seen as pivotal for learning. The British Qualifications and Curriculum Authority (QCA) deems assessment as ‘central to classroom practice’ (2007). Materials that do not include assessment decrease the likelihood that assessment will be used in an optimal manner as a tool for learning. The QCA also points to the need for students to learn about how learning takes place and for assessment to be constructive taking into account the emotional impact of comments, marks and grades.

‘Assessment for learning is any assessment for which the first priority in its design and practice is to serve the purpose of promoting students’ learning’ (Black *et al.* 2004: 10). When teachers and students use feedback from assessment in assessing themselves and each other that assessment is deemed to be *formative assessment* if both use that evidence to improve their practices (*ibid.*). In their review of over 250 research articles Black and Wiliam (2010: 82) conclude that assessment for learning significantly improves student achievement and raises standards of education. Although others feel more evidence is required to prove the cause and effect relationship between assessment for learning and student achievement, there is general agreement that it helps to improve teaching practice, and student attitudes and engagement in learning (Stobart 2008: 155; Hattie 2012: 126 referring to Yeh 2011).

5. Quality CLIL materials:

- help create a safe learning environment.

For example:

Materials can foster ‘cognitive fluency’¹² by avoiding cognitive overload. When challenging content concepts are being introduced, an additional measure of language scaffolding is provided to allow the student to focus primarily on understanding the concepts. Information and assignment are generally broken into smaller chunks than might be the case with L1 materials. Materials provide appropriate navigation support such as advance organisers.

Materials avoid sarcasm and ridicule. Materials are respectful of diversity and foster inclusion.

Materials foster meta-affective awareness by asking students questions about how certain exercises or assignments make them feel, and suggest coping strategies.

¹² Unkelbach (2006: 339) states that ‘cognitive fluency is the experienced ease of ongoing conceptual or perceptual cognitive processes.’

Rationale:

The Organisation for Economic Co-operation and Development (OECD 2007: 154) in its report entitled *Understanding the Brain* stresses the interdependence of emotion and cognition. The report argues that '[e]specially important for educational purposes is the analysis of fear and stress, which shows how they, for instance, reduce analytical capacity, and vice versa how positive emotions open doors within the brain' (*ibid.*). This is in line with Bruner's (1996: 25) view that education needs to provide skills for dealing with feelings. In authentic learning environments people feel safe, and positive emotions hold the potential of enhancing learning. In bilingual education, it is particularly important for students to feel free to experiment with the L2 and challenging content without the fear of making mistakes.¹³ Mehisto *et al.* (2008: 105) concur, and draw a link between creating a safe learning environment and high expectations for all stating that is paramount for teachers to believe that all of their students will succeed and to make this belief visible to each student.

6. Quality CLIL materials:**- foster cooperative learning.****For example:**

Materials structure peer cooperative work so as to foster: positive interdependence; face-to-face interaction; individual and group accountability; interpersonal and small-group skills; and group processing (Johnson *et al.*, 1998).

In a CLIL context, learning material would provide some of the language needed for doing peer cooperative work such as terminology and sets of phrases required to manage group work, to foster critical thinking and to test and analyse group work results.

Learning materials can build in an assessment grid for students to evaluate mid-assignment or upon completion how effectively their group is or has been working to achieve planned outcomes. This might include criteria about amount of CLIL language used during group work.

Rationale:

Johnson and Johnson (2002: 103) who conducted a meta-analysis of research studies into cooperative learning found that when compared to individualistic learning, cooperative learning had a high effect size of 0.64 on student achievement. The effect size of cooperative learning on achievement was twice that of the effect size for competitive learning, and cooperative learning was also found to build student self-esteem. Similarly, Roseth *et al.* (2008) in a review of 148 independent studies covering eight decades and 11 countries found very similar results.

Goldenberg (2008: 13), who reviewed five meta-studies on language learning, stresses that effective instruction provides 'ample opportunities to use the second language in meaningful and motivating situations.' Peer cooperative work is one key way of creating such opportunities. Coyle *et al.* (2010: 37) who also stress the value of cooperative learning in CLIL contexts, concomitantly call for educators to provide students with both the 'language of learning' and the 'language for learning' with the former consisting of the 'language needed for learners to access basic concepts and skills relating to the subject theme or topic' and the latter consisting of the 'language needed to operate in a foreign language environment' to engage, for example, in group work, debate or enquiry.

¹³ Cf. Boynton (2005: 89); Carmody (2005: 60).

7. Quality CLIL materials:

- seek ways of incorporating authentic language and authentic language use.

For example:

Quality learning materials incorporate language from the media, and seek to create a relationship between the reader or listener and the passage or electronic clip.

Materials incorporate language used in everyday speech in different social and work contexts (genres, domains, registers).

Materials seek to lead students to other sources of language through the Internet, music or other media.

Assignments in materials seek to use language and content for authentic purposes such as the development of a plan for improving a school playground or reducing bullying, an analysis of students' weekly diets and the potential implications of maintaining those diets over several decades, measuring tall trees or structures within the local community without climbing them, working with L2 speakers in another community to compare annual rainfall and its consequences, working to identify ways in which two different communities have dealt with gang violence, or debating any number of issues touching students' lives.

Materials can encourage discussion and dialogic discourse where students can sort out and test their thinking. Learning materials can ask students to formulate questions instead of just answer them. They can encourage students to explain their reasoning (e.g. instead of asking the answer to a maths question, students first explain how to solve a problem, and to reflect on further ways to solve it).

Authentic materials would also make cultural connections and help build their knowledge about diverse people and cultures (see footnote 5). For example, a short overview can be provided or students can be encouraged to research mathematicians such as Pythagoras and Ramanujan. Materials can have students investigate street patterns using Google Earth or offer excerpts from primary sources such as President Kennedy's 1963 Berlin Wall speech and an article on that speech which appeared in the Soviet newspaper *Pravda*.

Rationale:

Based on Krashen's (1991: 409) 'input hypothesis' language learning is largely dependent on the quality (including range) of language input. Teachers are said to have their own register of language often referred to as 'teacherese' whose dominant 'functions are more likely to be those of management and control, and to encourage reasoning, rather than facilitate language acquisition' (Hopwood and Gallaway 1999: 175). This restricts the range of language being modelled for and used by the students. Materials can balance this by bringing in a much broader range of language into the learning environment.

Authentic or genuine¹⁴ materials, although considered by researchers¹⁵ and practitioners¹⁶ as central to effective and meaningful language learning, do not necessarily lead to authentic learning environments. As van Lier (1996: 126) points out, 'it is easy to bring genuine pieces of language into the classroom, but to create authentic opportunities of language use on their basis appears to be quite another matter.' Authenticity resides in the teacher-student relationship and in how materials are worked with. Therefore, materials need to incorporate ways of using both the content and language in authentic ways through, for example, assignments that seek to personalise the content and make connections with the student's world. Legenhausen (2009: 382, 384-385) proposes that in authentic language learning environments students have a say in setting up activities; their previous knowledge is activated; flexibility and openness characterise tasks; creativity, self-discovery and self-awareness are promoted, as are group dynamics and social management skills; learning outcomes and processes are negotiated and evaluated; and, accommodations are made for individual differences.

In a similar vein, Alexander (2010: 306) suggests that effective teaching is 'dialogic' and, when

¹⁴ Widdowson (1979: 80) makes a distinction between genuine and authentic language use, with genuine referring to language currently in use in the media that has not been created for language learning, and with authenticity being 'a characteristic of the relationship between the passage and the reader' and the appropriateness of response.

¹⁵ Cf. Coyle *et al.* (2010: 50, 55); Hunter and Cooke (2007: 83).

¹⁶ Cf. Canadian Association of Immersion Teachers (2009: 45), Cloud *et al.* (2000).

seeking ‘to exploit the true potential of talk’, classroom practice is: collective (teachers and students working together); reciprocal (teachers and students listen to each other and share ideas); supportive (free of fear, building common understandings); cumulative (building on each other’s ideas to create a common line of inquiry); and, purposeful (focused on meeting visible educational goals). If learning materials encourage and scaffold interaction and students in exploring their thinking with others, they are more likely to lead to their authentic use.

Finally, Coyle *et al.* 2010 argue that culture is a central tenant of teaching and learning in CLIL.

8. Quality CLIL materials:

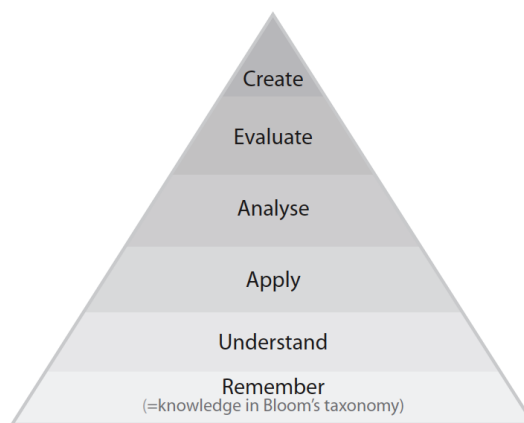
- foster critical thinking.

For example:

The majority of questions and assignments in CLIL materials avoid asking students to report back on fact-based questions, but instead focus on having students apply, analyse, evaluate and create something based on the information presented in the materials.

On an ongoing basis, CLIL materials foster critical thinking about content, language and learning skills.

FOSTERING CRITICAL THINKING



(Anderson, Krathwohl *et al.* 2000)

Rationale:

Cognitively challenging learning experiences are more meaningful for students than less challenging ones. According to Baddeley (2004: 161) students are more likely to recall details from a cognitively challenging than an easy problem. Lindholm-Leary (2001: 139) in her research into dual language education found that ‘students were no more likely to incorrectly answer a high-order question than a lower-order one.’ Moreover, if content teachers do not create intellectually challenging environments for both content and language, they will likely weaken learning opportunities for their students (Cummins 2007).

As well, Lyster (2007: 42-43) points out that ‘language features learned in isolated grammar lessons may be remembered [...] during a grammar test,’ but that they are less likely to be retrieved during content classes. This is also likely to be the case if content teachers do not maintain high expectations vis-à-vis language learning and learning skills development, and if they do not offer students support in doing so. Materials have an important role in helping students and teachers to maintain this triple focus.

9. Quality CLIL materials:

- foster cognitive fluency through scaffolding of a) content, b) language, c) learning skills development helping student to reach well beyond what they could do on their own.

For example:

Language can be scaffolded by: repeating new nouns as opposed to using pronouns; shortening sentences and paragraphs; inserting synonyms in parentheses; providing explanations of some key vocabulary and expressions in the margins; asking students to first brainstorm related language; grouping language according to use (e.g., procedures, equipment, personal attitudes); presenting information in two side-by-side boxes using two different registers of language; embedding electronic pronunciation and dictionary links for difficult terms; using wordsmith.com or wordchamp.com.

Content can be scaffolded by: helping students in an introductory paragraph or assignment to access their tacit knowledge and to connect the topic to their lives; providing an advance organiser; using other graphic organisers such as Venn diagrams, tables and charts; avoiding compound sentences; shortening paragraphs; highlighting or underlining key ideas or facts; using plenty of subheadings; providing sample answers or exemplars of good work; showing what falls outside of a concept, as well as what it includes; providing electronic links to animations.

Learning skills can be scaffolded by: providing a sample correct answer at the start of an exercise; spotlighting samples of well done student work; providing a commented sample of poorly done student work; including planning, monitoring and evaluation tasks; asking students to guess meaning from context; providing electronic samples of recasting and error correction techniques.

Rationale:

Scaffolding ‘leads learners to reach beyond what they are able to achieve alone, to participate in new situations and to tackle new tasks’ (Gibbons 2002: 8). Research from the neurosciences shows that when initially faced with a cognitively challenging problem the brain needs to bring considerable resources to bear in order to solve it (Howard-Jones, 2007: 17). Students in CLIL contexts face the additional challenge of learning through an L2 and as such require additional scaffolding (Walqui 2006: 169-178) to avoid cognitive overload. Walqui (*ibid.*: 169-178) proposes scaffolding strategies for CLIL such as modelling (providing examples for imitation), bridging (building on previous knowledge and understandings), contextualising (adding context to academic language), schema building (providing thinking frameworks such as charts or advance organisers), re-presenting text (using a new genre to present the same content), and developing meta-cognition (building learning skills strategies such as planning, monitoring, and evaluating).

The ultimate goal of scaffolding is to support students in becoming self-directed learners who can seek out resources and people to support them in their ongoing learning. Knouzi *et al.* (2010: 23-24) suggest that students use ‘*linguaging or self-explaining [...] to intentionally organize and control their mental processes during the performance of cognitively complex tasks.*’ Knouzi *et al.* (*ibid.*: 23) consider ‘*linguaging*’ a form of self-scaffolding. Although some learners are more adept than others at using this form of self-scaffolding skill, ‘*with supportive teaching [it] can be made available to most learners*’ (*ibid.*: 47).

10. Quality CLIL materials:

- help to make learning meaningful.

For example:

Quality materials help explain the relevance of intended learning. They ask students to explain how intended learning is tied to their lives by asking specific questions about how this learning can be used by them or by others in the community.

Materials seek to connect intended learning with students' interests, their lives and their community/communities. They make connections to previous learning when presenting new facts and concepts. They seek to deepen previous learning.

Materials draw cross-curricular links and incorporate cross-curricular projects.

Materials foster cooperative learning, visualisation and hands-on activities. They offer students choice, and some control over the learning process.

Materials focus on fostering critical thinking including applying, analysing, evaluating and creating. This is applied to language, content and learning skills.

Rationale:

When faced with new information the 'brain immediately begins a filtering process to determine which data are relevant' and what should be discarded (Westwater and Wolfe 2000: 49). Connections are at the root of relevance. Howard-Jones (2007: 18) argues that meaning is physically constructed in the brain so that '[w]hen we learn new information, the links that form between this new information and our existing knowledge serve to make it meaningful.' Howard-Jones (*ibid.*) argues that this is central to understanding and recall of information. Petty (2006: 235) states that 'relational links are the glue that fixes learning in the memory.' Making connections in a classroom can involve helping students to access their current knowledge, understandings, attitudes and learning skills, part of which may be tacit. To build relational links, several practitioners and researchers suggest teachers in bilingual education organise the 'curriculum around content-based thematic concept(s)' (Fortune 2000: 2-4).¹⁷ Baker (2006: 344) considers classroom 'cross-curricular approaches' as a requirement for promoting biliteracy development. In addition, Howard-Jones (*ibid.*) points to the power of visualisation. Doidge (2007: 201-204)¹⁸ documents several cases where visualisation has helped improve performance in sport or helped someone to learn to play the piano.

Drawing on the National Assessment for Educational Progress study of 9-year olds in the United States and the Programme for International Student Assessment (PISA) scores for 15-year olds from 32 countries, Guthrie (2004: 5) argues that students:

whose family background was characterized by low income and low education, but who were highly engaged readers, substantially outscored students who came from backgrounds with higher education and higher income, but who themselves were less engaged readers. Based on a massive sample, this finding suggests the stunning conclusion that engaged reading can overcome traditional barriers to reading achievement, including gender, parental education, and income.

Guthrie (2004: 10) goes on to state that a meaningful topic and text, sufficient time as well as 'students' self-direction, and collaborative social structures [...] are indispensable to engagement in reading.' Guthrie (2004: 3) also describes engagement as including thinking critically about the text, writing about it, and using learning strategies to cope with the text and gain new knowledge from it. A collaborative social structure provides opportunities to discuss reading and make it more meaningful. Self-direction is a form of empowerment. Writing about one's reading would likely enhance meaning helping to deepen understanding. In fact, without explicitly stating it, Guthrie proposes linking all four language skills when analysing a given topic and text.

Meaningful learning also fosters learner autonomy. Fischer (2009: 5-6) puts forth that:

[w]hen we actively control our experience, that experience sculpts the way that our brains work, changing neurons, synapses, and brain activity.¹⁹ When we are simply exposed to events and information (as opposed to acting on them), our brains and bodies are not much affected.

¹⁷ Cf. also Boynton (2005).

¹⁸ Cf. Doidge (2007: 201-204) referring to Pascual-Leone *et al.* (1995), Yue and Cole (1992).

¹⁹ Cf. Fischer (2009: 5) referring to Hubel and Wiesel (1970), Singer (1995).

4. Other requirements: Introduction

Although not specific to CLIL, the following requirements, issues and criteria need to be taken into account by those developing CIL materials so as to ensure that they conform to the general norms of published student learning materials.

5. Technical requirements

1. Printed learning materials must conform to the technical requirements set by local or national education authorities, including that they must be large enough for a child to hold comfortably, conform to weight limits and use required font sizes.
2. In kindergarten block letters should be used. No emphasis is to be marked on syllables.
3. Art styles and colours within a page or on facing pages should not conflict with one another.
4. Electronic materials must conform to the technical requirements set by local or national education authorities, including ensuring that they also foster face-to-face communication with others, that they direct students to non-electronic sources of learning, that they meet navigability and safety requirements, that they help students to assess and regulate their use of electronic media, and that they foster the development of media literacy.

5. Environmental issues

Transportation should draw attention to environmental sustainability. Preference is given to public transportation as opposed to large cars and sport utility vehicles, especially with only one occupant unless attention is drawn to that occupant's carbon footprint.

1. People should also be shown walking or riding a bicycle to reach their destinations safely (e.g., riding a bicycle that has lights and reflectors while wearing a helmet).
2. Preference is given to depicting situations which reflect an average standard of living. Subject matter and illustrations should avoid focusing on objects which suggest great wealth (luxury yachts, private helicopters and jets, expensive jewellery) or abject poverty, unless they are subject to analysis and used in direct support of meeting intended learning outcomes.
3. Not only should consideration be given to reflecting the current level of technological development, but every effort should be made to take into account projected trends such as the ever-increasing and innovative use of communications and medical technologies.
4. The environment and human activity should demonstrate respect for plants as living things, regardless of whether they are cultivated or growing in the wild. The same should be done in the case of domestic, domesticated and wild animals. Regulations regarding endangered species must be respected.
5. City, suburban and rural life should not be idealised or glamorised, and a balance of different settings should be used.
6. When depicting urban areas, special attention should be paid to presenting them as healthy, people-friendly environments for both children and adults, unless analysis of a failing urban setting is part of the intended learning.
7. Where appropriate, text and illustrations should reflect the growing emphasis on reducing consumption, reuse, recycling, renewable energy and the use of local products.

8. Social issues

A. The elderly

1. Elderly women and men should generally be depicted as having healthy, dignified and rich lives, unless a contrary depiction is clearly tied to a lesson to be learned.
2. Elderly people should not be arbitrarily depicted in unfashionable clothing or as having unfashionable hairstyles and accessories. Stereotypes such as grey hair, canes, wire-rimmed glasses and rocking chairs, etc. should not dominate.
3. Middle-aged and elderly persons should be depicted actively engaged with younger generations. Groups of people should be made up of people of different ages unless the depiction of one specific age group serves a particular purpose.
4. Elderly persons should be depicted as involved in many activities which are beneficial to society and the enhancement of their own lives.

B. The Physically Challenged

1. Physically challenged persons should be depicted as part of the group involved in the mainstream of events, and subject matter should include their lifestyles and achievements. They should also be seen in a leadership role.
2. Physically challenged children and adults should be depicted in various environments and interacting with other people.
3. The ability of the physically challenged to cope with everyday life and to adapt to the environment should be shown.

C. Minorities

1. Photographs and illustrations should convey the ethnic diversity of the region/country.
2. Minorities should be depicted as having social status equal to that of the majority.
3. The names and personalities of characters should reflect a diversity of cultures and social tolerance.
4. Illustrators should bear in mind that not all members of an ethnic group look alike, but rather that physical characteristics vary widely. Portraits of any ethnic group, be it Roma, Koreans, Georgians, Nigerians, Uzbeks or Tartars, should be realistic and recognisable. People of various ethnic backgrounds should be depicted wearing modern day typical dress, and not placed in national costumes without just cause.
5. Exaggerations, which often lead to distortion of physical characteristics, should be avoided. Physical features common to people of certain racial groups should be depicted realistically.
6. Illustrations should promote a positive self-image for people of all ages and ethnic groups. Leadership roles in various activities and professions should be divided proportionately among members of different ethnic groups.
7. When depicting skin colour, artists should make sure that the skin colour is the same once printed, and that it is the same each time for characters that are used repeatedly. Skin tone may vary among members of the same family.
8. Skin tone may be omitted from black and white illustrations if the distinctive features of the ethnic group can be depicted in some other way.

9. Reference to stereotypes regarding social and economic circumstances should be avoided, unless they are portrayed in a historical context, and accompanied by text that helps the reader interpret the given illustration.
10. The cultural contribution and distinctive lifestyles of ethnic groups (such as travellers) should be depicted in a positive, culturally tolerant way.

D. Gender equality

1. Teaching materials should portray a balance of men/boys, and women/girls in active roles and different age groups. Generally a ratio of 50:50 should be adhered to in both content and illustrations.
2. Both sexes should be depicted as being engaged in independent activities, as well as in leadership roles.
3. Both sexes should be depicted in domestic situations, doing household chores and caring for children. The opportunity to portray single parents in a positive light should not be overlooked.
4. In portraying pairs or groups, illustrators should bear in mind that some women are taller than some men.
5. Women should be shown to be as capable of making decisions and as mentally strong as men so that they can serve as role-models for students. The text and illustrations should recognise the contribution of working women.
6. Men should sometimes be shown as caregivers and protectors. The text and illustrations should also recognise the contribution of stay-at-home fathers.
7. Words that specify the gender of a person are to be avoided. Use 'chairperson' not 'chairman', 'flight attendant' not 'stewardess', 'actor' not 'actress', 'mail carrier' not 'mailman'.
8. When depicting children at play, it is important not to show boys playing only with traditional 'boys' toys' and girls playing only with traditional 'girls' toys'.
9. Childhood stereotypes should be avoided: tomboys, sissies, wallflowers, etc.
10. Authors and illustrators should bear in mind that people of both sexes experience a wide range of emotions: fear, terror, anxiety, anger, sorrow, affection, boldness, gentleness, and tenderness.
11. True friendship between people of different sexes should be depicted.
12. Women, regardless of race, should be shown to be involved in the mainstream of events and endeavours. They should not be shown as mere observers or only from a male perspective. In historical contexts where historians often depict men as playing a dominant role, every effort should be made to present a more balanced view by also highlighting the role of women in those contexts. Exceptional women who have made an important contribution to such varied fields as mathematics, geographic exploration, art and science can be highlighted.

E. General social concerns

1. Clothing should be appropriate for the situation and activity depicted.
2. Clothing and jewellery made of leopard skin, ivory and other endangered species should not be shown.
3. Violence and weapons are best not be depicted. At a minimum, learning materials should not support the normalisation of violence.
4. Avoid the use of out-dated photos of contemporary persons and the depiction of 'flash-in-the-pan' celebrities unless the potentially fleeting nature of fame is the focus of intended learning.

5. Materials should not overly reinforce a celebrity culture. When celebrities are depicted critical thought about their lives and actions should be encouraged.
6. The dignity and importance of an honest career in the service industry, trade, business or any other area should be reflected in both the text and illustrations.
7. Materials should reflect the ordinary and not just depict the extraordinary. Students should be able to recognise themselves in the materials.
8. Discussions and illustrations dealing with religion or places of worship should include all major religious groups. Opinions about religion, especially negatives ones, should be avoided.
9. Family groupings should reflect the diversity in society.
10. References in the text or illustrations to satanic rituals or black magic are best avoided. If made, they should be clearly tied to learning intentions and foster critical thought.

8. Criteria for pictures or illustrations

A. People

1. Foreshortening: distorting perspectives can be used as a theatrical device to better convey the events and mood in an illustration. The artist or photographer must take care to ensure that the illustration or picture is comprehensible and unambiguous.
2. Grotesqueries: characterisations and exaggerations of distinctive facial features to emphasise individuality (big nose, big ears, buckteeth, big lips) should be avoided. Facial features must be depicted clearly and accurately.

B. Environments

1. Living environments and backgrounds should reflect the diversity of architecture in the country's different regions.
2. Illustrations or pictures should depict different types of well-maintained housing and avoid depicting extreme wealth or extreme poverty.
3. Illustrations or pictures should depict a variety of building types: apartment buildings, townhouses, single family houses and skyscrapers.
4. Where feasible, a variety of city, suburban and rural settings should be used as a background.
5. Where appropriate, a variety of public buildings should be shown.
6. Telephone numbers shown in illustrations or pictures should begin with the numbers 555 or some other combination of numbers which is not in use.

C. Taboos in art

1. Anatomical inaccuracies should be avoided. For example, eyes and eyelids must be accurately drawn.
2. Trademarks and goods which may serve as advertising for a particular product should be avoided.
3. Illustrations or pictures should not depict so-called 'junk food' such as potato crisps, candy, French fries and other non-nutritious foods.
4. Artists should not depict smoking or the consumption of alcohol or narcotics, or any object that suggests their use unless these depictions are clearly tied to intended learning goals.

5. Violence against people or animals should be avoided. Where the content subject requires that injury be shown, such as in health and safety materials, the depiction should not glorify violence or be excessively graphic.
6. Comical situations and farces should avoid cruelty or violence towards any of the characters.
7. Graffiti should not be depicted unless it is clearly tied to a lesson to be learned.

8. Conclusion

The complexities of CLIL and education in general are such that the above criteria are inextricably interwoven. Making intended learning outcomes and the component parts of academic language visible are central to formative assessment, the fostering of critical thinking about the learning process, and the building of learner autonomy and motivation. Creating opportunities for meaningful learning are connected to the use of authentic language in authentic ways which in turn involves the use of well-structured peer cooperative activities and cross-curricular projects, as well as the development of well-structured opportunities to connect with speakers of the CLIL Language. The on-going and joint scaffolding of content, language and learning skills development can make a substantial contribution to supporting students in facing the additional challenge of learning through an L2 and in thinking critically about language, content and their own learning, which in turn can foster learner autonomy. Finally, CLIL does not operate in a world of its own. CIL materials must conform to the general norms of published student learning materials such as ensuring that they avoid stereotyping, support the development of environmentally sound practices, and foster inclusion. It is the capacity to maintain and apply a multiple focus not only on content, language and learning skills – a challenge in and of itself – but also the application of other CLIL-specific and generally accepted education criteria which are central to the development of quality CLIL learning materials.

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