What do students talk about? The relevance of content-focused and non-content-focused talk types within peer-interaction CLIL tasks[1]

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ABSTRACT

This paper observes the different talk types that occur in an instance of peer interaction in Science through English CLIL classroom and attempts at providing a categorization of the students talk and analyzing their function. The sample chosen corresponds to a team of five students in their first year of secondary education from a state school set in a working class neighborhood on the outskirts of Barcelona. Using the framework described by Mercer (2004) and later developed by Pierce & Gilles (2008) and Moate (2011), this study analyzes what the impact of different content-focused and non-content-focused talk types in the construction of knowledge is, together with their influence on the flow of the task through content analysis with the support of conversation and multimodal analysis. Results point out that conversation segments covering content are relevant but, simultaneously, episodes with an interpersonal use of language are also exploited for a wide range of purposes.

Keywords: CLIL, talk-types, science learning, TEFL, teacher development.

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1. Introduction

Content and Language Integrated Learning (CLIL) subjects are traditionally perceived by students as highly challenging. Achieving a proper command of the target knowledge is already a source of tension *per se* that, by adding the difficulty of the encryption of the data in a target L2, may become remarkably undesirable and demotivational to them. To a certain extent, teachers are bound under similar circumstances: tackling a CLIL subject, covering both content and language points from the curriculum and delivering them in an appealing and motivational way for students is far from customary lessons.

Several attempts have been made to better CLIL experiences in education and glide over the hurdles inherent in the preparation and implementation of materials within this double approach. In *Institut La Torre*, where this study has been carried out, the team of CLIL teachers in charge of the cross-curricular project of *SciEnglish*[2] has opted for certain classroom strategies such as cooperative work, peer learning and a strong focus on oral interaction.

Institut La Torre features a significant demographic characteristic which directly influences the conception and shaping of a CLIL project: being located in a working class neighborhood on the outskirts of Barcelona, the school holds a high percentage of foreigners among students. Consequently, even though the school is located in Catalan context, a significant proportion of students differ from Catalan as their L1. Together with this, many students show difficulties in learning and needs of development of their reading and writing skills. These factors demand a special and inclusive CLIL project that adapts to their circumstances and contributes to creating an optimal work climate and coexistence, thus reinforcing social cohesion.

Therefore, the choice of the aforementioned classroom strategies within this plurilingual and pluricultural context needs to be understood as an effort to cater for the diversity within the classroom. Simultaneously, they aim at empowering students so that they eventually face the CLIL subject as an achievable feat,

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[2] Custom name chosen to refer to the fused, 6-hours-per-week Science through English cross-curricular project which intends to cover both the Science and English curricula.

which contributes to reinforcing their self-image and promoting a positive attitude towards education and school.

A set of five micro-sequences from a longer 20 minutes sequence of video recording has been analyzed in order to ascertain a better understanding of students' talk within CLIL contexts and identify the benefits and drawbacks of these strategies. In the aforementioned sequence, five 12-year-old students work in team in order to produce a written product. The method chosen to approach the data has been content analysis in the light of the *types of talk* framework, originally posited by Mercer (2004) and later revisited by Pierce & Gilles (2008) and Moate (2011), with conversational and multimodal analysis as means of support.

This study is part of the larger research project *Academic discourse in a foreign language: learning and assessment of science content in the multilingual CLIL classroom* DALE-APECS (EDU2010-15783) in the collaborative research team CLIL-SI (*Semi-Immersion*), which has resulted so far in several publications, some of which address cooperative work (see, for example, Escobar Urmeneta & Nussbaum 2008, 2011; Eixarch Domènech 2011; Evnitskaya & Morton 2011; Evnitskaya & Escobar Urmeneta forthcoming; Fuentes & Hernández 2011 and Moore & Nussbaum 2011).

2. Theoretical framework

2.1. Social interaction as the key for cognitive growth

Classroom interaction among students has traditionally been approached through many lenses. The *socio-cultural perspective* (Vygotsky 1962, 1978), a prominent strand within educational research, regards cognitive development within the classroom as a cultural process and claims that *intermental* (i.e. interacting with others) activity is thoroughly linked to the development of *intramental* (i.e. individual) capabilities. Vygotsky (1962) also introduces the term of *Zone of Proximal Development* (ZPD), a concept further developed in subsequent studies and described as being "the distance between the actual developmental level as determined by independent problem solving and the level

of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers" (1978, p. 86).

Effective social interaction (which involves features such as reciprocity, mutuality and continuous negotiation of meanings) may cause participants to experience *groupsense* (Ryder & Campbell 1989). Howe & Mercer (2007, p.2) point out that one basic aspect for this outcome is the shared conception of the task or problem, in which participants do not only interact, but also *interthink*. Mercer & Littleton (2007) further develop the concept of ZPD, referring to the shared understanding that is produced in effective social interaction as the *Intermental Development Zone* (IDZ). IDZ is literally described as "a dynamic frame of reference which is reconstituted constantly as the dialogue continues, so enabling the teacher and learner to think together through the activity in which they are involved. If the quality of the IDZ is successfully maintained, misunderstandings will be minimized and motivations will be maximized" (p.6).

Another core term related to the dialogic co-construction of knowledge is *scaffolding*, a metaphorical term posited by Wood, Bruner & Ross (1976) that refers to the means that an expert may introduce so as to support the learning of another when facing a relatively complex task. Scaffolding is not only limited to easing the task, but also involves aspects such as motivating the learner and controlling frustration. Within a more symmetrical kind of collaboration among peers, Fernández *et al*. (2002) argue that scaffolding takes place in a similar way as in teacher-student interactions, with the difference that in groups the occurrence of scaffolding is characterized by its dynamism and continuity and that, interestingly, it may be triggered as an automatic and unconscious use of effective communicative strategies for solving a problem together.

2.2. Talking Science

Following Vygotskian ideas, Lemke (1990) proposes a model of *teaching and learning science through talking science*. This statement is not simply reduced to talking about science, but refers to a broader vision centered on the fact that language is not just vocabulary and grammar, but also a system of resources for making meanings, which allows reasoning and problem solving. Laplante (1997) further proposes that, while linguistic demands may pose a challenge to students, the

inquiry approach can lead to the creation of an encouraging environment for the development of a second language.

Several studies have explored the connections between the talking science model and CLIL. For instance, Evnitskaya & Morton (2011, p. 123) point out how the construction of the knowledge in the science classroom is highly interactional and conversation-driven. Likewise, participants use a shared repertoire of linguistic and other meaning-making resources to engage mutually in the activity of doing school science.

2.3. Social modes of thinking and Types of talk

Firstly described by Barnes (1976/1992), Mercer (1995, 1996) furthers the definition of *exploratory talk* as the kind of talk that happens when partners engage critically but constructively with each other's ideas. Statements and suggestions are offered for joint consideration, counter-assertions are justified explicitly and alternative hypotheses are presented. This talk is also characterized by the active participation of all participants, the sense of a shared purpose and the encouragement of opinions from all the team members before taking decisions. There are questions and the participants listen actively. In comparison with the other two, exploratory talk shows a more reasoned, co-constructed knowledge. This talk is, therefore, naturally focused on content discussion.

Pierce & Gilles (2008) further analyze exploratory talk and propose a typology of different types of interaction which, in the light of CLIL research, offer a framework allowing for insights into the integration of cognitive and language skills. In addition to exploratory talk (which, again, is content-focused), Pierce & Gilles identify four more types of talk within language in education talk. The first talk recognized is *social talk*, a basic kind of talk detached from content-talk which is at the center of the construction of a community and connects participants socially. It allows for the foundation of trust and other personal aspects deemed essential for opening channels of communication later on. The second one is *meta talk*. It refers to the participants being conscious about the fact that talk is a tool that they need to use to overcome the task and that there is a necessity for practicing and honing language. It takes into account

aspects such as genres, register and style. The third one is *critical talk*. It is the talk that appears with the identification of a gap between the base knowledge and the target knowledge and generates questions. This talk is prone to lead to the acquisition of new lexical items, for example. Finally, the fourth type identified is *expert talk*, characterized by the use of specific concepts and language which participants acknowledge as the target knowledge they need to master to demonstrate that they are members of the community of practice.

These four kinds of talk, together with exploratory talk, suggest that different educational purposes require different kinds of talk. Moate (2011, p.28) further adds two extra kinds of talk to this proposal. The first one is *organizational talk*, which is concerned with the management of resources. Often formulaic and repetitive, it is notorious for being the kind of talk that students quickly get acquainted with when they enter formal education. The other kind of talk added to the framework is *pedagogic talk*. It is associated mainly with the teacher and bridges between everyday understanding and expert conceptualization and allows for the immediate mediation between target knowledge and classroom community.

Regarding the quality of students' talk, an important aspect of a task which will influence in big deal the talk generated over it is the degree of difficulty (Fernández *et al*. 2002). If the degree of experience and comprehension of the task is high among all participants and the socio-cognitive skills presented are already mastered, the discourse will turn most likely cumulative, with little challenges and opposition. Moving to the opposite end of the spectrum, a task where the degree of experience and comprehension is too low and the skills are over the participants' ZPD may lead to any kind of talk but is likely to arise frustration among participants, causing them to give up. A desirable degree of experience and comprehension of the task is consequently variable, where some participants understand some points of the task while others do not. This scenario allows for the possibility of solving the task together, reaching their ZPD and with a high rate of exploratory talk occurrence.

3. Context

3.1. La Torre

La Torre is a state secondary school which started its activity in 2011. It is set in a working class neighborhood on the outskirts of Barcelona which grew significantly in the 1950s thanks to an influx of foreign population. The school staff is formed by a team of professionals who share the drive to create an innovative, inclusive and plurilingual project with the collaboration of students and families.

One of the main objectives of the school is to achieve an optimal work environment which allows working on a pluricultural and plurilingual context. Strategies such as cooperative work in the classroom become a valuable communicative and interactive tool among students and teachers. Besides, it promotes personal reflection and knowledge of the team member, facilitating acceptance towards diversity in the classroom and, in broader terms, in society.

The school offers learning in context environment, which intends to make learning meaningful and cater for the diversity in the classroom, by adapting teaching and learning from different curricular areas to the special needs of students, taking into account their learning process and progress.

3.2. SciEnglish

The Science through English CLIL project in *Institut la Torre* is aimed at students in their first and second year of secondary education. It corresponds to one of the strategies devised by the school within its pedagogical project to attain quality academic results and boost social cohesion using foreign language learning as a driving force for integration and empowerment in the classroom.

CLIL methodology has been chosen as a medium to develop cognitive and linguistic abilities and strategies on a wide range of learning contexts, encouraging students to learn English by using it as a real communicative tool within the meaningful context of Science. The activities are organized through

the use of the *Information and Communication Technologies* (ICT), cooperative and peer learning and oral interaction in the classroom.

One of the main goals of the project involves the student being the protagonist of the own learning process through self-regulation. Assessment tasks follow this principle and favour reflection individually and in team. All the students follow the same activities, but the teachers adapt and offer specific activities to students with special needs (from both reinforcement and expansion perspectives).

3.3. Task and participants featured in the dataset

The excerpts analyzed belong to a late session from the unit "Plant kingdom", where students are working in teams and have to produce a composition taking into account the following instructions:

"Imagine that you are a drop of water living in the soil. Explain all the way you follow from the moment you enter inside the plant."

The team followed in the dataset is formed by five 12-year-old students with different competential levels.

Figure 3.3.a

Figure 3.3.a. shows the distribution of the participants throughout the video recording. From left to right, the participants are Dayana, María, Gemma, Hamira and Alejandro. Dayana and Alejandro show a good competential level both of English language, set around the A1 level, according to the *Common European Framework of Reference for Languages* (CEFR), and Science content perspectives, both achieving marks ranging between 70 and 100 points out of 100 in their tests in the subject. Regarding Gemma, even though she has a lower level (English below the A1 level and scores ranging from 50 to 70 points out of 100), she is described by the teachers of the subject as "very hard-working and trying to improve constantly". María and Hamira also display a level of English below A1 and generally fail the tests of the subject, not reaching the passing point of 50 points out of 100. María is described by the teachers as a student who "shows little interest towards learning in the classroom and is prone to get distracted" and Hamira is described as a "generally quiet, but very attentive student".

4. Objectives

This paper is mainly concerned with the quality of students' discourse within Science through English task which is to be resolved through peer interaction in order to ascertain whether these classroom strategies allow for both academic achievement and the empowerment of students. In order to determine the advantages and disadvantages that these strategies entail, the following sub-objectives arise:

– To determine whether traces of content-focused talk appear in the data corpus and, if so, how are they exploited and made profitable by the participants.

– To examine the other kinds of non-content-focused talk that emerged during the activity and what impact they have on the flow of the task and participants.

5. Method

5.1. Methodological standpoint

This research has been classroom-based and has stemmed from the university-school partnership *Academic Discourse in a Foreign Language: Learning and Assessment of Science Content in the Multilingual CLIL Classroom* (DALE-APECS). Set within an action-research framework (Cohen *et al.* 2007), the study is taken from a sociocultural perspective (Mercer 2004). The data corpus is approached from an emic, qualitative and interpretative stance. The results have later been triangulated with the CLIL-SI research team and the school's SciEnglish team.

5.2. Research tools

The first tool developed by this study in order to achieve the objectives is a content analysis (Berelson 1952) aiming at discerning a set of micro-sequences that may be representative of the different kinds of talk that appeared during the sequence. Among the aforementioned categories of talk-types (Mercer 2004; Pierce & Gilles 2008; Moate 2011), the following selection was used for the categorization of micro-sequences.

  – Content-focused talk types: expert talk, meta talk, exploratory talk, critical talk.
  – Non-content-focused talk types: social talk, organizational talk.

Therefore, pedagogical talk (Moate 2011) has been deemed not applicable due to the nature of the data (peer-interaction) and the focus of the study.

Regarding the approach to the resulting set of micro-sequences, several researchers in education claim that *Conversation Analysis for Second Language Acquisition* (CA-for-SLA) is a successful method that allows the exploration of the social, contextual and interactional dimensions of the L2 classroom (Markee 2000, 2008; Mondada & Pekarek Doehler 2000, 2004). Even though the aim of this paper is not focused on Second Language Acquisition, this tool has been

deemed useful in order to scrutinize what students are doing and talking about. Furthermore, in order to address the multimodal display of strategies used by the study participants, the use of Multimodal Analysis allows for the analysis of non-verbal resources such as eye gaze, facial expression, gesture, head movement, body movement and posture (Mondada 2008; Pekarek Doehler 2010).

Recent studies within the GREIP team and the DALE-APECS project (e.g., Evnitskaya & Morton 2001; Moore & Nussbaum 2011; Moore *et al.* 2012) have embraced these two methodologies and have deemed them optimal for the analysis within CLIL settings, thus denominating it *Multimodal Conversation Analysis for CLIL*, a name which emphasizes its constituents.

5.3. Data gathering and treatment

The researcher followed a group in their first year of compulsory secondary education during the implementation of a 12-hour SciEnglish unit as a language assistant. The researcher was involved as a participant observer while video recording students and taking field notes. From the complete data corpus, only one of the recordings has been used in this study as a dataset.

The video recording, which involved an instance of team work interaction, was first deemed appropriate for the interest of the research and selected as main dataset for this study. The 22 minutes video then underwent a transcription process based on the convention of symbols chosen by the members of the research project DALE-APECS (Evnitskaya 2011), which draws on Jefferson (2004). Similarly, multimodal analysis followed *Research Group on Plurilingual Interaction and Teaching* (GREIP) research group's conventions (Moore 2011). Subsequently, the dataset was scanned through content analysis in order to discern a set of micro-sequences which displayed the different kinds of talk that has been selected as relevant towards the aim of the study. Lastly, the set of micro-sequences obtained was analyzed qualitatively so as to identify what students were doing and talking about.

6. Analysis

6.1. I have written...

95	Gemma	**yo he puesto primero de todo**↑ (.) roots absorb water and mineral salts↓ **((points at her notes))**
96	Alejandro	**((to Gemma))** xxxx
97	Hamira	**yo he puesto**::↑
98	Dayana	**((looks at her notes))**
99	Hamira	=the water and the plants↑
100	María	e::hrm↑ (.) the:-
101	Dayana	xxxx (.) **((leans forward))** **por qué no ponemos** plants absorb water↑

Fig. 6.1.a.

102	María	and mineral salts↓
103	Gemma	[**pero**↑ (.) **absorben la luz**↓] **((looking at Dayana))**
104	Alejandro	[**eso son la:s**↑] **((looking at Dayana while pointing at himself repeatedly))**
105	María	**((to Dayana)) es verdad**↓ (.) **lo absorben las raíces**↑ (.) **no la cepa**↓
106	Dayana	ah!
107		(1.0)
108	María	[the-]
109	Dayana	[roots↑] **((nodding))**
110	Gemma	**((nods))**
111	Dayana	=**abs**-↑ (.) **no**↓ (.) **porque**-↑
112	María	the roots [absorb↑] **((jumping impatiently))**

113	Alejandro	[**tú eres una gota↓**] ((looking at Dayana))
114	Dayana	=water↑ (.) through↑ (.) roots↓ (.) **a través↓**
115	Gemma	**sí↓ ((nodding)) (.) sí↓ (.) sí↓**
116	María	**vale↓ (.) pues venga↓ (.) escribe↓** ((to Dayana)) (.) **vamos↓**
117	Gemma	=**y si ponemos↑** (.) plants absorb water through↑-
118	Alejandro	absorb me↓ (.) **porque sería la gota↓** ((to Gemma))
119	Gemma	((to Dayana)) **es verdad↓ (.) tenemos que hablar de mí↓ (.) pero yo no he puesto eso↓** ((looking at her notes))
120	María	**y si ponemos↑ (.) nosotros:↑** ((waving her hand))
121		(1.0)
122	Gemma	**no↓** (.) the plant↑
123	Gemma	through- (.) the- (.) [the roots↑]
124	María	[ºthe plant↑º]
125	Gemma	=absorb me↓ ((puts her hand on her chest))

The first excerpt chosen takes place at an early stage of the task (02:19 to 03:01). At this stage, the participants are introducing their proposals (turns 95 and 97) and brainstorming in search of the best possible sentence to start their text. In turn 101, Dayana leans forward to draw the attention of the rest of team members and introduces the first part of a potentially acceptable sentence (fig. 6.1.a.). The rising intonation leads María (turn 102) to finish the sentence by repeating the last part of Gemma's proposal from turn 95, allowing for the creation of a suitable and seemingly perfect sentence to start: "Plants absorb water and mineral salts". However, it is quickly challenged by Gemma, who remarks that the word "plants" is not accurate enough, as plants also absorb light.

Alejandro and María (turns 104, 105) promptly back up Gemma's challenge. Dayana positively acknowledges being repaired (turn 106) and resets her proposal (turns 109, 111), this time with "the roots" as subject. Her rising intonation allows María to impatiently add the verb. Alejandro, however, remarks that the text has to be produced in first person (turn 113). Dayana (turn 114) resumes the sentence where María left it, being followed by Gemma's validation (turn 115), but brings a new proposal which again triggers Alejandro's reaction for not including the first person when referring to water. Gemma acknowledges the challenge. Eventually, the participants reach an opening sentence which is

both accurate enough and is written from the first person perspective (turns 122 to 125).

Traces of exploratory talk can be found in this excerpt, which build up towards a joint co-construction of knowledge formed by different voices, each adding up towards the main goal. Turns 101 and 102 show the development of interthinking and the start of the creation of a common IDZ. Interestingly, the nature of the CLIL task leads the challenges to come from both the content perspective (turns 103, 104, 105) and the language perspective (turns 113, 118, 119). Also, organizational talk is prominent among students (noticeable in this excerpt in turn 116), who are self-directing the task.

6.2. They don't just teleport

212	Gemma	**((turns to Alejandro)) qué**?
213	Dayana	**((looks at Alejandro))**
214	Alejandro	then↑ (.) the stem go::↑ **((points up))** (.) ºupº↓
215	Gemma	[then go to stem↑]
216	Dayana	**((checks her notes))** (.) [**a ver lo que pone↓**]
217	Alejandro	**((looks at Gemma and moves his hand up and down repeatedly))**

Fig. 6.3.a.

218	Dayana	=**((reads))** then the stem transports the raw sap to the leaf↓
219	Alejandro	**((stands straight and raises his arms looking at Dayana)) no↓** (.) go up↑ **((raises one arm and points up))**
220	Gemma	**((to Dayana)) sí↓** (.) **más tarde↑**
221	Alejandro	**no↓** (.) **then↑ ((touches Gemma's arm to demand attention))** (.) then↑

222	Gemma	la:: *tija*↑ **((moves her arm up and down repeatedly))**
223	Alejandro	**((leans forward while touching Gemma's arm))** the stem↑ (.) **no**↓
224	Gemma	**((turns to Alejandro))** ow: **((groans slightly for having hit her elbow))**
225	Hamira	**((smiles at Gemma))**
226	Gemma	**((smiles back at Hamira))**
227	Alejandro	then↑ (.) I go up to the stem↓ **((pointing up))**

Fig 6.3.b.

|		
228	Dayana	**no↓ (.) then↑ (.) the stem↑ (.) después↑ ((circles her hand forward))**
229	Gemma	**sí↓ (.) porque entonces no- no nos teletransportamos desde las arreles↑ ((points at one area of the table with her hands))** a la stem↓ **((points at another nearby area of the table with her hands))** (.) **vamos desde las arreles↑ ((points back at the first area))** y junto a las sales minerales↑ **((makes circles with both hands))** (.) together↑ **((waves her hand drawing a curve in the air))** (.) **hasta la** stem↓ **((smiles at Dayana))**
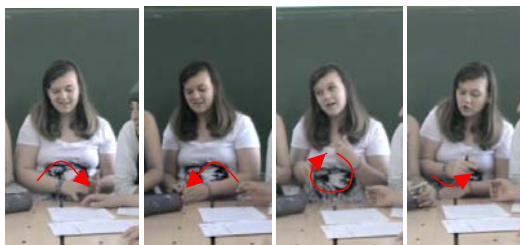
Fig 6.3.c.

230	Dayana	**vale↓ ((smiles back at Gemma))**

The second excerpt expands from 05:22 to 05:54. At this stage, the participants are forming the second sentence for their text and are considering whether the next step is "then I go up the stem" (Alejandro's proposal, initiated in turn 214 and subsequently elaborated until turn 227) or "then the stem transports the raw sap to the leaf" (Dayana's option, backed up by the fact that it appears in her notes, as seen in turns 216 and 218). Firstly, Alejandro (turn 214) introduces his proposal, which is reinforced and later continued (turn 217, fig. 6.3.a.) through multi-modal resources in order to get the message across without translating it back to Spanish or Catalan and as a result provide scaffolding to his peers.

Alejandro makes a considerable effort keeping his discourse in English throughout the sequence (turns 219, 223, 227) and relies heavily in non-verbal communication (as seen in figs. 6.3.a. and 6.3.b.), which he deems a successful scaffolding technique. Alejandro's efforts are initially challenged by Dayana in turn 228, but later acknowledged by Gemma in turn 229. At that point, Gemma starts a surprisingly lengthy and complex explanation in L1 with the support of a variety of multi-modal resources to scaffold her team mates (fig. 6.3.c.). Dayana later happily acknowledges and accepts the explanation (turn 230).

This excerpt highlights the importance of meta talk within CLIL tasks, as language becomes the key to solve the task efficiently and raises the participants awareness of language as a tool and a resource for constructing meaning. Alejandro defends his proposal not only because the step of the task he is proposing corresponds to an earlier stage than the one Dayana is proposing, but also because it retains the first person perspective that the task demands. Organizational talk is still present (turns 220, 228) as it becomes an essential part for the completion of the task. Gemma's instance of expert talk (turn 229) contributes to her profiling as a content expert by the rest of the team and gives gravity towards her, becoming a more central member of the community of practice. It is noticeable how this explanation is actively contributing to her understanding of the content and enhancing the ownership of the learning process.

6.3. R, a, w.

300	Gemma	**((resumes writing))** the stem transports↑
301	María	**((looking at her notes))** the raw sap↑ (.) to the leaf↓
302	Gemma	**((writing))** raw↓
303	María	raw sap to the leaf↑
304	Gemma	**cómo se escribe** raw? **((looks at María's notes))**
305	Alejandro	ra:w↓ (.) **como suena↓**
306	María	**erre a uve doble↓ ((drawing the letters in the air))**

Fig. 6.4.a.

307	Dayana	are a double you↓ **((smiles))**
308	Gemma	**raw↓ ((looks at María's notes))** (.) sap↑ **((resumes writing))**
309	María	to the leaf↓
310	Alejandro	**((smiling))** are a double you↓
311	Dayana	**((smiles at Alejandro))**
312	Alejandro	**((smiles back at Dayana))**
313		(6.0) **((Gemma finishes writing her part))**
314	Gemma	**((passes the handout to Hamira))**
315	Alejandro	**parece de la Wikipedia↓ ((laughs))**

The third excerpt spans from 07:22 to 07:55. During this part, the participants are writing their third sentence. This time, it is Gemma's turn to write. María is dictating to Gemma (turn 303). In turn 304 Gemma voices a spelling doubt, which is collaboratively resolved through other team members' interventions (turns 305, 306, 307). The cumulative talk that is generated through this question is particularly interesting, as it develops progressively

towards a more sophisticated answer, starting with an initial "just as it sounds" by Alejandro, to be followed by María's spelling with the support of multimodality (fig. 6.4.a.) and finally rounded off by Dayana's almost perfect attempt at English spelling. Again, organization is given relevance in turn 314, where it shows how this aspect of the task has become so inherent and natural that it is already happening non-verbally.

The interaction in this excerpt shows how expert talk and meta talk gain equal prominence within CLIL contexts, as the goal of the task implies mastering the target knowledge and the target language. The participants, fully aware of the implications of both aspects, strive to achieve a quality product which sounds scientifically correct to them, a sense which is verbally exposed by Alejandro in turn 315, comparing the sentence that the team has just produced to one of their most solid referents of knowledge (Wikipedia). Interestingly, at this stage of the task, in addition to actual verbalization of social talk, a complex system of non-verbal communication has been built among the participants (as can be seen in the amount of reciprocal smiles in turns 307, 310, 311 and 312) due to positive interdependence which contributes towards the same goals as actual social talk (e.g. making the completion of the task advance).

6.4. It goes out with the water.

599	Alejandro	**sí↓** (.) **y ahora↑** (.) **viene lo de la::** ↑ **((opening his hand))** (.) **la flor↓**
600	María	**the flowe:r↑**
601	Alejandro	**((reaching Gemma))** ah! (.) **no!** (.) **ahora sería la agua sale por las hojas↓ ((opens his hand and lowers it slowly))**

Fig. 6.5.a.

602 Gemma   **((laughs))**

603 Hamira   **((laughs))**

604 Alejandro bueno:↓ **((smiles))**

605 Gemma   **((touches Hamira's arm)) sale con el agua↓ ((jokingly simulates a jump))**

Fig. 6.5.b.

606 María   **((putting her arm firmly between Gemma and Hamira))** e:hrm↑ (.) **sería**:↓ (.) **después**↑ (.) ehrm↑ (.) the- the leaf expulse water↑

607 Alejandro ah! (.) from the process transpiration! **((pointing at María))**

608 María   **sí**! **((pointing at Alejandro))**

Fig. 6.5.c.

609 Gemma   **sí↓**

610 Dayana   **((gets ready to start writing))**

611 María   **no! (.) lo escribo yo↓ (.) lo escribo yo↓ (.) lo escribo yo↓ (.) lo escribo yo↓ ((grabs the handout and readies her pen)) (.) ((to Alejandro))** can you repeat↑ (.) please? **((smiles))**

612 Alejandro **vale↓ ((smiles))**

The fourth excerpt develops from 14:55 to 15:19. At this stage, the participants are suggesting the seventh sentence for their text. Alejandro takes the initiative (turns 599, 601), again using the support of multimodality as scaffold (fig. 6.5.a). His contribution leads to a social talk interlude between Gemma and Hamira which lasts from turn 602 to 605. In these turns, Gemma and Hamira go briefly off-task to make a funny remark (fig. 6.5.b.), which contributes to lightening the overall mood and opens ways for later communication.

This moment of bonding created by laughing together (turns 602 and 603) emphasizes how this activity is promoting social cohesion. This moment, however, is soon interrupted by María in turn 606, who abruptly intervenes to remind them to be on-task (as can still be seen in fig. 6.5.c.) while, simultaneously, interacting with Alejandro in the construction of the new sentence. Turns 606 and 607 point out the start of a process of interthinking and 608 shows another instance of reciprocity between María and Alejandro, which promotes mutual support and encouragement (fig. 6.5.c.). The feeling of reassurance and trust achieved builds up and has repercussions on María's motivation and attitude, leading her to become actively involved with the organization of the task and self-elect herself as the writer of the next sentence (turn 611).

6.5. How come they give off water?

647	Alejandro	**((moving his arm to the left))** the leaves↑ (.) give off the:↑ (.) the water↑
648	María	**he puesto↓** (.) **((starts reading))** the leaves↑
649	Dayana	drops of water↑
650	Gemma	through transpiration↓
651	Dayana	**((nods)) a través de la↑**
652	Alejandro	**((looks at Gemma))** to carry out↑ (.) to carry out↑
653	Gemma	**((looks at Alejandro))** transpiration↓ (.) **sí↓**
654	Alejandro	**((to Dayana)) no↓** (.) to carry out the process of transpiration↑
655	Dayana	**pero cómo que expulsa agua**? **((puzzled))**
656	Alejandro	**o sea**↑ (.) **sí↓** (.) **gotas↓ ((simulates a drop of water falling from his hand))**

Fig. 6.6.a.

| 657 | Gemma | **((shrugs shoulders)) usándola↓** |

| 658 | María | **o sea↑** (.) **por las plantas↑** (.) **entran por las raí::ces↑ ((moves her pen up))** (.) **hacen todo el recorrido↑ ((draws a circle in the air with her pen))** |

Fig. 6.6.b.

659	Dayana	**((gets distracted by something from the other group and turns away from María))**
660		(2.0)
661	Alejandro	Dayana!
662		(2.0)
663	Dayana	**((turns to Alejandro))**

664 Alejandro **((extending his arm)) [pero tú no has visto que a veces las plantas las tocas y notas que están mojadas? ((rubs his fingers together)) (.) y no ha llovido↓]**

Fig. 6.6.c.

665 María **=[entran por las hebras de las hojas↑ ((moves her arm to her right)) (.) y expu:lsan ((moves both hands up)) como si fuesen xxxx↓]**

Fig. 6.6.d.

666 Dayana **((turns to María and nods)) sí sí sí sí↓ (.) ((turns to Alejandro and nods))**

667 María **sí↓ (.) por eso↓ (.) pero mira↓**

The fifth and last excerpt lasts from 15:57 to 16:24. At the beginning of this excerpt the participants are constructing the eighth sentence of their text. In turns 647 to 654, there is a first part where the participants co-construct a proposal which is approved to a considerable extent. The result is "The leaves give off the water to carry out the process of respiration". However, this sentence triggers a key concept question by Dayana (turn 655), which can be

considered a clear case of critical talk. This kind of talk involves direct questions about the deconstruction of core concepts. It is also idoneous for the potential achievement of target knowledge. Again, the task proves to be highly beneficial for students with doubts which are unlikely to be voiced in regular teacher-group interaction.

Even though the concept of transpiration had been undergone many times in the classroom, Dayana voices an honest question which is at the root of the target knowledge. This triggers the helpful explanations of María (turns 658 and 665) and Alejandro (turns 656 and 664). In order to accomplish this goal, María starts a lengthy explanation with the consistent support of multimodal resources (figs. 6.6.b. and 6.6.d.) which is very reminiscent of earlier explanations from Gemma such as the one in section 6.3. The intention of María with this choice is to be regarded as a more central member of the community and to show them that she has also mastered the content, thus being able to deliver expert talk efficiently. Despite María's efforts, Dayana is soon distracted by the noise generated by a nearby team, who are also undertaking the same task, which makes her go off-task (turn 659). However, María is undeterred and continues her explanation with literally no listeners. Alejandro, in his turn (656, 664), also engages in expert talk, overlapping it with María's. As usual, Alejandro uses a range of multimodal resources as scaffolding which proves to be agreeably efficient (figs. 6.6.a. and 6.6.c.). After going back on-task, both explanations are equally acquainted and welcomed by Dayana (turn 666).

7. Conclusion

The analysis leads to several conclusions and potential future research questions. To begin with, several types of talk have been successfully traced throughout the analysis. Instances of exploratory talk appeared whenever students faced a new stage and lead to a joint co-construction of knowledge. However, even though exploratory talk is highly valuable, other types of talk have proved to be prominent within the participants' interaction and have key effects on how the participants tackled the task:

- Organizational talk was ubiquitous. The participants, who were not told specific organizational directions by the teacher, designed a complex

system of organization of the task which was equalitarian, inclusive and efficient but also flexible and negotiated. This talk reached a point of naturalization within interaction where it no longer needed to be verbalized and was successfully understood just through gestures.

- Social talk is a constant throughout the task and at times, it was also displayed non-verbally through a system of smiles and laughs based on reciprocity, inclusion and solidarity.

- Due to the dual nature of CLIL, expert talk and meta talk were heavily featured and highly regarded among participants. Expert talk focused on scientific content and meta talk focusing on spelling, syntax and pronunciation skills. These limits were soon blurred for participants as language also formed part of the target knowledge and was actively discussed from an expert talk perspective.

- Instances of critical talk were rare, but proved to be extremely valuable for potential target knowledge learning and were thoroughly exploited within the team.

Consequently, it can be argued that content-focused talk types appeared embedded by other non-content-focused talk types which are also desirable and useful for other purposes. Non-content-focused talk types promoted different kinds of interaction which were appropriate at different stages of the task and intertwined and blended with content-focused talk types so as to contribute to the construction of knowledge and the achievement of the team goals while reinforcing social cohesion. Furthermore, it can be inferred that the participants were highly benefited by the activity from an individual perspective through some general facts such as students losing their fear of making mistakes and engaging in target knowledge construction regardless of their profile; both stronger and weaker students feeling comfortable enough within the team so as to voice doubts and the reassured feeling of empowerment and ownership of the knowledge.

Future lines of research that this study opens involve an interest on how students tackle expert talk and meta talk and what kind of resources students use to scaffold their peers. Additionally, the distribution of Spanish, Catalan and English among types of talk can also provide relevant insights for a better

understanding of peer-interaction knowledge co-construction. Finally, a finer research on social talk should also reveal significant information about the students' complex system of politeness and face-saving strategies.

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Annex A - Transcript conventions

Adaptation of the transcription conventions proposed by Gail Jefferson (Atkinson & Heritage, 1984):

Mar:	Name followed by: corresponds to the speaker's pseudonym.
.	Falling intonation.
,	Low-rising intonation, suggesting continuation.
?	Rising intonation, not necessarily a question.
(.)	A very short pause of less than two-tenths of a second.
(1.5)	Exactly timed pause in tenths of seconds.
over[lap [overlap	The start of overlapping talk.
wo(h)rd	(h) indicates 'laughter' within the word.
wor-	A single dash indicates a sharp cut-off.
wo:rd	Colons indicate lengthening of the preceding sound.
( )	Unclear talk with no approximation made.
(words)	Best guess at an unclear part.
=	Talk that runs on (produced by the same speaker or when there is no pause between the turns produced by two different speakers).
<u>word</u>	Underlining indicates speaker's emphasis.
CAPITALS	Talk is louder than that surrounding it.
°word°	Talk is quieter than that surrounding it.
>word< <word>	Inward arrows indicate that the talk was produced faster than the surrounding talk, outward arrows indicate that it was produced slower.
↑word, ↓word	A marked rise or fall in pitch.
+/spi:k/+	Approximate phonetic transcription.
word	Italics indicate utterances in Catalan.
word	Bold type indicates utterances in Spanish.
((writing))	Descriptions of extra-linguistic or contextual features.