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Outcomes and processes in Content and Language Integrated Learning (CLIL): current research from Europe

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1. Introduction

Content and language integrated learning - the use of an L2 in the teaching of non-language subjects - has been a topical issue in European education for quite few years now. Interestingly, this has happened at two curiously distant levels of action: on the level of local grass-roots activity on the one hand and on the level of EU policy on the other, leaving the intermediate level of national educational policies largely unaccounted for. Thus, on the one hand, countless initiatives of individual teachers or schools have generally been the actual starting point for implementing CLIL in concrete local educational contexts, initiatives to which regional or national authorities have frequently been slow to answer. On the other hand, a series of policy papers issued by EU bodies and institutions since the early 1990s has made it clear that CLIL is regarded on the political level as a core instrument for achieving policy aims directed at creating a multilingual population in Europe.¹

The two CLIL activity levels are of course rather distant from each other and a number of transnational projects have been implemented to bridge the gap between them. Among these are the Eurydice report on CLIL published in 2005, and the different web-sites launched by the CLIL Consortium (*CLIL Compendium*, *CLILCom webtutorial*). Especially the Eurydice report, however, has made it clear that CLIL is still far from being a consolidated and fully articulated educational model in any of the European countries surveyed and that a great deal more needs to be done, for instance, in order to consolidate the theoretical underpinnings of CLIL and create a conceptual framework that is both coherent and applicable to different local conditions. In this mediation process, applied linguistic research has an important role to play. This research, however, has been somewhat slow in getting under way despite various early efforts in different locations (e.g. Wode 1995, Fruhauf *et al.* 1996) or within whole national education systems (Nikula and Marsh 1996). Since about 2005, however, a changed momentum is discernible, and international contacts of scholars involved in research on CLIL have increased,² as has the research output, especially from applied linguistics. This article, then, aims at giving a first survey of the kinds of questions

¹ A summary of this line of events is found in a document called Milestones – European Language Learning and CLIL [<http://clilcom.stadia.fi/1702>; accessed 20 May 2007]; cf also http://www.ecml.at/mtp2/CLILmatrix/html/CLIL_E_news.htm#milestones [accessed 21 June 2007]

² In 2006, for instance, AILA (Association internationale de linguistique appliquée) accepted among its research networks one dedicated to CLIL and immersion classrooms. Network coordinator: ute.smit@univie.ac.at, website: <http://www.ichm.org/clil/>.

pursued in current research on CLIL together with some initial results and tentative answers.

In order to provide conceptual anchor for the research results presented in this chapter I will in the following briefly expand on what CLIL appears to be, specifically by reviewing the goals and rationales which have been formulated for this educational practice. It is from these that the questions arise which CLIL-oriented research seeks to answer. In the course of this discussion the focus will be especially on the *language* aspect of learning in CLIL, but of course other levels of learning (content, culture, cognition) also move into focus because borders are inevitably fuzzy.

2. CLIL goals and rationales

Even now that the term CLIL has established itself in the European discourse about educational practices where a foreign language is used to teach majority language students, the actual practices and models referred to cover a wide range of curricular realities. It is thus unsurprising that a multitude of national and regional labels for CLIL type programs remain in use, often reflecting subtly different context-dependent approaches to the matter.³ In the interest of maintaining a truly international perspective on CLIL one should also be aware of other related terms that enjoy a wide currency in educational circles also outside Europe. One source of inspiration for the relatively recent surge of second-language education reported on here has been French *immersion* in Canada. With it, CLIL shares that majority language children are taught non-language subjects in another prestigious language, another parallel being that this often happens at parental initiative and within the state education sector. Where Canadian immersion crucially differs from CLIL in Europe is the fact that the language of instruction is the other official language of the country, and that immersion teachers are native speakers of this language who otherwise possess exactly the same qualifications as would the mother-tongue teachers of the students concerned. In the United States, on the other hand, programs that mirror European CLIL in such crucial details as employing a foreign language as medium of instruction are often referred to as immersion, whereas *content-based instruction* is employed to describe situations where second language competencies are developed through the teaching of curricular content that is not typical of language classes per se. The crucial word here is second language, because such programs have commonly been developed in situations where education systems have to cope with large numbers of immigrant speakers who have yet to learn the official language of instruction in the system.

In the Austrian context in particular but also in many other countries it is rather hard to obtain explicit statements about the exact goals pursued via CLIL. In conversation with stakeholders aims like “increasing exposure, increasing practice, increasing language competence” are formulated regularly, some attention is also paid to the intercultural aspect of having another language in the classroom.

³ The website www.ContentEnglish.org (Maintained by Rob Dickey in Korea) features some 50 terms referring to essentially what CLIL is.

The latter, together with cognitive and content aims, on the other hand, has played a much more prominent role in expert formulations of CLIL goals, where language goals have been placed among but not over and above other kinds of goals. An extract of the list of goals formulated in the *CLIL-Compendium* will demonstrate this.

- DEVELOP INTERCULTURAL COMMUNICATION SKILLS
- PREPARE FOR INTERNATIONALISATION

- PROVIDE OPPORTUNITIES TO STUDY CONTENT THROUGH DIFFERENT PERSPECTIVES
- ACCESS SUBJECT-SPECIFIC TARGET LANGUAGE TERMINOLOGY

- IMPROVE OVERALL TARGET LANGUAGE COMPETENCE
- DEVELOP ORAL COMMUNICATION SKILLS

- DIVERSIFY METHODS & FORMS OF CLASSROOM PRACTICE
- INCREASE LEARNER MOTIVATION

www.cilcompendium.com

This curricular model with its four areas content, communication, culture and cognition has recently been adapted by Zydati (2007) with an interesting twist. It can be seen from figure 1 that the configuration continues to be non-hierarchical. However, I think it is a significant advance in CLIL modelling that despite the interdependence which holds between all areas (symbolized by the double-arrows), communication, and hence language, does hold centre-place in this model.

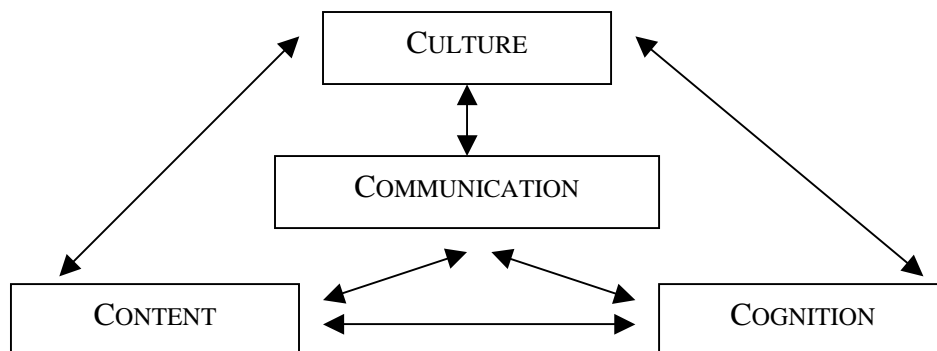


Figure 1. A curricular framework for CLIL (Zydati 2007, 16)

The hopes and expectations placed into CLIL on all these levels⁴ have received argumentative back-up in many places (for an overview see Dalton-Puffer and Smit 2007) and also possess a good deal of face validity. What is still lacking to a large extent is supportive evidence in the shape of research results. It is for this reason that the present article reports on recent and current research on CLIL as is being conducted in several European countries.

3. Outcomes of CLIL education

Before dealing in more detail with the language learning effects of CLIL education, I will briefly comment on **content outcomes**, as the issue of how being taught in the foreign language affects the subject knowledge and skills of the learners is a continuous concern of educators and parents. It is feared that since the medium of learning is less perfectly known than the L1, this will lead to reduced subject competence either through imperfect understanding or through the fact that teachers pre-empt this problem and simplify contents beforehand (Hajer 2000). Generally speaking research results are, however positive, with most studies making the observation that CLIL learners possess the same amount of content knowledge as their peers who were taught in the L1. CLIL students have even been shown to outperform peer controls when tested in the L1 (Day/Shapson 96, deCraen et al 2007), but see the point made above concerning self-selection. This, it has been claimed, may have to do with the fact that CLIL students work more persistently on tasks, showing higher tolerance of frustration, thus acquiring a higher degree of procedural competence in the subject (Vollmer *et al* 2006). Vollmer and associates have also argued that linguistic problems, rather than leading to task abandonment, often prompt intensified mental construction activity (through elaborating and relating details, discovering contradictions) so that deeper semantic processing and better understanding of curricular concepts can occur. This argument finds supportive evidence in the research of Bonnet (2004), who found that students may well switch to the mother tongue when a conceptual problem has occurred but this does not normally lead to the solution of this problem. It certainly seems, therefore, that rather than being a hindrance, L2 processing actually has a strong potential also and in particular for the learning of subject-specific concepts. It must be mentioned, however, that there is also contrary evidence showing CLIL students to be at a disadvantage when tested on various school subjects with the exception of, intriguingly, mother tongue language and literature (Washburn 1997, Nyholm 2002). Tendencies of conceptual simplification have also been observed by Hajer (2000).

Language outcomes

General statements on the effect of CLIL on students' **language learning outcomes** are unsurprisingly positive. It is often observed that by way of CLIL students can reach significantly higher levels of L2 than by conventional foreign language classes (e.g.

⁴ Apart from the curricular-didactic dimension embodied in the above model, there is of course also an organizational-budgetary side to CLIL: it essentially appears to offer 'two for the price of one', packaging subject and foreign language skills into one timetable-slot.

Wesche 2002) and that positive effects on communicative competence are visible (e.g. Wode 1994, Klieme 2006). A comparison of the performance of CLIL students and their non-CLIL peers on a standardised placement test showed that a higher percentage of students from the CLIL group reached the required B2 (CEFR) level than from the group who had followed only the conventional FL curriculum (Haunold 2006). However, this does not mean that the non-CLIL group was without top scores. Rather, it is the case that the CLIL classes have a significantly broader band of students just below the top level. In other words, people with special linguistic gifts reach very good results, even high proficiency, also via normal EFL classes, but CLIL significantly enhances the language skills of the broad group of students whose foreign language talents or interest are average. This is an effect which has been observed repeatedly (e.g. Mewald 2004, Eder 1998). Zydariß (2006, *forthc.*) has argued that school grades do not adequately reflect that CLIL classes have a higher average level of foreign language competence. The grades (in Germany but also in many other countries) are norm-referenced in the sense that they are usually given relative to the level which obtains in that particular group of learners (the class). This means that the actual grades or marks given tend towards a normal distribution even though an average grade in a CLIL class expresses a higher absolute level of language competence than in a regular class. In a system where university entrance for instance is dependent on school grades, this effectively puts CLIL students at a disadvantage and has led to the thinning out of bilingual streams in Berlin in the upper secondary years. (Zydariß 2006).

Such global evaluations of CLIL students' language competence, however, need to be complemented by an approach which takes into view the numerous aspects which actually make up this general faculty. For the purpose of this article I will operate on the basis of a pre-theoretical understanding these various factors, while acknowledging the necessity of integrating them into a coherent model of competence, which can then serve as a conceptual groundwork for the practice of CLIL (cf. Dalton-Puffer 2007, chapter 9).

The following discussion will make clear that under CLIL conditions certain aspects of language competence are developed more than others. Table 1 contrasts areas where clear gains are observable with areas where there are not.

Table 1. Language competencies favourably affected or unaffected by CLIL

Favourably affected	Unaffected or Indefinite
Receptive skills	Syntax
Vocabulary	Writing
Morphology	Informal/non-technical language
Creativity, risk-taking, fluency, quantity	Pronunciation
Emotive/affective outcomes	Pragmatics

Research on Canadian immersion shows that immersion students can obtain nativelike competence in listening and reading (e.g. Day and Shapson 1996). While

CLIL programmes rarely offer the same amount of contact with the language as actual immersion programmes, they do contribute to the passive language skills by enlarging the number of different speakers which learners are confronted with face-to-face and by (potentially) offering additional reasons for reading. On the side of the productive skills, it can be said with regard to speaking (e.g. Mewald 2004, Rieder and Hüttner 2007) that CLIL students often display greater fluency, quantity and creativity and show the kind of higher risk-taking inclination often associated with good language learners (Naiman 1995). This presumably stands in direct association with the frequently observed positive affective effects of CLIL: after a certain amount of time spent in CLIL lessons the learners seem to lose their inhibitions to use the foreign language spontaneously for face-to-face interaction. A parallel effect of time and quantity can be observed on some aspects of English morphology (personal observation, cf. Zydatið 2006): particularly low-level processes like the third person *-s* or irregular past tenses but also the modals have been shown to gain a higher degree of automatization and appropriacy of use. The greatest gain in terms of the language system, however, is undoubtedly produced in the lexicon: through studying content subjects in the foreign language CLIL learners possess larger vocabularies of technical and semi-technical terms and possibly also of general academic language which gives them a clear advantage over their EFL-peers. Two footnotes deserve to be made here, however. In general the study of vocabulary learning in instructed settings has shown that gains are particularly great if vocabulary is worked on explicitly: interestingly, vocabulary is usually the only linguistic aspect which is explicitly treated in CLIL lessons (Matiasek 2005). Furthermore the causality of CLIL in the enhanced vocabulary size of students has also been relativized by Sylvén's (2004) study, with results showing that in a comparison of CLIL students and peers, reading habits are a stronger predictor than participation in CLIL for student performance in a vocabulary test.

The second column of table 1 displays areas that either seem unaffected by the extra foreign language exposure offered by a CLIL programme or have not been systematically examined so far. Observationally, the pronunciation of CLIL pupils does not seem different from that of their peers, but to my knowledge the issue has not been explicitly studied, as have the pragmatic skills of CLIL learners. An interesting issue in this respect is the question in how far the pragmatics acquired in the classroom translate into pragmatically adequate behaviour outside school and in how far CLIL students differ or do not differ from their peers with regard to their pragmatic learning. The conditions of language use in the classroom seem responsible for the fact that CLIL students do not outperform their peers in terms of the syntactic complexity of their utterances. This is an issue I will return to in the section on classroom language. While it was said above that the lexicon is the clear winner in CLIL, this advantage is largely constrained to technical language while the general and informal registers do not profit at all or not to the same extent (Sylvén 2004). The most important issue in my view, however, is writing. Two studies conducted in Germany and Spain (Vollmer *et al.* 2006, Llinares and Whittaker 2006) have recently investigated the written performances of secondary school students on post-teaching writing tasks in social science subjects. In both cases a significant share of the texts produced remained off target on a number of

criteria, ranging from fulfilment of the required discourse function, via cohesion and coherence to grammar and appropriate style. The explanations of these deficiencies in academic literacy take recourse to the kind of pre-scientific understanding of the subject which is visible from these texts, but also to the fact that the general writing competence of the learners is in need of development, particularly since parallel results were obtained on writing tasks completed in the mother tongue. What is at issue here clearly is the role of writing in content-teaching in general, irrespective of the language it is conducted in.

Since very little explicit language teaching happens in CLIL lessons, it must be assumed that what the learners learn or do not learn is directly connected to the conditions of language use that hold during content teaching. In other words, the structures of classroom discourse are the key to explaining the learning outcomes as they have been presented in this section.

Such a position, however, encapsulates a specific theoretical stance towards language learning which emphasizes the character of learning as a socio-cognitive activity which cannot be detached from its situative context (e.g. Lantolf and Pavlenko 1995, Lantolf 2002). This is a position rather different from the one which is widespread in CLIL-related discourses namely that input per se functions as a trigger for acquisition processes which unfold independently of context. In other words, my underlying assumption that the discourse-world of institutional education is formative and instrumental for the language competence which CLIL learners will acquire. It is with this precept in mind that I now turn to present some results on the characteristics of CLIL classroom discourse.

4. The language of CLIL classrooms

In this section I will present research that focuses on various aspects of the interactive talk which perpires during CLIL lessons.⁵ This, as I have made clear above, is a crucial issue for the kind of language learning which will take place, if we subscribe to a notion of learning which is founded on the idea that individual cognition emerges from social interaction (Vygotsky 1978).

First I turn to studies which have compared CLIL classrooms to complementary teaching contexts, either traditional EFL classrooms or mother tongue subject teaching. So far, at least within Europe, the number of studies making such comparisons has been very small and I will start with one which addresses the phenomenon that CLIL education seems to produce affective gains for the learners.

Gassner and Maillat (2006) studied biology classrooms in Switzerland where 17-18 year old French native speakers were being taught either in their L1 or through the medium of English. Studying the role-plays which were carried out during an environmental studies unit, Gassner and Maillat found that this activity dramatically

⁵ A monograph dedicated to a range of further aspect of CLIL classroom language is Dalton-Puffer 2007.

increased student production in the L2 while having no such effect on production in the L1. In short, the CLIL students talked more elaborately and seemed to get more deeply involved in their roles as different stakeholders in an environmental conflict. The interpretation Gassner and Maillat offer is based on the symbolic function the L2 appears to have in this situation: it serves the students as a ‘mask’ which allows them to safely assume the part of some ‘other’ who may be representing positions that they do not share and/or would not like to be seen to share by their peer-group. Acting out the part in the L2 may make them feel more secure in that what they say will not be mistaken as their personal voice.

A comparison between CLIL science lessons and regular EFL classes is drawn by a study from Finland (Nikula 2006, 2007). In order to compensate the L2 advantage which CLIL students have due to their increased exposure (and presumably greater interest) in the second language, the students contrasted in this study belong to different age-groups: 13-15 year-old CLIL students are compared to 16-18 year-old EFL-only students. Nikula uses the tripartite IRF structure (Initiation-Response-Feedback) as a point of departure for uncovering subtle differences in the discourse structures of these two kinds of classrooms. Her results show that while the structure as such is commonplace in both types of lessons, it is not only more pervasive in EFL but also shows characteristic tendencies in its implementation. Here are two brief extracts for illustration:

Extract 1. EFL Finland grade 11.

1	I	T	to ↑solve (.)
2			and then (.) the noun from it is (.)
3			uhh Annamaria
4	R	LF1	solution
5	F	T	that's right (2.0) °okay° (1.0)
6	I		explo↑ring (1.5)
7			a related word to that is (.) Sonja
8	R	LF2	exploration
9	F	T	yeah that's right
10			>good< (1.5)

Extract 2. CLIL Physics Finland, grade 8/9

1	I	T	um you mentioned something important (x) but Laura do
2			you have an answer.
3	R	LF2	the the the jet engine can't work in space because there's
4			no air in [space.]
5	F	T	[that's] right cause the jet engine always needs air
6			(7.8) ((teacher writes on the blackboard))
7			it needs air to work (4.0) and (.) I wasn't actually sure about
8			the second part um (2.6) why airlines are not (xx) by
9			rocket engines (.) um (.)
10	R	LF3	and wouldn't it also cause um it would cause trouble
11			cause it would be much more um louder and there would be
12			no one to disturb the [(xx)]
13	F	T	[um yes] that's one possible reason
14			because um (.) there isn't really any (.) any strict scientific
15			reason why (x) keeps a a rocket engine an airliner cause I
16			I know there have been some (.) um military airplanes
17			that use rocket engines

Of course both types of classrooms show a bandwidth of variation, but these two extracts can by all means be regarded as typical of their respective environments. Considering the response slot, it is typical for EFL students to have to produce concise responses which take a particular linguistic form, while CLIL students are more often involved in explaining things in words of their own choice. A second EFL example is particularly instructive in this respect:

Extract 3 EFL. Grade 11

1	I	T1	okay (.) how about you Ronja (.)
2			your special skills
3	R	LF3	no shkills
4	F	T1	no skills=
5	R	LF3	=no
6	F	T1	↑nothing (.)
7			okay none so (.)
8	I		so Kirs↑ti
9	R	LF1	hmm I draw (.) pictures=
10	F/I	T1	=you ↑draw
11	R	LF1	Sometimes
12	F/I	T1	aha (0.8) by pencil or (.) watercolor
13	R	LF1	Sometimes
14	F	T1	aha (1.0)
15	I	T1	Leena (1.0)
16	R	LF2	aa I donno mm I've been to these
17			Handicrafts (.) school for (.) over five years
18			an I think I've got some skills
19	F	T1	mhm (1.0) mhm (.)
20	I		and you think that the skills you now have (.)
21			will be ah useful in in fu↑ture (1.0)
22	R	LF2	maybe I'd like to think so
23	F	T1	mhm

Other than in extract 1, in this extract there is no focus on form, the topic as such is very open, even conversational and cognitively undemanding and all of these factors could in principle support an open discourse situation. Nonetheless, the student in extract 3 is highly reluctant to offer anything but a token response. It has been argued elsewhere (Riesco Bernier 2007) that uttering target language sounds and phrases per se is regarded (at least by the students) as *the* discourse function of EFL talk, the shared interpretation of the participants being that talk is happening as rehearsed practice and not to create conversational meanings.⁶

Another difference between EFL and CLIL can be gleaned from the feedback part of the IRF-cycle: in EFL, brief teacher feedback is regularly followed by the next initiation, while in CLIL teacher feedback is often more elaborate itself and additionally

⁶ In the above example it might also be argued that the meanings involved might actually be too personal for the students to want to share them in class, and one where a researcher is present at that.

affords space for further student comments (cf. extract 2 above). In sum, Nikula argues, there is more conversational symmetry in CLIL classrooms, with students having “more space for interaction” (Nikula 2007, 203). This, she argues along with Hall (2004), can be seen to socialize students into subtly different identities as users of the target language, affording them with learning opportunities regarding the target language which are qualitatively different than the ones routinely met in EFL lessons.⁷ Next I therefore turn to examine more closely the shape which these learning opportunities take during CLIL lessons.

So far, this section has shown that CLIL lessons by virtue of having more loosely structured interaction patterns do indeed offer learning opportunities by which students can develop their command of the target language and that these learning opportunities are often qualitatively different from those available in EFL classes. This should, however, not blind us to the fact that CLIL lessons are *lessons* and as such reflect the conditions which make up the situative context of *institutional education*. It is widely known that educational discourse is determined by certain spatial and temporal conditions (buildings, classrooms, timetables) as well as the goals of the institution and the roles of the participants (cf. Edwards and Westgate 1994, Walsh 2006, Dalton-Puffer 2007). How these conditions are interpreted in a concrete situation is furthermore co-determined by cultural practices which may vary from country to country. It is therefore important to mention, that the following description of typical features of CLIL classroom discourse is to a high degree (but not exclusively) based on my own study of Austrian CLIL lessons (e.g. Dalton-Puffer 2007), though readers from other backgrounds will certainly find phenomena that they recognize. The reason for this is certainly that, within the grid of institutional and cultural ‘givens’, the individual teacher has the freedom of interpretation and can make their own didactic choices, something which crucially determines what will happen interactionally.

Although it seems to be stating the obvious, it is appropriate to make explicit that school lessons are predominantly oral events. They are face-to-face encounters designed to make knowledge accessible to the students by interacting with a teacher and with peers. In this fashion a process is created in which this knowledge is not transmitted but jointly constructed in a common discourse space (Mercer 1995). In effect, despite the centrality of written texts in the knowledge traditions of literate societies, for the actual process of teaching

[t]alk remains the main means of transmitting information, and books and other prepared resources are essentially only adjuncts to it. (Edwards and Westgate 1994, 16)

With this justification we may look at classroom talk as the central source of participants’ linguistic and intellectual experience at school and studying classroom interaction can provide us with information on what linguistic actions participants take

⁷ Before moving on to this, however, I would like to stress that Nikula does not imply that these CLIL learning opportunities make EFL lessons obsolete, on the contrary: CLIL should add to L2 learning opportunities but cannot replace EFL lessons. Thus, EFL and CLL should be regarded as complementary. Certainly, if CLIL lessons alone were a sufficient environment for successful L2 learning, immigrant children who attend mainstream schools in the host country should have fewer language problems.

part in actively and passively. In very general terms, and somewhat contrary to the expectations set into CLIL, observers of student language use in CLIL lessons have often found that a) students use much less English than expected, b) in very limited situations and c) that creative use of language is severely limited or non-existent (Mewald 2004).

Let us now examine more closely what the students' linguistic activities in class actually are. Having established that lessons are oral events, one finds that this does not characterize them sufficiently. Very importantly lessons are also group events consisting of whole-class discussion with the teacher acting as the discussion leader. Simple arithmetic tells us that with 25 students in a class, if each has a say in a 50 minute lesson, their speaking time must be less than two minutes since the leader of the discussion also has to speak. It follows, by simple power of logic, that CLIL students are listeners most of the time. What they listen to are the utterances of their teachers and peers. In list form the sources of spoken input are the following:

- teacher questions
- teacher feedback
- student answers
- student presentations
- reading aloud

What is likely to be noted as missing are teacher presentations, i.e. extended teacher speeches, also called 'lecturing'. It is remarkable that in the data studied such extended teacher turns simply did not occur. There is no lecturing, and the presentation of new material is mainly accomplished by whole-class discussion with the teacher leading the class to the 'discovery' of new facts and concepts through strategic questioning. (more on this below). This absence of teacher monologue is probably a consequence of the critical attitude with which teacher dominance in classrooms has been viewed since the 1970s: 'lecturing' is still considered 'bad' and the teachers participating in the study clearly did not want to appear to be old-fashioned and teacher-centred. Whether whole class discussion is much less teacher-centred is an issue worthy of discussion but will not be developed further here. On the linguistic level, the absence of lecturing means that in the students' input there is an absence of longer pieces which set out facts, concepts and the semantic relations holding between them in a coherent discourse of some syntactic and textual complexity. Instead, subject content is introduced by a sequence of teacher questions and student responses that follow the teacher's internal script (e.g. Ehlich and Rehbein 1986). This script, however, is not accessible to the students and often remains inexplicit. In terms of language production this means that CLIL students most frequently employ their active language skills in answering teacher questions.

In view of this fact Dalton-Puffer (2006) examined the interrelation between teacher questions and student responses, starting from the observation that the Austrian data showed an overwhelming majority of minimalist responses, typically taking the shape of short noun-phrases consisting of either bare nouns or a noun and its determiner (e.g. *fighter planes, the Nile*). Based on the assumption that teacher questions are indeed the

chief determinants of student output in whole-class interaction, the study then looked at the types of questions which were asked, seeking to correlate them with types of responses. Of the common classroom question typologies (open vs. closed questions, real vs. didactic questions) none showed a convincing correlation with the complexity of the student responses. Instead, the decisive difference turned out to lie in whether a question targeted facts on the one hand, or reasons, opinions and beliefs on the other. Questions for facts typically received minimalist answers, whereas the other targets encouraged more complex utterances. Subsequent quantification showed that 88% of teacher questions were actually questions for facts, while only 12% targeted responses that needed more linguistic elaboration on part of the students. Thus, remaining strictly on the level of language use and language production, this indicates that teachers' didactic decisions about how to teach their subject have far-reaching consequences for the language ecology of their classrooms and therefore also for the language opportunities which arise in them.⁸ Related findings have emerged from a study by Mariotti (2006) on CLIL classrooms in Northern Italy. For her analysis Mariotti uses a framework well-established in SLA research, that of negotiation of meaning (Long 1996) which revolves around the assumption that negotiating meaning in interaction with more competent L2 speakers (e.g. the teacher) provides L2 learners with a) the pressure to produce comprehensible output and b) the necessary negative feedback about mismatches in their production. Both elements are regarded as necessary for learners to move from semantic to syntactic processing (e.g. Doughty, Williams 1998; Lyster 2001, 2004; Pica 2002; Swain 2000, 2005). Having studied naturally occurring CLIL classroom discourse, however, Mariotti concludes that under non-experimental conditions negotiation episodes do not automatically entail the production of comprehensible output on part of the learners. This means that also in the Italian data, learner utterances are predominantly minimal in length and complexity. Mariotti suggests that teachers might be able to stimulate the production of more elaborate 'comprehensible output' if they received special training on how to conduct such negotiation episodes in order to optimize conditions for language learning (Mariotti 2006, 39).

Mariotti's study on negotiation of meaning also showed that negative feedback on part of the teacher is not a regular feature of such episodes. This finding bears directly on another issue that is frequently topicalized in relation to CLIL and has received comparatively broad research attention (Lyster 1997, 2004; Smit 2006, Dalton-Puffer 2005, *forthc.*): the topic of correction. It is often mentioned as an advantage of CLIL classrooms that learners feel more relaxed in using the foreign language because the focus of attention is on the meanings and not on linguistic form, something which is thought to be much closer to how conversations are conducted outside classrooms and therefore more 'natural'. Note, however, that repair is a regular activity in 'normal' conversation. There are two points of interest here: firstly, in how far can CLIL repair

⁸ That these linguistic consequences may be indicative of underlying cognitive issues is clear but will not be discussed further in this context. These issues certainly concern content teaching in the L1 as much as they do CLIL.

be said to model repair-work in non-educational conversations in ways preferable to EFL lessons and secondly, what happens to the language problems that do occur? With regard to the first point research has shown that classroom repair work in general is not *completely* different from conversational repair, for instance there is a high share of self-repair also in classrooms (Dalton-Puffer 2007, Smit 2007).

But of course classroom talk, given its educational purpose, possesses specific additional characteristics. For instance, the interruptive force and hence the face-threat attached to repair initiated by a conversational partner seems to be much downgraded in classrooms and quite often repair initiated by a teacher is supportive of a student's turn rather than disruptive (e.g. van Lier 1989, Markee 2000, Dalton-Puffer 2007). What is more, repair is quite regularly actively invited by students in the CLIL classrooms especially when lexical problems arise (e.g. *How do you say this in English? What's X in English?*) This constitutes a marked difference to most EFL classrooms (Dalton-Puffer 2007). Also the teachers' repair activity is much concentrated on 'the right words and terms' and it is often impossible to detect a boundary between repairing content and repairing the way it is expressed. In short, *all* content errors are repaired, and despite what has been said above about learners actively seeking new vocabulary items, it is typical for teachers to initiate such content-oriented sequences and for students to complete them.

In situations of unequivocal language repair the typical pattern is different: teachers not only initiate the repair but also complete it, usually offering the students a corrected version of their utterance.

Extract 4. Teacher repair of pronunciation. History, grade 11

- | | | |
|---|----|--|
| 1 | S1 | the archaic period was a time of progrès and expansion |
| 2 | S2 | democracy is when äh citizens [saitisns] |
| 3 | T | [,sitizns] |
| 4 | S2 | äh citizens [sitisns] ahm .. vote |

Extract 5 Other-repair of grammar. Business studies, grade 11

- | | | |
|---|-----|--|
| 1 | Sm1 | or .. i i can became a silent partner. |
| 2 | T | i can become |
| 3 | Sm1 | become, yes, i'm terribly sorry |
| 4 | T | you could become a silent partner. okay. and this is exactly what people have to think about who have money and want to invest |

Note that there is no overt negative feedback ("wrong!", "no!") but teachers rather use recasts much the same as caregivers do in first language acquisition. In terms of the discourse dynamics this probably serves to keep the focus on content rather than deflecting it on linguistic form but it has been argued that such recasts may obscure to the students that something in their utterance has been corrected since reformulations in

follow-up moves are also a common for signalling acceptance of correct students answers (Lyster 1997, 2007).

The difference between content and language repair is, however, not only structural it is also quantitative: overall, language problems are not attended to with the same likelihood as content problems. In so far, research results support common perceptions about CLIL classrooms as being places where linguistic form is focused on significantly less than in EFL lessons. However, a study that makes a direct comparison is still missing and the generalisation leaves unaccounted for that EFL lessons do not inevitably consist of stereotypical grammar exercises. Moreover, it is also necessary to distinguish different types of language problems since the likelihood for them to be treated in classroom talk varies. In the Austrian data, for instance, lexical errors are always attended to, followed at some distance by pronunciation errors, while morphosyntactic errors are regularly ignored (only about 20% of grammatical errors are repaired in a discursive manner). That the order of preference (or rather dispreference) may also be different is shown by Lyster's (1997) study on Canadian immersion. There, it was pronunciation errors whose treatment was most strongly dispreferred.

Apart from such general tendencies, it is evident that individual teachers differ in their attitude towards language problems in the CLIL classroom. In interviews conducted with Austrian CLIL teachers, differences emerged between two groups of teachers who had received different kinds of training. Subject teachers who had no EFL qualifications professed that they were irritated by repeated low-level mistakes like the 3rd person singular -s and would definitely correct them in class. EFL teachers who were teaching their second subject through the medium of English, on the other hand, professed that in the CLIL lessons their attitude was that language mistakes didn't matter, something they would also convey to their students. Interestingly, in actual classroom interaction the behaviour of the two groups did not quite correspond to their self perception and the EFL teachers tended to correct more language errors than their non-EFL counterparts. No study has so far focused on the students' perception of these issues but one teacher mentioned in an interview that her students are actually more concerned about linguistic correctness than they are given credit for.

Extract 5. Teacher interview 4

die schüler sind da viel mehr viel strenger mit sich selbst und mit ihrem englisch als die lehrer und jaaa ((wiggles)) auch auch strenger als ich es bin.

//the students are much more much stricter with themselves and their english than the teachers and yeees ((wiggles)) also stricter than I am// [translated by CDP]

My own observations during fieldwork furnish supportive evidence for her perception and also show that for most CLIL classes language trouble and its correction appears to be a low stakes issue. It is dealt with as it arises, without visible face-threatening effects (see also Smit 2007).

5. *Conclusion*

As the previous sections have shown, research activities in the area of CLIL have gained momentum over the three or four years and are producing first interesting results. Studies on learning outcomes are beginning to show which areas of foreign language competence are most likely to profit from CLIL instruction (listening, vocabulary) and which seem to do so less (writing, syntax). Studies on CLIL classrooms, on the other hand, are producing evidence which can serve as an explanation for those learning outcomes. One important example in this connection would be the finding that content teaching is conducted almost completely without writing activities, a fact which I assume stands in direct relation to those outcome studies that find the advantage of CLIL students in writing to be small.

A very important realization arising from the classroom studies is that despite the differences between EFL lessons and CLIL lessons, both are specimens of educational interaction, conditioned by all the factors institutional education involves. As a consequence we need to state in no uncertain terms that not only EFL classrooms are limited language learning environments but so are CLIL classrooms, even though in subtly different ways. Conversely, each of the two offers unique opportunities for students to learn and use the target language that are difficult to reproduce in the other. Ideally then, EFL and the language dimension of CLIL ought to be integrated into one foreign language curriculum.

As I have shown in section 2 of this paper the learning goals which are formulated for CLIL tend to be unspecific at present. I would like to argue that in order to avoid stagnation of the CLIL enterprise it will be necessary in the future to state more explicitly which language learning aims are pursued through the practice of CLIL (and by implication, therefore, which are not or cannot be pursued but must be taken care of by EFL lessons or altogether different learning environments). Once these more concrete language learning goals come clearly into view, it should be easier for CLIL teachers to align their didactic/pedagogical decisions about teaching the content in such a way that their classrooms can be content- and language-rich. Very often what is good for language (such as having to actively encode new concepts for a specific audience) is also good for the content.

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