A DISCUSSION BRIEF OF CONTENT AND LANGUAGE INTEGRATED LEARNING (CLIL) AT THE FACULTY OF APPLIED SCIENCES

Kristin Bartik¹, Cyrielle Maerten², Ian Tudor³ and Jennifer Valcke⁴

¹ Professor of Chemistry and President of the Language Commission, Faculty of Applied Sciences (Université Libre de Bruxelles); kbartik@ulb.ac.be
² English Language Lecturer and Researcher, Faculty of Applied Sciences (Université Libre de Bruxelles); cmaerten@ulb.ac.be
³ Professor of Teacher Training and English Language Co-ordinator, Faculty of Philosophy and Letters (Université Libre de Bruxelles); itudor@ulb.ac.be
⁴ English Language Lecturer and Researcher, Faculty of Applied Sciences (Université Libre de Bruxelles); jennifer.valcke@ulb.ac.be

ABSTRACT

Linguistic support was provided for 2 years to the teachers and students involved in a Joint ULB / VUB Master’s programme in Chemistry and Materials Science taught in the English language (October 2007- October 2009), as well as a small number of teachers and students from the Aeronautics and Telecommunications sections of the Faculty of Applied Sciences of the ULB. This brief describes the pedagogical measures taken and the analysis of the data collected so as to provide recommendations for good practice in the implementation of Content and Language Integrated Learning (CLIL) at Higher Education. 16 experienced content teachers and 18 students were observed and interviewed. Results generally demonstrate that adaptations to teaching procedures and learning strategies are necessary both for staff and students, compared to teaching and learning in the mother tongue. Students required an adaptation period and found studying in English more tiring than in the mother tongue; they also expressed the wish for written support and course materials. Both students and teachers viewed CLIL as intellectually challenging, but nonetheless helpful in aiding students to become “global citizens”.

1. Introduction

In 2007, a partial Content and Language Integrated Learning (CLIL) programme –50% of courses offered in the English language – was implemented within the framework of a joint Master’s programme in Chemistry and Materials Science between the Faculté des Sciences Appliquées (FSA) of the Université Libre de Bruxelles (ULB) and the Faculteit Ingenieurswetenschappen of the Vrije Universiteit Brussel (VUB). Since the languages of instruction are French at the ULB and Dutch at the VUB, the English language was chosen as lingua franca for the joint courses offered to Master’s students. English will thus be examined as a second language (L2).

From 2007 to 2009, the ULB funded a researcher¹, to provide linguistic support to the teaching staff and students involved in the CLIL programme. The researcher interacted with Kristin Bartik, head of the Chemistry and Materials Science Department and President of the Language Commission of the FSA, Ian Tudor, Academic Co-ordinator of the Plan Langues in English, and Jennifer Valcke, Head Teacher of the English language programme at the FSA and who was also involved in teaching English at the Bachelor cycle. Teachers and students involved in the joint Master’s programme between the ULB and VUB were regularly monitored and advised. The present brief aims to report the findings collated over the two years of the project.

As mentioned above, English was chosen as the medium of instruction as a basis for the positive educational benefits generally attributed to CLIL. CLIL is defined as any dual-focused educational context in which a second language – English in the present case – is

¹ The funds were provided by the ULB’s Fonds d’Encouragement à l’Enseignement (FEE).
used as a medium in the teaching and learning of non-language content – engineering courses in the present case (Marsh and Laitinen, 2004). CLIL is a generic term which encompasses the types of methodology found in a range of learning environments where content is taught through the L2.

In the context of the joint ULB / VUB Master’s programme, a CLIL approach was chosen to develop English language competences through the teaching of curricular content (for more information on the different types of CLIL approaches please refer to Marsh and Laitinen, 2004). The teachers involved spoke L2 in the lecture-based components of the course, and teaching assistants also sometimes interacted in the L2 during the practicals and laboratory work – a fair amount of code-switching also took place between teaching staff and students and among students themselves. During assessments and exams, L2 proficiency was not assessed in its own right. The students could choose to present their exams in either the language of their institution or in the L2. It was observed that a majority of students chose the L2, indeed the students found it more coherent to sit their exams in the medium of instruction since their notes were in the L2 and their teachers had also taught them in the L2. Code-switching was also allowed during oral exams in order to facilitate communication, but generally students reverted to or were asked to revert to L1 only as a last resort in order to clarify content.

It must also be noted that the sample group of 18 students and 16 teachers that was observed and interviewed was fully aware of the study. The group thus felt an integral part of this project. Additionally, the interviews and observations were carried out by Jennifer Valcke and the researcher hired for the second year of the project, Cyrielle Maerten, who were already familiar with the student population involved but who were not their English Language teachers. The students knew these persons well and it seems that they spoke freely and without inhibitions to them since they were not directly assessed or tested by them.

**CLIL in Higher Education across Europe**

CLIL encompasses the types of methodology found in a range of learning environments where dual-focussed education is conducted. Interest and implementation of CLIL in European Higher Education (HE) has expanded rapidly over the past decades. It is clear that if European citizens are to reap the benefits of an integrated Europe and be more competitive in the global arena, the EU’s goal of multilingualism is a necessity. With CLIL and its dual focus, students can put the language they are learning into practice instantaneously – a powerful motivational factor – and institutions can avoid overloading an already crowded curriculum; provided, of course, students have already attained a certain threshold in the L2 (please refer to the next section for a discussion of this minimum target level).

In 2008, the European Commission’s Action Plan for language learning and linguistic diversity underlined the major contribution that the teaching of a subject through the medium of a foreign language can make to the EU’s language learning goals – two languages in addition to the mother tongue. European initiatives promoting CLIL include the European Language Label for innovative projects in language teaching and learning and the Leonardo Da Vinci, Comenius and Grundtvig programmes.

---

2 Code-switching means that teachers and students sometimes revert to their L1 (Dutch or French or even both) in order to explicitate concepts and notions related to course content. It was observed that students appreciated code-switching mostly during the adaptation period (6 to 8 weeks, see infra).

3 A summary of the events leading up to the implementation of CLIL in Europe can be found at [http://clilcom.stadia.fi/1702](http://clilcom.stadia.fi/1702)

4 For more information, please visit [http://ec.europa.eu/education/languages/european-language-label/index_en.htm](http://ec.europa.eu/education/languages/european-language-label/index_en.htm)

5 For more information, please visit [http://ec.europa.eu/education/lifelong-learning-programme/doc82_en.htm](http://ec.europa.eu/education/lifelong-learning-programme/doc82_en.htm)

6 For more information, please visit [http://ec.europa.eu/education/lifelong-learning-programme/doc84_en.htm](http://ec.europa.eu/education/lifelong-learning-programme/doc84_en.htm)

7 For more information, please visit [http://ec.europa.eu/education/lifelong-learning-programme/doc86_en.htm](http://ec.europa.eu/education/lifelong-learning-programme/doc86_en.htm)
Institutional Background

In light of increasing globalisation and mobility, the FSA wishes to prepare its future graduates for the challenges of a multicultural and multilingual environment. The FSA’s pedagogical support team (BAPP) designed a Competency Framework clearly setting out the competencies and learning outcomes targeted by the faculty’s academic and professional training. Among these learning outcomes, one can find:

- The ability to understand and accommodate the impact of interpersonal communication in different contexts: hierarchical relations, cultural differences, conflict situations, etc.
- The ability to provide constructive feedback.

These learning outcomes are not language-specific, but they clearly place effective communication on the broader learning agenda of the faculty and provide support for the English language programme set up under the ULB’s “Plan Langues”.

The “Plan Langues” aims to offer a majority of ULB students language courses in the Bachelor cycle of their academic programme, essentially English and Dutch, with a weighting of 8 ECTS.

At the FSA, the 8 ECTS of English language tuition are spread over the complete Bachelor cycle (2 ECTS in BA1, 2 ECTS in BA2 and 4 ECTS in BA3). Teaching is conducted in groups of 25-30 students and organised according to language level defined with respect to the Common European Framework of Reference for Languages (CEFR), with B1+ as minimum target level for all language skills at the end of the BA3. This target level was chosen as a suitable L2 minimum threshold for students to be able to understand and follow university courses.

The main learning outcomes targeted are:
- Students’ ability to understand lectures and to take notes in their specialist domain;
- Students’ ability to understand specialist written material in English relating to their specialist domain;
- Students’ ability to write coherent textual material in English in their specialist domain, and to express themselves clearly and coherently in the spoken language on academically and professionally relevant topics.

The Rationale behind the Plan Langues at the FSA

The approach to course design and materials development during the Bachelor cycle is based on English for Academic Purposes (EAP) and pre-experience English for Specific Purposes (ESP) in order to link the English language courses effectively to the Engineering curriculum. EAP grounds the teaching of English in the cognitive, social and linguistic demands of particular academic contexts, tailoring instruction to specific rather than general purposes (Benesch, 2001; Hyland and Hamp-Lyons, 2002). In addition to preparing learners for study through the medium of English, EAP instruction is also concerned with developing the communicative skills necessary for students to participate in particular academic discourses (Hyland and Hamp-Lyons, 2002). It is interesting to point out that one pedagogical approach discussed in EAP scholarship for achieving these goals is L2-medium instruction or CLIL. In such an approach, language instruction is integrated within a specific academic context as students follow concurrently language and discipline-specific content courses (Brinton et al., 1989; Johns, 1997, 2001).

The Faculty of Applied Sciences’ EAP and pre-experience ESP language programme is based on collaboration between its language teachers and its content-teaching Faculty members.

---

8 To read the Competency Framework of the FSA, please visit [http://www.ulb.ac.be/facs/polytech/](http://www.ulb.ac.be/facs/polytech/), under “présentation”

9 For further information on the “Plan Langues”, please visit [http://www.ulb.ac.be/planlangues/](http://www.ulb.ac.be/planlangues/)
Such collaborative efforts are described as clearly effective (Benesch, 2001) and require coordination of instruction, activities and assignments between language and content instructors. The major goal of the content-linked language course offered over the Bachelor cycle is to equip students with the necessary academic literacy skills across the curriculum and the genre knowledge necessary for them to succeed academically, as well as enable them to follow Master’s courses in English. Indeed, CLIL in the English language at Master’s level will spread across the FSA to other sections from 2010-2011.

Beyond the linking of language and content, additional components, such as partaking in events organised by the Board of European Students of Technology (BEST)10, mobility partnerships (Erasmus, TIME) and work placements form an integral part of the Engineering curriculum at the FSA. Such initiatives create additional L2 learning and social communities that further enhance students’ motivation.

2. Focus of this brief

The purpose of this brief is to consider the potential role of CLIL in improving L2 learning among postgraduate students involved in Engineering. It will serve to deepen insight into how HE institutions, and other stakeholder organizations, could implement CLIL successfully in diverse forms at the Master’s level so as to promote multilingualism. Apart from ACA 2002 and LANQUA-CLIL11 there is very little existing data or discussion on L2 medium of instruction in the creation of a European HE area resulting from the Bologna Process.

This report is based on information pertaining to CLIL practice in primary, secondary and tertiary level, as well as L2-medium education in European HE. It will present the results of a pedagogical innovation project carried out in the Faculties of Applied Sciences of the ULB and the VUB from 2007 to 2009, which sought to identify good practice in the field of L2 instruction at HE. This should contribute to further discussions on the transferability of good practice across different academic contexts.

3. Study

Our objectives were twofold: to investigate the impact of English-medium instruction on learners – namely on learning strategies, motivation, language outcomes and performance – and on practitioners – namely on methodology, teaching skills and assessment. The underlying assumption at the start of the pedagogical innovation project was that both students and content teachers (most of whom were non-native speakers of English) would demonstrate adaptability within an English-medium mode of instruction. It is hoped that the present overview will generate guidelines for the practical implementation of CLIL programmes in a manner that is relevant to a variety of HE contexts.

Method

This brief reports findings from a qualitative survey of 16 highly experienced content teachers from the ULB and VUB (the majority of which teach within the Chemistry and Materials Science section, but also one teacher from Telecommunications and two teachers from Aeronautics) and 18 postgraduate students from the Chemistry and Materials Science section of the FSA at the ULB. Only one of the respondent teachers was a native speaker of English and most, but not all, respondents were Belgian (native speakers of either French or Dutch). Some informal discussions were also conducted with 5 VUB students and 6 Erasmus students. It was noted that there was a noticeable difference between ULB and VUB students in terms of L2 knowledge – none of the VUB students reported having linguistic problems. It would seem that the VUB students’ cultural background also played a difference in their reception of the CLIL programme. This can probably be explained by the fact that Flemish

10 For more information, please visit http://www.best.eu.org/index.jsp
11 For more information, please visit http://www.lanqua.eu/theme3.html
students’ level of English is higher due to their increased level of exposure to the language from a relatively early age.

Results were collated by various means: classroom and exam observations of teaching practice and student interaction, individual interviews of students and teachers, and group feedback sessions. All the interviews and feedback sessions were recorded and subsequently transcribed. Observation grids were used to assess classroom practices. The elements focussed on in the teacher grids were: presentation of aims and objectives, structure, delivery, use of materials, management of classroom work, etc. The elements found in the student grids included: interaction with teacher, interaction among students, etc. Observation grids were also used during the oral examinations in order to monitor the students’ language level using the Common European Framework of Reference scales. A copy of all the grids can be found in the Annexes.

All the students involved (12 students in MA1 and 6 students in MA2) were interviewed individually using a structured questionnaire. This questionnaire comprised 7 questions. The first 2 questions dealt with a self-assessment of L2 progress and their changes of learning strategies in order to adapt to an L2 environment. The next section contained 5 open questions asking about the teaching approach that helped students most, about their assessment of their teacher’s ability to use English as an effective tool to teach content, about the adequacy of their own L2 ability and about the teaching support they felt was necessary to facilitate learning. A copy of this questionnaire can also be found in the Annexes.

**CLIL in Higher Education**

As reported in the literature (Dalton-Puffer, 2007), it was rather difficult to obtain explicit statements from respondents about the exact goals pursued via CLIL. Aims such as “increasing exposure”, “increasing practice”, and “increasing language competence” were regularly formulated in conversation with teachers and students. There was also some mention of the intercultural aspect of having another language in the classroom and being confronted to a different learning environment.

The cognitive and content aims, together with exposure to a different culture, have played a much more prominent role in expert descriptions of CLIL goals. The following extract of the CLIL Compendium lists the goals associated with CLIL: 12

- 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 and forms of classroom practice;
- Increase learner motivation.

The hopes and expectations placed in CLIL have received much support (Dalton-Puffer and Smit, 2007) and also possess a good deal of face validity. What is still lacking, particularly at HE level, is supportive evidence in the shape of research results. It is for this reason that the present brief reports on the pedagogical innovation that was carried out by the ULB from 2007 to 2009.

**The Language of Classrooms**

This section will present the various aspects of the interaction which occurred during the CLIL lessons observed (for the interactive nature of CLIL classrooms see Dalton-Puffer, 2007). Individual cognition is closely linked to the modes of social interaction to which the individual is exposed in the CLIL classroom (Vygotsky, 1978). In the present context, it

12 For further details, please visit [http://www.clilcompendium.com/](http://www.clilcompendium.com/).
should be noted that different teachers use different pedagogical approaches and methodologies tailored to the specificities of content matter taught at HE level. It is recommended that student-centeredness and interactive methodologies be used whenever possible.

If we want to examine the types of linguistic activities students were exposed to in lectures, simple arithmetic tells us that with 14 students in a class, if each has a say in a 50 minute lecture, their speaking time can never exceed 5 minutes since the teacher also has to speak. It thus follows that CLIL students are listeners most of the time. So, what type of spoken input are students exposed to? Teacher presentations, extended teacher speech, teacher questions, teacher feedback, student answers and questions, occasionally student presentations. Since the transmission of content matter is all-important at HE, university courses are largely lecture-based and teacher-fronted. During lectures and on a linguistic level, the students are exposed to longer pieces of oral language which set out facts and concepts, as well as their semantic relations, in a coherent discourse of syntactic and textual complexity. In terms of language production this means students most frequently build on their passive language skills, which they can only effectively employ later in the context of practicals, laboratory work and examinations. Indeed, due to their interactive nature, laboratory work and practicals help consolidate language learning as well as the assimilation of content. Many students mentioned that lecture-based teaching benefitted them less linguistically than more interactive approaches. Nonetheless, it should be highlighted that all students reported improvements in vocabulary acquisition whether teachers used teacher-fronted or student-centred pedagogies.

Classroom practices varied greatly between content teachers. Students sat more passively in teacher-fronted classrooms, many appreciated the more interactive nature of student-centred activities. One student commented: “When I sit in a lecture when it is just the teacher speaking for the whole time I get bored. It would be nice to have more interaction in class. Some teachers prefer to talk to the students, to make sure they have understood, and I prefer that”13. Many students added that interactive activities, usually inserted in a traditional teacher-fronted lecture, not only provided a change of pace but also the means to “catch up” when students were no longer able to focus on the content: “When a teacher is just bombarding you with information, it is easy to switch off. Also if I do not understand a specific word or expression I will switch-off. If teachers stop at regular intervals to question students or do an activity related to the topic, it allows me to get back on track and I am again able to concentrate [on the content]”.

All the students involved described following CLIL courses as more challenging and more tiring: “I always feel more tired after listening to lectures in English, because I have to concentrate more”, “It was tiring to speak English all the time, so sometimes I would speak French [code-switching] to the teacher”. Interestingly, two of the teachers involved also mentioned the extra cognitive load which teaching in an L2 entailed, and both concluded to feeling more tired as a result.

Another aspect of practice in certain CLIL classrooms which was appreciated by students was the feedback they got from their teachers. Students described this feedback as more elaborate and offering an additional opportunity for student comments, as one student commented: “The teacher structured the course so that after about 30 minutes of theory, we would be divided into groups of mixed ability – in language and in content – and we had to apply the concepts learned to solve a simple problem in about 10 to 15 minutes. This made sure we had understood the initial concepts but also it allowed us to ask questions to other students and to the teacher, too – and all that in English!” By virtue of having more loosely structured interaction patterns, certain CLIL lessons offered learning opportunities by which students developed their command of the target language. Many students suggested that courses for

13 All student and teacher comments were transcribed from recordings and errors were not corrected. All the comments that were made in French were translated in English for the purposes of this brief.
which an interactive teaching process was not considered appropriate, the practicals and laboratory work related to it should be conducted in L2. Indeed, students described this context as ideal for practising the L2 in an informal way. It would seem that when students take part in interactive activities, they are involved in explaining concepts in words of their own choice and thus benefit in terms of content and language.

Classroom discourse can be seen as the central source of students’ linguistic and intellectual experience at university and studying classroom interaction has provided us with information on what linguistic actions students take part in actively and passively. On the one hand, and somewhat contrary to the expectations set into CLIL (Mewald, 2004), it was observed that in the experimental group: students used much less English than expected, in very limited situations. Contexts where students are required to interact in L2, such as laboratory and exercise sessions, should therefore be encouraged.

On the other hand and as an advantage of CLIL, students often mentioned that they felt more relaxed in using the foreign language because the focus of attention was on content and not on linguistic form. They commented that they felt less inhibited to speak out than in their English language courses: “The teacher’s English was good but the pronunciation was not perfect, so it showed me I did not have to be perfect to speak”, “Since following the courses in English, I participate more in class discussions because I want to make sure I have understood properly”, “I now feel more confident to speak out, even if I make mistakes”. It would seem that this type of linguistic interaction is much closer to how conversations are conducted outside classrooms and therefore more “natural” for students. During the feedback sessions, the teachers described that in the CLIL classrooms their attitude was that language mistakes did not matter, something they would also convey to their students. Interestingly, students seemed to have responded positively to this: “The most important thing was to communicate”, “I know I still make mistakes, but at least I can get my message across”, “I will always try to speak in English, even if it is not perfect”, “I was very worried before the January exam session, but once the first exam was over I understood that my English did not have to be perfect for me to do well”, “When you listen to different professors speak in English, it helps you to learn the correct usage”, “I have really made great progress, especially in formal language”. Nevertheless certain comments testified of students’ growing language awareness: “I am starting to correct myself”, “I am more at ease and can backtrack if I have made a mistake”, “I look for the correct expression now”.

**Language and Learning Outcomes**

Unsurprisingly, the students’ and teachers’ statements on language learning outcomes were globally positive. Students reported that they reached significantly higher L2 levels than by conventional foreign language courses: “I really learned more language and more quickly than during the Bachelor’s English courses”, “A lot of the stuff I learned during the English courses was just passive, now I have to use it”.

As mentioned earlier, student L2 proficiency was not formally assessed during examinations at master’s level. The students’ English level on entering university was known, since it is compulsory for students to take the Oxford Placement Tests so that they may follow English language courses tailored to their language level during the three years of the Bachelor cycle. All results are calibrated to the Common European Framework Reference levels (A1-C2). Jennifer Valcke was present during some of the MA content course oral examinations and was able to assess the students’ L2 progress using the grid that was used at the end of the BA3 EAP and pre-experience ESP programme. The grid focuses on spoken production and spoken interaction, the main skills used during the oral examinations of the BA3 English course (for a copy of the grid, please refer to the Annexes). The grids proved especially useful in some exams as the format of these oral examinations were similar to the format of the BA3 exam, i.e.: a PowerPoint presentation followed by a question and answer session. The students’ L2 progress can be found in Figure 1 below, with CEFR levels upon entry, at the end of BA3 and after 1 or 2 years of the CLIL programme in Chemistry and Materials Sciences. During the
academic year 2008-2009, S1 to S12 followed the MA1 curriculum and S13 to S18 followed the MA2 curriculum. It must be pointed out that S13 to S18 were not assessed in terms of language level at the end of their MA1 curriculum in 2007-2008.

It is clear that under CLIL conditions, certain aspects of language competence develop further than others. After assessing students’ linguistic abilities either at the end of 1 or 2 years of CLIL, it was noted that the areas where clear gains are observable are receptive skills, vocabulary, domain-specific terminology, and fluency; while the areas where gains could not be assessed or were more difficult to assess are syntax, writing, informal and non-technical language and pronunciation.

![Figure 1: Student L2 level upon entry into university, after 3 years of EAP and pre-experience ESP and after either 1 or 2 years of CLIL. Note that student progress was recorded on a 20 point scale which corresponds to the following: A1 = 0 to 7/20; A2 = 8 to 9/20; B1 = 10 to 12/20; B1+ 13/20; B2 = 14 to 15/20; B2+ = 16/20; C1 = 17 to 18/20; and C2 = 19 to 20/20. (S13 to S18 are MA2 students who were not evaluated at the end of their MA1 year)](image)

While general language gains were observed by observers and students alike, it seems students’ self-assessment particularly highlighted improvements in their communicative competence: “I feel I can communicate more fluently”, “I do not have to look for words so much”, “When I speak it flows, I don’t have to think as hard to express myself”.

When asked to compare their progress in the CLIL classes to their English language curriculum during the Bachelor cycle, students of strong and weak language levels remarked that they had progressed more effectively with the CLIL programme: “I have made really great progress since having lectures in English”, “I have really developed my vocabulary”, “I don’t feel nervous anymore and this is a great improvement”. It seems that CLIL classes significantly enhanced the language skills of those students with high proficiency: “My level was already good, but I can really use a wide range of expressions now and really express complex ideas effectively”. They also affected a significantly broader band of students, whose foreign language talents or interest are average, “I was really worried at first because I just did not understand anything, but after a while the fog lifted”, “I have really progressed in listening and reading because it was really hard at first”, “I now understand everything the teachers say, but it was not the case at the beginning of the year”. This is an effect that has been observed repeatedly in other studies (Mewald, 2004, and Eder, 1998).
Figure 2 below reflects students’ perception with regards to their personal progress in L2. It shows the average response obtained from students in answer to the question: “Have you made any progress in the English language since you started CLIL?”

Figure 2: 12 MA1 and 6 MA2 Chemistry and Materials Sciences ULB students were asked to self-assess their progress since they started the MA programme in English. Items were rated on a five-point scale (1= no progress and 5 = great progress).

Students also reported that they modified their learning strategies in response to the new challenges posed by L2 teaching: “I tried to do the same as in French, but I realised that I had to change my way of working because it was not the same in English”, “I first started to take notes in French but I was confused when I read my notes afterwards. Then I changed to taking notes in English and there has not been any problem since”, “I needed to consult the reference book often to check that I had understood the concept well”, “I started looking at other references and this has really increased my general knowledge, too”.

Many weaker students wanted to countercheck their understanding of the content using reference books: “Whenever I was not sure that I had understood a concept or wanted to verify that what I had understood was correct, I used reference books. I never do that in French”. Being taught in a language which students do not master fully, also offers additional motivation for reading: “I hadn’t realised before that there was so much scientific information in English”, “I use online encyclopaedias now and I always look up related concepts. This helps me to make links with my existing knowledge and broadens my scientific culture”.

Students were also asked to introspect about the impact of CLIL on their learning strategies Figure 3 shows the average response from students when asked: “Did you change or adapt your learning strategies to suit the CLIL programme? If so, how?” Responses reflect the fact that students find it extremely difficult to reflect upon their own strategies and techniques.
Figure 3: 12 MA1 and 6 MA2 Chemistry and Materials Sciences ULB students were asked to assess the changes to their learning strategies since they started the MA programme in English. Items were rated on a five-point scale (1= no change and 5 = radical change).

Weak as well as strong L2 students felt they needed an adaptation period at the beginning of the CLIL programme (the first weeks of MA1) in order to tune in to using L2 in the classroom – this period varied from 2 to 8 weeks according to the students’ initial L2 knowledge. Students reported: “I was completely lost at first, I did not understand much of what the teachers said. With time, I realised that I understood more and more and was then able to change the way I took notes”, “I found that I had to plan my preparation for exams differently because it took me more time to study in English”, “In the end, I benefitted from the language and the content, so it’s a double bonus”, “It made it easier when the teacher allowed us to use French [code-switching] in class at the beginning of the year”. All students felt they needed a short adaptation period (5 to 10 minutes) at the beginning of each class: “At the beginning of every class in English, it took me a few minutes before I could settle down to following the lecture”, “It is great when the teacher starts the class by summarising the last course. It refreshes your memory as well as reminding you of the specific terminology”, “I always need a few minutes before I can put my English thinking cap on”. It is clear that students successfully adapted their learning strategies in view of their different linguistic environment.

It is true that a CLIL programme such as the one offered by the ULB and VUB does not offer the same amount of contact with the target language as immersion programmes (e.g. an international exchange). It nonetheless contributes to enhancing language skills by enlarging the number of speakers to which learners are confronted face-to-face. Students perceive this exposure to different types of pronunciation and accents in a positive light: “Because my English isn’t good, I was glad to hear teachers with a French accent. It was easier to understand”, “I now know that you do not have to speak English perfectly to communicate complex notions”, “I really enjoyed being taught by a native speaker, it really helped improve my pronunciation”, “I can now correct myself because I have heard the word pronounced correctly”.

In terms of the productive skills, with regards to speaking, students reported greater gains in fluency, range and ease of expression: “I can speak more freely”, “I can now speak English for longer periods of time”, “I can express myself better orally”. This presumably stands in direct association with the positive affective effects often associated with CLIL: after a certain amount of time spent in CLIL lessons the learners, even the weaker ones, seem to lose their inhibitions to use English spontaneously for face-to-face interaction. In terms of writing, very
few students reported improvement in their writing skills due to the fact that they did not practise this skill extensively: “My writing has not improved. This is probably because it is the skill we use the least”. Improved general formal language skills (complex sentence structure, formal register of language, formal vocabulary) were observed in all the students during their oral examinations. All students were reported to have improved their spoken production and interaction skills, as well as their knowledge of formal language use.

The greatest linguistic gain, however, is undoubtedly found in the knowledge of domain-specific terminology: through studying content subjects in the foreign language CLIL learners possess larger vocabularies of technical and semi-technical terms. One student reported: “What I learned most were the terms and concepts associated with the topics we were taught. I now have a lot of vocabulary related to my field of study and this will really help me in my future job”.

Interestingly, it has been demonstrated that domain-specific vocabulary gains are particularly great if it is worked on explicitly in a classroom setting – and vocabulary is the only linguistic aspect to be explicitly treated by content teachers during classroom observations (Matiašek, 2005). It must be noted that while an improvement in lexicon was often related by the students, this advantage is clearly constrained to technical language while the general and informal registers do not profit at all or to the same extent (this was also reported by Sylven, 2004). One student describes his experience: “I can have a formal discussion about polymers and about NMR spectroscopy, but I still find it hard to have an everyday conversation talking about the weather”. It is possible that students will thus not acquire the scientific and technical terminology of their field of specialisation in the L1, but this may be compensated for by the fact that there is a higher probability of them using English in the professional setting.

Since no 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 they are exposed to during content teaching (Vygotsky, 1978). In other words, the structures of classroom discourse are the key to explaining the learning outcomes as they have been presented in this section. As mentioned previously, this position implies a specific stance towards language learning which highlights the nature of learning as a socio-cognitive activity that cannot be dissociated from its situative context (Dalton-Puffer, 2007; Lantolf and Pavlenko, 1995; and Lantolf, 2002). In CLIL, it is widely assumed that input as such functions as a trigger for acquisition processes which unfold independently of context.

**Outcomes of CLIL Education**

After dealing with the language learning effects of CLIL education, the content outcomes will now be discussed. Many teachers involved in this programme showed continuous concern for the effects L2 teaching had on the subject knowledge and skills of the learners. They feared that since the medium of instruction was not the L1, this would lead to reduced subject competence either through the students’ imperfect understanding or through the fact that teachers would simplify contents (for a discussion of content simplification, please refer to Hajer, 2000).

Students generally stated that they possessed the same amount of content knowledge as their peers who had previously been taught in L1: “When I compare what I know with students who have already graduated and were not taught in English, I don’t see any difference”, “I think there is no difference in terms of the assimilation of information”. Students claimed that this had to do with them working more persistently on tasks: “It takes me more time to assimilate content than in French but I am motivated and do the effort in English”, and showing higher tolerance of frustration: “Even if I don’t understand everything the teachers say and have to use the dictionary a lot, I keep on because I know that it will get better”.

In our limited sample, it would thus seem that linguistic problems, rather than leading to task abandonment, often prompted intensified mental construction activity – through elaborating and relating details and discovering contradictions – so that deeper semantic processing and
better understanding of curricular concepts can occur (this confirms the work of Dalton-Puffer, 2007 and Vollmer et al., 2006). Indeed, students described switching to the L1 when a conceptual problem occurred without necessarily finding the solution to this problem: “When I did not understand a notion well, I looked into reference books in French and found that it was not the language that was the problem but my comprehension of the content!” It certainly seems that, rather than being an obstacle, L2 processing actually enhances the quality of learning subject-specific concepts. While weaker L2 students described CLIL as a challenge, stronger ones described it as an obstacle. However, they all felt that being taught in the L2 provided them with the motivation they needed for the programme. It is also worth noting that while the weaker L2 students had reservations and even fears about embarking on the CLIL programme, they were adamantly in favour of its implementation.

4. Conclusions

After collating and analysing the data gathered from 2007 to 2009 from the students and teachers involved in the implementation of Master’s programmes taught partly in English, the following general observations can be made:

- All the respondents involved in the qualitative study reported that this CLIL programme was effective due to its dual-focus. Although some students were reluctant to follow their courses in the L2, they rose to the challenge posed by L2-medium instruction.
- Students favoured interactive activities during teacher-fronted lectures and cohesion between lectures and their supporting practicals in terms of L2 use.
- The content teachers expressed reservations about their ability to speak spontaneously and express nuances. Similar levels of discomfort were tolerated more easily among the students.

There are a number of risks reported in implementing CLIL in HE, which could possibly lead to an impoverishment of the quality of learning unless certain guidelines are followed. This is in part due to the fact that language specialists in HE have generally not been included in decision-making, planning and implementation of CLIL programmes (Marsh and Laitinen, 2004). CLIL is an educational approach whose success fundamentally depends on careful methodological planning, and should HE content teachers remain unaware of the necessary methodological approaches required by CLIL there is a clear risk that the quality of teaching and learning may suffer. CLIL in HE requires specific skills in handling cognitive load and mixed language ability classes and this needs to be brought to the attention of the content teachers involved in CLIL. Furthermore, there is a clear role for collaboration between content and language teachers in order to maximise the overall quality of L2 medium instruction.

Given the many changes in HE brought about by the Bologna Process, an increasing number of Master’s level courses are being planned to be taught through English as an L2. This entails the risk that academic departments, already pressurised to reduce time allocated to subject matter, may feel inclined to reduce allocation of time for language teaching. L2 teaching at Bachelor level remains crucial however since students need to have reached the threshold necessary for following MA courses in L2 (B1+ level on the CEFR scale).

In Europe, professionally-oriented HE, such as engineering and business studies, have a long history of partial teaching through an L2 – and Erasmus exchange programmes are currently strengthening the position of English as a favoured language of instruction. Preparation of students for Master’s level and exchange programmes in the L2 also need to be initiated at the Bachelor level as it has been done in the FSA, where it focuses on the development of L2

---

14 It is projected that there will be 3 million Erasmus students by 2010.
academic study skills. Indeed, certain core courses could be taught in the L2 as early as the later phases of the Bachelor cycle.

A significant success factor in the implementation of a CLIL programme at Master’s level HE is the L2 fluency of academics. It is often assumed by university decision-makers that all academics are able to adapt their teaching methods to L2-medium instruction. In certain cases, academics may also overestimate their ability to use L2 as the medium of instruction. The cognitive complexity involved in HE education is high, and thus an equally high level of linguistic competence is required by teaching staff and students alike.

It is clear that the risks associated with an insufficiently planned application of CLIL programmes at HE and ensuing poor practice can undeniably lead to a decrease in the quality of both teaching and learning. In developing specific HE institutional language policies, focus needs to be placed on the medium of instruction.

5. Recommendations

It is hoped that the data gathered by the pedagogical project on CLIL at the FSA will shed further light on good practice within the ULB and the VUB. Furthermore and within the framework of the continuing joint ULB / VUB Master’s programmes taught in English, it seems regrettable that no linguistic support will be provided to either teaching staff or students. For this reason, it would be relevant to design a “CLIL Student Guide” and a “CLIL Teacher Guide” for future dissemination to interested parties.

The student guide should highlight the following:

- Students should take notes in L2 from the onset since translating adds to the cognitive load and specialised terminology may not be known in the L1.
- Code-switching should be allowed but students should be encouraged to make the effort to practise L2 as much as they can.
- Students should make the most of the interactive nature of lectures, whenever this is possible, as well as use L2 during laboratory sessions and practicals as much as possible. Students should not hesitate to take advantage of practising L2 whenever this opportunity arises. Additionally, students should ask questions regarding vocabulary whenever they experience difficulties.
- The adaptation period all students experience in the transition from being taught in L1 to L2 can be very challenging, but this will get easier with time. To make the transition easier, students should attempt to read and speak as much L2 as possible outside their CLIL classes.
- Students should ensure they have specialised dictionaries (in paper version or online) and prepare their course before coming to class. This means reading through the PowerPoint slides, making full use of reference books, preparing unknown vocabulary and domain-specific terminology before the course.
- Exam preparation should be done in L2 and all students should attempt to present or sit their exams in L2, code-switching should only be used as a last resort.

The teacher guide should emphasize the following:

- With regards to the adaptation period reported by the majority of students – 2 to 8 weeks at the onset of the programme and the first minutes at the beginning of every course – it is recommended that teachers take this into consideration when designing their course. In this light, teachers are encouraged to pay particular attention to their rate of speech and to new vocabulary. It would also prove useful to use the first few minutes of each course to summarise the contents of the previous course or introduce the topic by getting the students to discuss what they already know about it.
The use of materials and support is crucial. Lectures need to be accompanied by a written support: course manual or PowerPoint slides, as well as reference books in the L2. These need to be given to the students before the course so that they may prepare the unknown vocabulary in advance.

Key words should feature on the slides – from the current study it was noted that weaker L2 students appreciated that the slides were annotated, whereas stronger L2 students expressed their preference for annotating them themselves.

All reference books should be in L2 and the course should follow a recommended reference book, if at all possible. Many students countercheck their understanding of the content using reference books. The students interviewed here also discussed using glossaries and would have liked their teachers either to hand one to them or to recommend one online.

Different accents and different types of pronunciation are not perceived negatively by students: whether the teacher is a native speaker or not, whatever his/her L1. What transpired as crucial here, however, was the teacher’s rate of speech, regardless of accent, as students generally struggled when the teacher spoke too fast. Teachers should therefore pay particular attention to their speed of speech.

L2 should be used in lectures, laboratory work and practicals whenever possible. Lecturers and assistants should always try to answer in L2 even if students ask them first in their L1 (whether French or Dutch). This means they may sometimes have recourse to paraphrasing and reformulating to explain certain concepts.

Interactive classroom approaches allow more time for student questions and comments and are also a welcome change of pace for students to catch up should they have lost the chain of argumentation, or just to relax since the cognitive load of being taught in L2 is strenuous. Teachers should therefore be willing to critically assess their current teaching style and integrate an interactive approach whenever this is possible.

Group work is also recommended. It is advisable for teachers to divide the class up into groups mixing students from different backgrounds (e.g.: students from the ULB, the VUB and on Erasmus exchanges in the current study) in order to make sure there are mixed abilities in terms of language and content knowledge.

Students should be given the choice to present their exams in either L1 or L2, but teachers should clearly encourage the use of L2.

Academic staff should seek feedback from their students. In this study, the teachers reported that they clearly benefitted from individual and group discussions with language teachers, in particular on issues such as how to deal with code-switching, different language competences, content learning and assessment.
6. Bibliography

ACA (2002); English-Language-Taught Degree Programmes in European Higher Education: Trends and Success Factors (Lemmens: Bonnschools, 2002)

Benesch, Sarah (2001); Critical English for Academic Purposes: Theory, Politics and Practice (Mahwah, NJ: Lawrence Erlbaum)

Brinton, Donna; Marguerite Snow and Marjorie Wesche (1989); Content-Based Second Language Instruction (New York: Newbury House)

COM 2008, “Multilingualism: an asset for Europe and a shared commitment”, Communication from the Commission to the Council, the European Parliament, the Economic and Social Committee and the Committee of the Regions, 18th September 2008

Eder, Christiane (1998) English across the curriculum (Diplomarbeit: University of Klagenfurt)

Dalton-Puffer, Christina (2007); “Outcomes and Processes in Content and Language Integrated Learning (CLIL): Current Research from Europe”. In: Werner Delany and Laurenz Volkmann (eds), Future Perspectives for English Language Teaching (Heidelberg: Carl Winter)

Dalton-Puffer, Christiane and Ute Smit (eds) (2007); Empirical Perspectives on CLIL Classroom Discourse (Franfurt: Peter Lang)

Eder, Christiane (1998); English across the Curriculum. (Diplomarbeit: University of Klagenfurt)

Hajer, Maaike (2000); “Creating a language-promoting classroom: content-area teachers at work”. In: Hall, Joan Kelly and Lorrie Stoops Verplaetse (eds.) (2000); Second and foreign language learning through classroom interaction (Mahwah N.J. and London: Lawrence Erlbaum Associates); pp265-285


Johns, Ann (1997); Text, Role and Context: Developing Academic Literacies (New York: Cambridge University Press)


Lantolf, James. (2002); “Sociocultural Theory and Second Language Acquisition”. In: Kaplan, Robert (ed.), Oxford handbook of applied linguistics (Oxford: Oxford University Press); pp 104-114


Marsh, David and Jenni Latitonen (2004), ENLU TG4 – Medium of Instruction (Jyväskylä: Continuing Education Centre, University of Jyväskylä)

Matiassek, Stefanie (2004); English as the language of instruction in Austrian chemistry lessons: instance of explicit language teaching (MA thesis, University of Vienna)

Mewald, Claudia (2004); Paradise Lost and Found. A Case Study of Content Based Foreign Language Education in Lower Austria. Unpublished PhD Thesis (Norwich: University of East Anglia)

Sylvén, Liss Kerstin (2004); Teaching in English or English teaching? On the effects of content and language integrated learning on Swedish learners’ incidental vocabulary acquisition (PhD dissertation: Göteborg University)
Tudor, Ian (2008); MOLAN RES1 Université Libre de Bruxelles 1: Faculté des Sciences Appliquées, website on the Internet, http://www.celelc.org/docs/brussels_ulb_tudor2_1.pdf, last consultation August 2009

Université Libre de Bruxelles, Plan Langues à l’ULB, website on the Internet, http://www.ulb.ac.be/planlangues/, last consultation August 2009

Vollmer, Helmut Johannes, Lena Heine, Randi Troschke, Debbie Coetzee and Verena Küttel (2006); Subject-Specific Competence and Language Use of CLIL Learners: The Case of Geography in Grade 10 of Secondary Schools in Germany, Paper presented at the ESSE8 Conference in London, 29 August 2006

7. Annexes:

<table>
<thead>
<tr>
<th>CLASSROOM OBSERVATION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Course name and code:</strong></td>
</tr>
<tr>
<td><strong>Teacher:</strong></td>
</tr>
<tr>
<td><strong>Observer:</strong></td>
</tr>
<tr>
<td><strong>Date and time:</strong></td>
</tr>
<tr>
<td><strong>Number of students attending:</strong></td>
</tr>
<tr>
<td><strong>Seating arrangement:</strong></td>
</tr>
</tbody>
</table>

**STUDENTS**

<table>
<thead>
<tr>
<th>Type of activities/tasks</th>
<th>Individual work</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pair work</td>
</tr>
<tr>
<td></td>
<td>Group work</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Interaction of students with teacher</th>
<th>Interaction of students among themselves</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Questioning</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Responding</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Clarification</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Engagement of students</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Negotiation of meaning</strong></td>
<td></td>
</tr>
<tr>
<td>TEACHER</td>
<td></td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Presenting aims and objectives</td>
<td></td>
</tr>
<tr>
<td>Structure</td>
<td></td>
</tr>
<tr>
<td>(introduction/organisation/conclusion)</td>
<td></td>
</tr>
<tr>
<td>Delivery</td>
<td></td>
</tr>
<tr>
<td>(pace/audibility/L1 accent)</td>
<td></td>
</tr>
<tr>
<td>Use of materials</td>
<td></td>
</tr>
<tr>
<td>Managing pair work</td>
<td></td>
</tr>
<tr>
<td>Managing group work</td>
<td></td>
</tr>
<tr>
<td>Communication with students</td>
<td>Eliciting (teacher prompts)</td>
</tr>
<tr>
<td>Eliciting (teacher responses)</td>
<td></td>
</tr>
<tr>
<td>Error Feedback</td>
<td>Content</td>
</tr>
<tr>
<td>Language (grammar, vocabulary, pronunciation, etc)</td>
<td></td>
</tr>
<tr>
<td>Additional comments:</td>
<td></td>
</tr>
</tbody>
</table>
EXAM OBSERVATION

Course code: 
Course title: 
ECTS: 
Teacher(s): 
Observer: 

Learning objectives/outcomes:

Exam format:

Form of assessment:

Assessment criteria:

Language assessment: YES   NO  
Exemption procedure: YES   NO
## Oral Exam Assessment Grid for BA3

<table>
<thead>
<tr>
<th>Marks</th>
<th>Task fulfilment</th>
<th>Spoken Production</th>
<th>Delivery and Vocabulary</th>
<th>Spoken interaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Student gives coherent explanations of a theoretical nature and generally handles questions confidently, even unpredictable ones. Excellent visual presentation and handling. Excellent scientific content.</td>
<td>Clear and smoothly flowing description or argument in a formal style with an effective logical structure. Student is able to select and highlight the most significant points.</td>
<td>Excellent pace and intonation. Clear pronunciation. Choice of structures consistently appropriate.</td>
<td>Discusses effortlessly and good familiarity with idioms and colloquialisms. Expression is fluent and finer shades of meaning are conveyed precisely. Backtracks and restructures around a difficulty smoothly.</td>
</tr>
<tr>
<td>4</td>
<td>Student gives a well-structured presentation and can argue his/her point of view clearly. Good visual presentation and handling. Good scientific content.</td>
<td>Student presents a clear, detailed and complex description of the topic integrating sub-themes, developing particular points and rounding off with an appropriate conclusion.</td>
<td>Very good pace and intonation. Clear pronunciation, which does not interfere with comprehension. Occasional lack of consistency in choice of structures and vocabulary.</td>
<td>Student is fluent and spontaneous without much obvious searching for expressions. Formulates ideas and opinions with precision and relates them skilfully to those of other speakers.</td>
</tr>
<tr>
<td>3</td>
<td>Student gives clear presentation of the topic with relevant content. Satisfactory visual presentation and handling. Fair scientific content.</td>
<td>Student presents a detailed description of the topic. Student explains his/her viewpoint giving advantages/disadvantages of various options.</td>
<td>Good pace and intonation. Pronunciation may occasionally strain comprehension. “Patchy” with some structures or vocabulary items noticeably inappropriate.</td>
<td>Interacts with a degree of fluency and spontaneity. Takes an active part in the discussion accounting for and sustaining personal views.</td>
</tr>
<tr>
<td>2</td>
<td>Student gives a simple presentation expressed in simple language. Poor visual presentation and handling. Poor scientific content.</td>
<td>Student uses simple connectives and can give reasons and explanations for opinions. The presentation is linear.</td>
<td>Satisfactory pace and intonation. Pronunciation strained so it the listener may have difficulty following. Structures or vocabulary not only inappropriate but misused.</td>
<td>Communicates the main points of topic simply but with some degree of fluency. Answers questions provided the topic is familiar.</td>
</tr>
<tr>
<td>1</td>
<td>Student’s presentation is basic, and its progression is unclear. Student is reading notes. Unsatisfactory visual presentation and handling. Very poor scientific content.</td>
<td>Student uses a series of phrases and sentences to describe the topic in simple terms. Presentation appears to have no direction or well-defined structure.</td>
<td>Poor pace and intonation. Strong L1 pronunciation. Communication often impaired by completely inappropriate or misused structures or vocabulary.</td>
<td>Communicates in simple terms. Can handle very short and direct exchange of information. Student cannot usually understand enough to keep the discussion going.</td>
</tr>
<tr>
<td>0</td>
<td>Student struggles through the presentation. Haphazard collection of themes. Very poor visual presentation and handling. Inexistent scientific content.</td>
<td>Student uses simple phrases and sentences, with no apparent link between them. No attempt to introduce the subject.</td>
<td>Very poor pace and intonation. Very strong accent which clearly hinders understanding. A “hotchpotch” of half-learned misused structures and vocabulary making communication virtually impossible.</td>
<td>Interacts in a simple way provided the listener is prepared to rephrase or repeat at a slower rate of speech.</td>
</tr>
</tbody>
</table>
CLIL
Individual Student Interviews

Name: ……………………………………………………………………………………………

Date: ……………………………………………………………………………………………

1) Have you made any progress in the English language since you started CLIL?
(Please choose from 1 no progress to 5 great progress)

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Listening</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reading</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Writing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speaking</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accuracy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Range of expression</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fluency</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Formal academic language</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Confidence</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2) Did you change or adapt your learning strategies to suit the CLIL programme? If so, how?
(Please choose from 1 no change to 5 radical change)

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assimilation of content</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Note-taking</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reading</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interaction with input material</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(slides, textbooks, etc.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preparation for exams</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3) Which teaching approach and teaching techniques did you feel clearly helped you in assimilating academic content via the English language?

4) What is your assessment of your teachers’ ability to use English as an effective tool to teach content in an academic context? If not, which aspect was an obstacle for you:
   a) Vocabulary
   b) Grammar
   c) Intelligibility
   d) Complexity

5) Did you feel your level of English was adequate for following courses at university level? Please specify where you experienced more difficulties.

6) If you compare L1 and L2 teaching, did you perceive teachers differently according to the language of instruction that was used?

7) What type of teaching style and teaching support did you find the most helpful:
   a) In L1?
   b) In L2?