DANISH UNIVERSITY STUDENTS’ USE OF CODE-SWITCHING DURING ENGLISH-MEDIUM INSTRUCTION

A CASE STUDY OF TWO ENGLISH-MEDIUM COURSES AT THE FACULTY OF LIFE SCIENCES, UNIVERSITY OF COPENHAGEN
Danish University Students’ Use of Code-Switching During English-Medium Instruction

A case study of two English-medium courses at the Faculty of Life Sciences, University of Copenhagen

Lotte Eggert Kiil

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Lotte Eggert Kiil
Copenhagen, October 2011
1. INTRODUCTION

The English language has increasingly developed to become a modern lingua franca, especially in the world of science and academia. Knowledge has become a commodity to be ‘sold’ worldwide and English is the currency. This development of English as the language of science and academia has resulted in an increase in the use of English as the medium of instruction in higher education, especially within the last decade, Denmark being no exception. This has forced both lecturers and students to adapt to English as medium of instruction within a short period of time, and has naturally entailed quite a few challenges on both parts. Previous studies have already addressed these challenges and attitudes towards English as the medium of instruction in higher education in Denmark, both among lecturers (Jensen et al. 2009, Jakobsen 2010, Tange 2010) as well as among students (Didriksen 2009). No studies have focused on the verbal behavior of students during English-medium instruction. This is the focus of the present thesis, as I find it important to include this aspect in the debate on English as medium of instruction.

The present thesis was inspired by a pilot study for an ongoing PhD project at Uppsala University, Sweden (Söderlundh 2008a) which aims to describe and analyze the role of the mother tongue, Swedish, in higher education when the medium of instruction is English. The study aims to unveil whether English is the only language of interaction, or whether there is a parallel use of the national language, and if so, what functions the national language has and what governs the use of English and the national language in English-taught courses.

Since no Danish studies have focused on the use and role of the mother tongue in English-medium instruction in higher education, I find it interesting to investigate this area. Although my thesis is inspired by Söderlundh’s study, the theoretical focus of this thesis will be on the concept of code-switching, that is, the alternating use of two languages. The thesis is
therefore not a replication of Söderlundh's PhD project, but has been inspired by her research questions.

1.1 Aim and research questions
The aim of the present thesis is to analyze Danish university students' use of code-switching between English and Danish during English-medium instruction. The thesis aims at answering the following research questions:

- **How do Danish university students code-switch during English-medium instruction?**
  - What types of code-switching do the students employ, and what is the frequency of use of the different types?

- **When do Danish university students code-switch during English-medium instruction?**
  - In which situations do the students code-switch, and is there any difference in the relationship between their use of English and Danish in different didactic genres, such as lectures, group work and student presentations?

- **Why do Danish university students code-switch during English-medium instruction?**
  - What are the possible functions of the students' code-switching?

The methodology used for the empirical part of the thesis is a mixed-methods research design. The primary method is classroom observation (including audio recordings and field notes) of two English-medium courses at the Faculty of Life Sciences at the University of Copenhagen. In addition to the observation of the classroom discourse, a questionnaire on the students' self-report of their use of code-switching is employed.
1.2 Scope and delimitations
Using these methods, the aim of the thesis is to establish *when*, *how* and *why* Danish university students code-switch between English and Danish when the medium of instruction is English; in other words, I want to describe the interplay between the Danish university students' use of English and their mother tongue. The aim of the thesis is thus not to assess the students' English language proficiency, nor is it to analyze the consequences of English-medium instruction, e.g. in relation to learning effects, although these aspects will be included in the discussion of the research findings.

Furthermore, since the thesis is only a case study of code-switching among Danish university students, consisting of observation of two English-medium courses, I will only be able to say something about the use of code-switching in the two courses observed. However, it is my hope that the results from the thesis might provide a more general insight in that it may be an indication of how code-switching and the use of the mother tongue generally take place in English-medium instruction in higher education in Denmark.

1.3 Thesis outline
The thesis is divided into two main parts: a theoretical part and an empirical part.

The theoretical part will form the basis of my empirical research and is introduced by a short chapter (Chapter 2) which situates the thesis within the debate on and development in English as a medium of instruction in Denmark. Chapter 3 will define and describe the theory and study of code-switching, which will form the theoretical basis of the study. The chapter provides and discusses definitions and terminology used within code-switching research, a description of the types and functions of code-switching, as well as previous studies on classroom code-switching.

The empirical part of the thesis is introduced by a chapter on the methodology used for the study in which I describe the research
methods used and discuss how and why they have been used in the present study. Following this is an analysis of the classroom observation in which the results from the questionnaires filled out by the students will also be analyzed in order to compare and relate them to the findings of the classroom observation. Finally, the empirical part of the study will be concluded by a discussion of the research findings and the possible implications code-switching in the English-medium university classroom may have. The discussion will furthermore make a link to the internationalization efforts of the University of Copenhagen, as well as the language policy formulated by the Faculty of Life Sciences.
PART I: THEORETICAL BACKGROUND

2. ENGLISH AS MEDIUM OF INSTRUCTION

In order to describe the linguistic milieu of the two English-medium courses at the Faculty of Life Sciences at the University of Copenhagen, and to analyze the use of code-switching among the Danish students, it is necessary to understand the underlying development of English as medium of instruction and the language policies at force. In this chapter, I will therefore briefly describe the development of English as a medium of instruction as well as the language policy of the Faculty of Life Sciences, University of Copenhagen. For a more detailed presentation and discussion, please see Christensen (2006) or Jakobsen (2010). Finally, the chapter will mention some of the previous studies on English-medium instruction in higher education in Denmark.

2.1 The spread of English as medium of instruction in a global context

Due to the processes of globalization and internationalization, the English language has emerged as a modern lingua franca: a world language used for communication between persons not sharing a mother tongue. According to Coleman, ‘Globalization manifests itself in the increased use of English as a second language world-wide’ (Coleman 2006: 1). This development is also apparent within science and academia, and as a result, the use of English as medium of instruction within higher education has increased rapidly since the 1990s. According to Coleman (ibid.), the reasons for impelling individual higher education institutions to introduce programs and courses taught through the medium of English may be allocated across seven categories:
1. CLIL (Content and Language Integrated Learning)
2. Internationalization
3. Student exchanges
4. Teaching and research materials
5. Staff mobility
6. Graduate employability
7. The market in international students
   (ibid.: 4)

From these categories it follows that there are several motives for introducing English as the medium of instruction. One of the main motives is the necessity of attracting international students and employees which is important not only for cultural exchange, but also in relation to economics, competitive power and reputation (Jakobsen 2010: 23), since the universities compete on the global market to attract the best students and researchers. Commenting on the situation in Danish higher education, Phillipson states that ‘Danish universities are increasingly expected to profile and market themselves competitively. One symptom of this is an increasing use of English’ (Phillipson 2005: 47).

As a result of this international marketization of higher education, a European collaboration to make Europe ‘a borderless and democratic European Area of Higher Education’ was formulated in the Bologna Declaration from 1999, followed by the aim of the European Councils of 2000 and 2002 for the EU to become ‘the most competitive and dynamic knowledge-based economy of the world’ (Coleman 2006: 3). One way of achieving this goal was to increase the number of degrees and courses taught in English at European universities, and in this way, English has become the most dominant L2 medium of instruction in Europe; a development that has grown exponentially since the 1990s.

The English language is thus increasingly used as medium of instruction in Europe - Denmark being no exception. In the next
section, I will briefly describe the development of English as a medium of instruction in Danish higher education.

2.2 English as medium of instruction in Danish higher education
Due to the increasing use of English as an academic lingua franca as described above, the Danish universities have, especially within the last decade, focused on the importance of implementing a balanced language policy (Universitets- og Bygningsstyrelsen 2010: 7) and several reports, accounts and proposals addressing the issue have furthermore been published by, among others, the Danish Language Council, Rektorkollegiet, the Ministry of Culture and the Ministry of Education. One of the major concerns expressed by these decision makers is that of domain loss; the main argument being that if students and researchers primarily learn and present their subject in English, they will have increasingly more difficulties presenting it in Danish. The balancing act has thus been, and continues to be, to acknowledge the inevitable development of English as an academic lingua franca, and at the same time to ensure that the Danish language continues to be a complete and fully elaborated language that can be used in all domains. A key word within the debate on language policy in higher education has therefore been introduced: Parallel language use. The Centre for Internationalisation and Parallel Language Use (henceforward abbreviated CIP) at the University of Copenhagen defines parallel language use as follows:

The use of parallel languages refers to a situation in which two languages are considered equal in a particular domain, and where the choice of language depends on what is deemed most appropriate and efficient in a specific situation. (www.cip.ku.dk/english/about_parallel_language_use)

At the University of Copenhagen, the use of Danish and English is in this way determined by the principles of parallel language use (ibid.). For a further discussion of the principle of parallel language use and the language policy of the University of Copenhagen, see Jakobsen (2010).
2.2.1 English as medium of instruction at the Faculty of Life Sciences

The Faculty of Life Sciences (henceforward abbreviated LIFE) has been of particular interest in the debate about internationalization and language policy in higher education, as it is the first, and so far the only, faculty at the University of Copenhagen with a specific language policy. In this section, I will describe the aspects of the language policy that are of relevance to the present thesis.

LIFE’s language policy was formulated 10 years ago, in 2000, when LIFE was not yet a part of the University of Copenhagen, but an independent university, the Royal Veterinary and Agricultural University. In the introduction to the language policy, the following main reasons for formulating the policy are mentioned:

1: to ensure that our university actively contributes to the international competitive strength of our nation

2: to ensure the employability of our graduates, not only in the Danish but also in the increasingly global job market

3: to create an international research and teaching environment at our own university

4: to ensure that our scientific reputation and attraction are of a standard that allows us to collaborate with the highest ranking foreign universities

5: to enhance the quality of our research and education by submitting ourselves to international competition

6: to enable our university to attract the best and brightest students and employees globally, and finally

7: to ensure that as graduates from our University, our students are provided with a high quality research-based education AND, at the same time, a fluent command of the English language.

(http://www.life.ku.dk/English/about/Language%20policy.aspx)
The seven reasons formulated in LIFE’s language policy are thus very similar to those proposed by Coleman in Section 2.1.

At program level, the general policy at LIFE is to teach in English at MSc level and in Danish at BSc level, with only a few exceptions. The guiding principle for the MSc programs is that an international student should be able to follow a 100% English taught program, and the courses in which the medium of instruction is English thus requires that ‘all textbooks, handouts, curriculum descriptions, etc are in English, project work is in English and the final exam (oral or written) is in English’ (ibid.). Although it has been stated in the language policy that BSc programs generally should be taught in Danish, a progression of courses are taught in English at BSc level in order to prepare the students for instruction in English at MSc level. Furthermore, in LIFE’s Action Plan for Internationalisation and Development Collaboration 2006-2008, it is stated that the number of BSc courses taught in English should be increased, and that by 2010 all MSc programs must be taught in English.

In order to ensure that the implementation of the language policy does not entail a lowering of the quality of the teaching, LIFE has furthermore introduced a language and quality assurance program to ensure that students and teachers are adequately proficient in English. The students are offered language courses (although partly financed by themselves), and on the teacher side, LIFE has a specific plan for the enhancement of language skills for teachers within each department. Furthermore, LIFE decided in 2009 that all researchers who teach in English-medium programs should have their English proficiency assessed by CIP. According to a statement on LIFE’s homepage, 250 researchers will thus by 2012 have had their English language certified in order to be allowed to teach on the Faculty’s English-medium programs (http://www.life.ku.dk/English/Nyheder/2009/973_Certification.aspx).
The fact that LIFE is the only faculty at the University of Copenhagen with a specific language policy is the reason that I have chosen to focus on this particular unit of the university, as I find it interesting to look into the actual language use at English-medium courses at LIFE, and to see whether this conflicts with the faculty’s general language policy.

2.2.2 Previous studies on English-medium instruction in Danish higher education
The increasing use of English as the medium of instruction in higher education worldwide has resulted in a number of studies on the subject (e.g. Vinke et al. 1998, Airey & Linder 2006, 2008, Ljosland 2008), and furthermore special issues in journals have been dedicated to the subject, e.g. Angles on the English-speaking World vol. 9 (Harder (ed.) 2009) and Hermes vol. 45 (Hellekjær & Räsänen (eds.) 2010), and the topic constitutes a research area in rapid growth. In this section, I will focus on previous studies on English-medium instruction in Danish higher education with a primary focus on the findings and conclusions relevant to the focus of the present thesis, i.e. student interaction.

In 2009, CIP distributed a questionnaire among all teaching staff at the University of Copenhagen in which they were asked to take a position on a number of statements within five themes derived from the debate on the increasing use of English as the medium of instruction. The five themes were: 1) Increased use of English in higher education impedes knowledge dissemination to the public, 2) Teaching through English results in a reduced learning outcome for the students, 3) Increased use of English in higher education threatens Danish as an academic language, 4) An increased amount of English-medium teaching leads to higher academic standards and improved competitive capacities internationally, and 5) Decisions regarding language of instruction should be made by the universities (Jensen et al. 2009: v). The analysis of the survey is divided into three parts, but only the results from the part on experienced problems in the use of English as the medium of instruction will be summarized
here. The general findings revealed that the majority of the teachers in general did not find it more demanding and straining to teach in English or that the quality of their teaching suffers. In relation to student interaction, the teachers furthermore predominantly disagreed with the statement that it becomes more difficult to involve the students when the medium of instruction is English.

As a supplement to the abovementioned survey, Jakobsen (2010) conducted a qualitative study of ten lecturers’ attitudes towards and experiences with English-medium instruction at LIFE. The findings of the study were found to correlate well with the findings of CIP’s survey, but in relation to student interaction the interviewed lecturers’ responses were rather mixed: some of the lecturers noted that there were some problems concerning the students’ English proficiency which resulted in a lack of interaction with the students during lectures and lower quality in student presentations. Some lecturers further noted that Danish was often used during group work with only Danish-speaking students present. Other lecturers, on the other hand, found the students’ English proficiency to be sufficient and did not experience any lack of interaction. The results thus suggest that the instructors’ experiences in relation to student interaction during English-medium instruction were not necessarily the same.

The final study focusing on the teacher-side of English-medium instruction to be reviewed here is a study by Tange from 2010. In her report, Tange presents the findings of her research on university lecturers’ experiences with English as the medium of instruction. The empirical basis is 36 qualitative research interviews held at five faculties located at different Danish universities. The analysis of the study is structured around four core themes: language, culture, knowledge and organization. In accordance with the purpose of the present thesis, only results related to student interaction will be summarized. In general, most lecturers note that there is less interaction when the medium of instruction is English, as they find that students are
more passive and hesitant to make comments and ask questions during lectures. Most lecturers assign this to the students’ language problems and insecurities when having to express themselves in English, and some lecturers further find that especially the Danish students are often hesitant to display their language difficulties in front of the lecturers and co-students, and consequently some students wait until the break to ask the lecturer questions in Danish. Some lecturers also mention the fact that the transition from Danish to English-medium instruction presents some challenges in relation to terminology: several instructors report that students lack certain vocabulary in English, but at the same time the Danish students increasingly employ English terms in domain-specific discussions held in Danish. The instructors thus find that English-medium instruction entails quite a few challenges in relation to student interaction.

From the studies presented above, it is clear that previous studies on the teacher-side of English-medium instruction in Danish higher education has been based on lecturers’ experiences with and attitudes towards English as the medium of instruction, but a forthcoming study, Thøgersen and Airey (forthcoming), investigates actual language use by observing parallel lectures held by the same lecturer in Danish and English in order to investigate some of the differences in the teacher’s verbal production and behavior.

The only Danish study that has investigated the student perspective of English-medium instruction is Didriksen (2009), which is an empirical study of first year university students’ attitudes towards English as medium of instruction and their English proficiency level; the latter focusing on the students’ academic English reading proficiency. The findings from sub-study one, which was based on a questionnaire, shows that the students were generally positive towards the use of English as medium of instruction. Most of the students generally regarded themselves as being competent L2 users, and further defined their reading comprehension of the English texts in their
curriculum as good, although nearly all of the students noted that they did have some comprehension problems when reading these texts. The findings from sub-study two in which a subsample of the respondents to the questionnaire completed four language tests, showed positive results as well, as most of the students seemed to have achieved the lexical competence level in English that is regarded as the threshold vocabulary needed for reading comprehension of academic English texts. However, a minor group of students did not do well in any of the language tests. Didriksen concludes that these findings suggest that many first-year students have fairly good academic reading skills which indicates that they are capable of reading the academic English texts in their curriculum reasonably easy, whereas a minor, but significant, group need help to improve their academic English skills.

None of the previous studies presented here have investigated students’ productive skills, including observation of student verbal interaction during English-medium instruction, as is the focus of the present thesis.

In this chapter, I have situated the present thesis within the debate on and development in English as medium of instruction in Danish higher education in general and at LIFE in particular. Furthermore, previous studies on English-medium instruction in Danish higher education have been presented. In the next chapter, the theory behind the present study, i.e. code-switching, will be described and discussed.
3. CODE-SWITCHING

This chapter will delineate the terminology and theories related to code-switching which are relevant to the present thesis, including the different definitions, types and functions of code-switching. Furthermore, the chapter will present previous studies on classroom code-switching.

3.1 Definitions and terminology

3.1.1 Definition of code-switching
Defining the term code-switching is a rather difficult task since scholars within the field seem to have different definitions as to what constitutes code-switching and furthermore their terminology may differ or overlap (even the term code-switching is spelled differently by different linguists or scholars within the field, including the spellings: code-switching, codeswitching and code switching; added to this the abbreviation CS). This lack of consensus is partly due to the fact that code-switching can be studied within various subfields of linguistics, including fields such as sociolinguistics, formal linguistics, structural linguistics, psycholinguistics, neurolinguistics and language acquisition research.

Auer (1984a) distinguishes between three different perspectives within the study of code-switching: the grammatical perspective, the sociolinguistic perspective and the interactional perspective. The grammatical perspective focuses on the syntactic and morphological restrictions on code-switching, whereas the sociolinguistic perspective is interested in finding out which bilingual communities show language alternation in which situations and why. The interactional perspective, which is the perspective chosen for the present thesis, is concerned with the meaning and function of individual instances of language alternation in conversation. Since this thesis is mainly concerned with the interactional aspect of code-switching, it will mainly adopt definitions, terminology and theories from within this subfield.
Before defining code-switching, it is important to clarify what is meant by the term *code*. According to Wardhaugh (2006), the term 'can be used to refer to any kind of system that two or more people employ for communication' (Wardhaugh 2006: 88). The term *code* thus serves as an umbrella term for languages, dialects, styles and registers, however, as will become obvious from the definitions of code-switching below, most studies on bilingualism and on classroom code-switching take the term *code* to denote only discrete languages. Some linguists maintain, though, that there is no such thing as discrete languages in that they argue that languages are ideological constructs. From these linguists' viewpoint, a language, e.g. Danish as a national language, is a construct believed to comprise a set of features which sets it apart from all other sets of features, e.g. English; a construct which they argue has very weak support in practice since it can be difficult to ascribe a certain feature to one language in particular in that the borders between languages are often fuzzy (Jørgensen 2008: 37). Within the field of sociolinguistics it is possible to talk about *languages*, though, as long as one accepts that the concept is an abstraction and a prototypical concept as argued by Jørgensen who further elaborates:

In the study of code-switching it still makes sense to distinguish between codes, precisely when we base our analysis on the ascription of features to sets of features (codes). When features are juxtaposed which are ascribed to different ideologically constructed sets of features (and the interlocutors are in a position to interpret the juxtaposition as such), we are dealing with code-switching. (ibid.: 39).

Following Jørgensen's argument, the present thesis maintains that there is a distinction between the two codes in question, i.e. English and Danish, as it is key for the purpose of the present study to be able to make this distinction in order to measure the use of code-switching among the Danish university students. I do acknowledge, though, that the distinction at times can
become fuzzy, especially due to the many anglicisms that have entered the Danish language.

As previously mentioned, several definitions of code-switching have been proposed by scholars within the field, some definitions being very broad and some narrower, but most of them nonetheless very close and overlapping. To illustrate this, definitions proposed by some of the most influential scholars within the field of code-switching are listed in Table 1.

<table>
<thead>
<tr>
<th>Valdés-Fallis (1978:1)</th>
<th>Code switching can be defined as the alternating use of two languages on the word, phrase, clause or sentence level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gumperz (1982:59)</td>
<td>Conversational code-switching can be defined as the juxtaposition within the same speech exchange of passages of speech belonging to two different grammatical systems or subsystems</td>
</tr>
<tr>
<td>Grosjean (1982:145)</td>
<td>The alternate use of two or more languages in the same utterance or conversation</td>
</tr>
<tr>
<td>Auer (1984a:1)</td>
<td>The alternating use of more than one language</td>
</tr>
<tr>
<td>Milroy &amp; Muysken (1995:7)</td>
<td>The alternative use by bilinguals of two or more languages in the same conversation</td>
</tr>
<tr>
<td>Poplack (1980:583)</td>
<td>The alternation of two languages within a single discourse, sentence or constituent</td>
</tr>
<tr>
<td>Bullock &amp; Toribio (2009:1)</td>
<td>Broadly defined, CS is the ability on the part of bilinguals to alternate effortlessly between their two languages</td>
</tr>
<tr>
<td>Gardner-Chloros (2009:13)</td>
<td>A general term covering all outcomes of contact between two varieties, whether or not there is evidence of convergence</td>
</tr>
</tbody>
</table>

Table 1: Definitions of code-switching

As mentioned above, it might seem that these definitions are almost identical, but the crucial differences lie in the choice of vocabulary used in the definitions. Consequently, the word ‘effortlessly’ becomes crucial in Bullock & Toribio’s (2009) definition, since no other definitions mention that code-
switching necessarily has to be effortless. Secondly, as mentioned previously, some (and almost all of the above) definitions only include switching between distinct languages, whereas definitions such as the one proposed by Gardner-Chloros (2009) uses the broader term ‘varieties’. Finally, there does not seem to be any consensus about the level at which code-switching takes place. Whereas Valdés-Fallis (1978) for instance uses the grammatical terms ‘word’, ‘phrase’, ‘clause’ and ‘sentence’ level, other terms such as ‘communicative episode’, ‘conversation’ or ‘speech exchange’ are more fuzzy, since it becomes much harder to detect when they begin and end from the definition itself, without having to read the accompanying explanation of how the terms are to be understood and employed.

In the introduction to the volume *One speaker, two languages*, which is a co-operation between several scholars within the field joined together in *the European Science Foundation Network on Code-switching and Language Contact*, the issue of this lack of consensus in terminology is addressed:

> The field of code-switching research is replete with a confusing range of terms descriptive of various aspects of the phenomenon. Sometimes the referential scope of a set of these terms overlays and sometimes particular terms are used in different ways by different writers. When we started working together in the Research Network, one of our first endeavours was to standardize this terminology (...). This soon turned out to be an impossible task, and as a consequence no clear set of defined terms uniformly used by all authors can be found in this book. (Milroy & Muysken 1995: 12)

In this study, I employ code-switching as a broad term to describe the alternate use of English and Danish among Danish university students, not only within single sentences, utterances or conversations, but all switches back and forth between the two languages, regardless of certain linguistic boundaries. Code-switching is thus not only described and analyzed within single conversations or utterances, but is also described when it for instance takes place in the shift between lecture and break. Since
I employ code-switching in this very broad sense, I find Auer’s (1984a) definition to be the one that is best suited for the purpose of the present thesis, and thus employ his definition: ‘The alternating use of more than one language’ (Auer 1984a: 1).

From the above definitions of code-switching, it becomes clear that code-switching is closely related to other language contact phenomena, such as code-mixing, borrowing, code-alternation, attrition and transfer. Although one volume on code-switching has been introduced with the gloomy comment ‘Efforts to distinguish code-switching, code-mixing and borrowing are doomed’ (Eastman 1992: 1), I will nonetheless try to establish how code-switching differs from one of these contact phenomena, namely borrowing.

3.1.2 Code-switching vs. borrowing
As mentioned above, borrowing is a language contact phenomenon that is often confused with code-switching. Some scholars have even argued that no clear distinction can be made between the two, but that the two are on a diachronic continuum, since loans often start off as code-switches, and gradually become established as loans (Gardner-Chloros 2009: 12). Others have argued that monolinguals as well as bilinguals can and do use borrowings, whereas only bilingual speakers engage in code-switching. Lexical borrowings are thus established and frequently used in monolingual speech and are regarded as morphologically and/or phonologically integrated.

The point of stressing this difference between code-switching and borrowing is that Danish has borrowed an extensive amount of words from English, as mentioned in the discussion of languages in the previous section. New anglicisms continuously enter the Danish language, and it can therefore be difficult to judge whether an English word or phrase used in a Danish sentence is an instance of code-switching or borrowing. In the present thesis, the criterion for whether a word is a code-switch or a borrowing is based on the abovementioned distinction: if it
seems plausible that a monolingual Danish speaker would use the word, it is categorized as a borrowing. Consequently, words from the present data such as ‘okay’, ‘fuck’ and ‘hits’ (noun, pl.) are deemed to be borrowings, whereas words such as ‘applier’ [a’plaːə] (verb, present tense) and ‘combine’ [kəm’bainə] (verb, infinitive) are deemed to be code-switches; although they have been inflected in Danish and furthermore are phonologically integrated in these particular instances, it does not seem likely that a Danish monolingual speaker would use these words.

3.1.3 Base language and embedded language

The terms base language, also referred to as matrix language, and embedded language have been proposed by Myers-Scotton (1993a) to describe the two languages employed in code-switching. According to Myers-Scotton (ibid.), the matrix language is the language which sets the grammatical frame in mixed constituents, and she puts forward the following technical description of code-switching: ‘Code-switching is the selection by bilinguals or multilinguals of forms from an embedded variety (or varieties) in utterances of a matrix variety during the same conversation’ (ibid.: 3). Although these terms have been adopted by some scholars within the field, they have often been criticized (e.g. by Grosjean 1982 and Muysken 1995), since the definition assumes that code-switched utterances always have an identifiable matrix language, and that there is always an asymmetrical relationship between the matrix language and the embedded language (Boztepe 2003: 9). As argued by Muysken (1995), even if it is reasonable to assume that there is a base language, it becomes difficult to define what the base language is since it can be determined in different ways. Thus, a discourse oriented way of determining the base language is simply that it is the language of the conversation, whereas a psycholinguistic answer could be that it is the language in which the speaker is most proficient. From a grammatical perspective, the first word of the sentence can be taken to determine the base language, whereas in a structurally oriented model certain elements, such as the main verb, can determine the base language (Muysken 1995: 182).
From this, it becomes clear that it can be rather difficult to determine what the base language is, but despite this problematic issue, I will employ the terms *base language* and *embedded language* when relevant in my analysis of the code-switching employed by the Danish university students, since it will become obvious from the data that the issue is not that problematic for the purposes of the present thesis. First of all, I am mainly interested in the social and discourse functions of code-switching and I do not go into detail with the grammatical and structural analysis of code-switching, and secondly, there already is an expected base language in the courses as the medium of instruction is English. Furthermore, when it comes to inter-sentential code-switching (see Section 3.3.1), which is by far the most frequent type of code-switching in the present data as will become obvious in my analysis, the detection of a base language becomes rather obvious and straightforward.

3.2 Who uses code-switching?
Having established how I define code-switching, the next question is *who uses code-switching*? Most scholars define code-switching as a bilingual feature, but what does it entail to be bilingual? Bilingualism has traditionally been defined, and is often still perceived so by laymen, as people who are fluent, and thus equally proficient, in two languages, and who have been exposed to both languages since birth. From this definition, it might seem quite straightforward to decide who is to be considered a bilingual and who is not, and a further discussion of the term bilingualism might seem superfluous. However, the world has become more and more globalized and internationalized, and English has emerged as an academic lingua franca. Consequently, bilinguals no longer exist merely in what we consider to be traditionally bilingual communities, and the definition of bilingualism has thus broadened. As Valdés-Fallis (1978) states:
The word bilingual, as used by linguists, is a general term that includes varying degrees of proficiency in two languages. Bilingual, from this perspective, does not mean that speakers are perfectly balanced in their use or strengths in both their languages, but rather that they can function, to whatever degree, in more than one language. Bilingual individuals, then, may have in common only the fact that they are not monolingual. (Valdés-Fallis 1978: 3)

In the same vein, Bullock & Toribio state that "bilingual" is a cover term that encompasses speakers who fall along a "bilingual range", a continuum of linguistic abilities and communicative strategies' (Bullock & Toribio, 2009: 7). New definitions and criteria for deciding what constitutes a bilingual speaker have thus entered into the field since it was first introduced and have spurred a discussion among scholars within the field as to what constitutes a bilingual speaker. Here, avoiding entering into the more general scholarly debate, I will merely describe how at least some scholars’ definitions have been broadened to include speakers of two languages in communities that are not seen as bilingual in the traditional sense, and try to place the Danish university students in the present study within this broadening range of bilinguals.

According to Grosjean (1982), earlier definitions and descriptions of bilinguals have placed too much emphasis on fluency. He therefore proposes a linguistic description of the bilingual speaker that takes other factors than fluency into account, such as the regular use of two languages, their domains of use and the bilingual’s need to have certain skills in one language but not in the other. In a similar manner, Wei (2007) proposes four key variables to be considered in defining a bilingual person:
• Age and manner of acquisition
• Proficiency level and specific languages
• Domains of language use
• Self-identification and attitude

The first variable, *age and manner of acquisition*, distinguishes those who have been exposed to two languages from birth from those who have acquired a second language later in life. Furthermore, ‘manner of acquisition’ distinguishes between those who acquire languages in a naturalistic context (according to Wei, acquisition of a language in a *naturalistic context* refers to cases in which a person is born to bilingual or multilingual parents or live in a bilingual or multilingual community) and those who acquire languages through formal instruction. The second variable, *proficiency level and specific languages*, is one of the most debated variables. The traditional assumption among scholars within the field has been that proficiency was linked to the age of acquisition, making it impossible for people learning a language later than childhood to become perfect bilinguals. However, this assumption has been proved to be wrong, as it has been found that late acquisition may result in high proficiency, just as well as exposure to a language from birth may not result in high proficiency (ibid.: 5). Furthermore, there is the popular assumption that a bilingual speaker must have equal proficiency in the two languages, but these ‘balanced bilinguals’ or ‘symmetrical bilinguals’, as they are often called, are actually quite rare, as speakers often use the two languages for different purposes and in different contexts. This leads us to the third variable, *domains of language use*. As mentioned, bilingual speakers use their two languages for different purposes and in different domains. Often bilinguals have a clear distinction e.g. between the language of the home and the language used at work or school, although some bilinguals do use the two languages in the same domain variably, often leading to a large amount of code-switching. The final variable, *self-identification and attitude*, has to do with the person’s own view of him or herself; some people, especially due to political reasons, may want to conceal their bilingualism, whereas others may be more
eager to show off their bilingualism, often for prestigious reasons or for identifying with certain communities. As Wei argues, ‘bilingualism is not simply a person’s cognitive capacity but their attitude’ (ibid.: 7).

Following Wei’s (ibid.) variables, it becomes clear that several varieties of bilinguals exist, and many new terms for bilinguals have entered into the debate on bilingualism. In a table on the varieties of bilinguals, Wei thus lists 37 different terms for bilinguals, including the distinctions early versus late bilinguals, symmetrical versus asymmetrical bilinguals and natural versus academic bilinguals (ibid.: 6). In the chapter on methodology, I will as part of my description of the participants in the study describe what kind of bilinguals the Danish students can be defined as (see Section 4.1).

Finally, it should be noted that code-switching is also a common feature in the speech of second and foreign language learners, but as I do not define the participants in the present study as language learners, I will not go further into this aspect. The Danish university students are not defined as language learners, since there is no direct language teaching involved (as in e.g. CLIL), and any language learning taking place is thus incidental and not the focus of attention. As will become evident in the section on previous studies on classroom code-switching (see Section 3.5), though, most of these studies are in fact concerned with second or foreign language learners.

3.3 Types of code-switching
Within the literature and theories on code-switching, the distinction between types of code-switching and functions of code-switching is often not drawn clearly: what one linguist may term types of code-switching may be called functions of code-switching by another. Following Poplack (1980), I have chosen to include only three types of code-switching, namely intersentential code-switching, intra-sentential code-switching and tag switching. The reason for identifying only these three types of code-switching is that they can be identified solely by
analyzing the speech of the bilingual speaker and demand no further interpretation of the content of the utterance or extralinguistic factors. Other aspects of code-switching, which by some has been defined as types of code-switching, such as *situational* vs. *metaphorical code-switching*, will be described in the section on functions of code-switching (see Section 3.4), as I believe that an interpretation of the speech and extralinguistic factors is necessary in order to analyze these different kinds of code-switching; therefore I find it more logical to include them in this category. Below is a description of the three types of code-switching proposed by Poplack (1980). The description of each type will include an illustrative example from the present data. For a more detailed discussion of the examples, please see the analysis in Chapter 5.

### 3.3.1 Inter-sentential code-switching

As the term implies, inter-sentential code-switching is the switch between two languages between sentences or clauses, but also between turns. Inter-sentential code-switching is thus alternating passages of speech, each involving only one code. According to Poplack (1980), this type of code-switching is the easiest type of code-switching to engage in since the switch between sentences is less complex than switches within the sentence. Below, an illustrative example of inter-sentential code-switching from the present data is provided:

'Vi skal ned til punkt syv nu, eller hvad? Do you know?'

### 3.3.2 Intra-sentential code-switching

Intra-sentential code-switching is the switch between two languages within one single sentence. This type of code-switching is considered the most complex one since 'a code-switched segment, and those around it, must conform to the underlying syntactic rules of two languages' (Poplack 1980: 589). This type of code-switching thus requires a great knowledge of the grammar of both languages and how these map onto each other. In other words, the word or phrase from the embedded language must fit into the grammatical structure
of the base language in order for the sentence to be constructed correctly and for the interlocutor to make sense of what is being said. Intra-sentential code-switching is therefore a feature most often found among what is termed natural, balanced or symmetrical bilinguals (see Section 3.2), but asymmetrical bilinguals or language learners may employ intra-sentential code-switching as well. An example of intra-sentential code-switching from the present data is provided below:

‘Er der noget at teste for obviousness for før man applies?’

3.3.3 Tag-switching
The final type of code-switching, namely tag-switching, is the switch between an utterance and the tag or interjection attached to it (Milroy & Muysken 1995: 8). Examples of these are ‘you know’, ‘okay’ or ‘well’. Although some scholars only recognize two kinds of code-switching, inter-sentential and intra-sentential code-switching, arguing that tag-switching lies within intra-sentential code-switching, Poplack (1980) chooses to add this third type of code-switching since this type is far less complex than other intra-sentential switches in that it does not interfere with the grammatical rules of either language. To illustrate this type of code-switching, an example from the data is provided below:

‘Ja, my name is xx and I am a Danish biotechnology student’

Although these three types of code-switching can be identified, this does not mean that the same speaker engages in only one type of code-switching, and all three types of code-switching may even be found within the same discourse. Concerning the frequency of use of the three types of code-switching, Poplack (ibid.) establishes a frequency hierarchy of switchable constituents, stating that the higher the syntactic level of the constituent, the more likely it is to serve as a potential site for a switch. However, other studies have concluded differently on the frequency hierarchy of types of code-switching; a difference that may be due to the different types of bilingual communities.
or individuals studied, or may be related to the different methodologies for determining code-switching (Romaine 1995: 125).

Before moving on to the functions of code-switching, it is important to make one more distinction related to the types of code-switching, and that is the distinction between smooth and flagged code-switching, as described in the next section.

3.3.4 Smooth vs. flagged code-switching
As stated earlier, code-switching is not only engaged in by bilinguals fluent in both languages; asymmetrical bilinguals or second or foreign language learners engage in code-switching as well, although their code-switching will most often differ from that of natural bilinguals, both in terms of the types of code-switching employed, and the functions, uses and motivations for their code-switching. Therefore, a distinction is made between what is termed smooth and flagged code-switching. Smooth code-switching is defined as ‘the smooth transition between L1 and L2 elements, unmarked by false starts, hesitations or lengthy pauses’ (Poplack 1988: 218). The example provided in the previous section on intra-sentential code-switching is an example of such smooth code-switching:

‘Er der noget at teste for obviousness for før man applier?’

Flagged code-switching, on the other hand, is defined as switching ‘marked by pauses, hesitation phenomena, repetition and metalinguistic commentary, which draw attention to the switch and interrupt the smooth production of the sentence at the switch point’ (Romaine 1995: 153). Whereas smooth code-switching is a feature most often found in the speech of fluent bilinguals, flagged code-switching is often found in the speech of asymmetrical bilinguals or among second or foreign language learners. Below is an example of flagged code-switching:

‘And as for the fifth, I would say that xx is a really good ehm… hvad hedder vejleder?... I forgot the word… supervisor.’
Having established and defined the different types of code-switching - *inter-sentential, intra-sentential* and *tag-switching* - and furthermore discussed the distinction between smooth and flagged code-switching, the following section will discuss the different functions of code-switching.

### 3.4 Functions of code-switching

As previously mentioned, there is no real consensus as to what constitutes *types* of code-switching and what constitutes *functions* of code-switching. Furthermore, various theories, categorizations and terminology on the functions of code-switching exist. For the purpose of this study, I have chosen to include two of the most influential theories, which have been acknowledged and adopted by several researchers within the field, namely Gumperz’s semantic model and Auer’s conversation analytic model, which will be described below.

#### 3.4.1 Gumperz’s semantic model

Perhaps *the* most influential scholar within the sociolinguistic study of code-switching is John Gumperz. Being the first to argue that code-switching has interactional meaning, his semantic model has been adopted and adapted by several scholars within the school known as *interactionist sociolinguistics*, or simply *the Gumperz tradition*. Interactionist sociolinguists are concerned with how language users create meaning via interaction and how code-switching is used to structure talk in interaction.

Gumperz’s semantic model was first introduced in a seminal study by Blom & Gumperz from 1972 on code-switching between two varieties, Ranamål and Bokmål, in a small Norwegian community. In their study, Blom & Gumperz (1972) introduce the concepts *setting*, *social situation* and *social event* to analyze the meaning of choice between the two varieties. According to Blom & Gumperz, the term *setting* denotes the place of a social situation, e.g. the home, at work or in a public place. A *social situation* is then an activity ‘carried on by
particular constellations of personnel, gathered in particular settings during a particular span of time' (ibid.: 423). Several social situations can and may thus occur within the same setting if for instance a shift in personnel takes place. Finally, social event is a particular definition of the same social situation at a particular point in time. Within one conversation, e.g. between a teacher and a student, the conversation may contain both an official talk followed by a personal talk. The linguistic norms that apply to these two kinds of interaction may differ, and thus two different kinds of social events can occur within the same social situation. The three terms setting, social situation and social event are then to be understood as successively more complex stages in a speaker's processing of contextual information influencing the language choice (ibid.: 423). In the present study, the setting is the university classroom and the social situations in the study include lectures, student presentations, group work and breaks. Within these social situations, different social events may occur. That is, during group work students may engage in conversation about the task they are supposed to perform, but they may also engage in personal conversation and small-talk.

From the analysis of the code-switching taking place and the social constraints mentioned above, Blom & Gumperz (ibid.) identify two different kinds of code-switching: situational and metaphorical switching. Situational switching, as the term implies, is triggered by a change in the situation, the underlying assumption being that in particular situations one code is deemed more appropriate than the other. In this way, situational switching 'involves clear changes in the participants' definition of each other's rights and obligations' (ibid.: 424). According to Blom & Gumperz (ibid.), should a speaker choose the 'inappropriate' variety or language in a situation, he or she violates commonly accepted norms and may be socially sanctioned. Situational code-switching is in this way somewhat related to the concept of diglossia, first defined in 1959 by Ferguson as a situation where 'two varieties of a language exist side by side throughout the community with each having a
definite role to play’ (Ferguson 1959: 325). An important distinction between situational code-switching and diglossia, though, is that whereas diglossia is socially imposed at a macro-level, situational code-switching can be said to be socially imposed at a micro-level. In other words, diglossia is imposed by the norms in the community or society at large and does not really leave the individual speaker with much of a choice concerning which code to use, whereas situational code-switching is still an individual choice on the part of the speaker who may then be socially sanctioned by the interlocutors in the specific social situation.

Metaphorical switching, as opposed to situational switching, is code-switching within the same social situation, but signals a change in topic, subject matter or social event. Metaphorical code-switching is thus used to redefine the situation from formal to informal, official to personal, serious to humorous or from politeness to solidarity (Wardhaugh 2006: 104). Gumperz later added to the theory of metaphorical switching, re-defined in Gumperz 1982 as *conversational code-switching*, that this kind of code-switching functions as a *contextualization cue*; that is, a means of conveying pragmatic information to interlocutors as to how a particular utterance is to be understood in context. Code-switching thus operates as a contextualization cue available to the bilingual speaker along with other contextualization strategies such as intonation, rhythm and gestures.

In addition to the distinction between situational and metaphorical switching, Gumperz (1982) makes yet another distinction, namely that of *we-code* versus *they-code*. Whereas Gumperz describes the *we-code* as being associated with in-group and informal activities, the *they-code* is associated with more formal, stiffer and less personal out-group relations (ibid.: 66). Gumperz (ibid.) notes, however, that this association between code and group identity is symbolic, and does not necessarily directly predict actual usage.
Based on empirical studies in three different language contact situations around the world, Gumperz (ibid.) suggests a typology of the discourse functions of conversational code-switching, that is, switching within the same speech exchange. Although he recognizes that the list is not exhaustive, it is meant to illustrate some of the most common uses of code-switching, and includes the following six discourse functions: quotations, addressee specification, interjections, reiteration, message qualification and personalization versus objectivization. Having set up this typology, Gumperz acknowledges that ‘to attempt to set up language usage rules which predict or reliably account for the incidence of code-switching proves to be a highly difficult task’ (ibid.: 82). I will return to this issue in Section 3.4.3.

3.4.2 Auer’s conversation analytic model
Although Gumperz’s semantic model is one of the most influential theories within code-switching, certain aspects of the theory have been criticized by scholars within the field who subsequently have adapted and further elaborated the theory, one of these being Auer (1984b). Auer’s main point of critique is stated as follows:

The social situation is something which is accomplished by co-participants. They do not define it and afterwards go on to interact in this framework; instead, through their interacting, they continuously produce frames for subsequent activities, which in turn create new frames. Thus, every turn, every utterance, changes some features of the situation and maintains or re-establishes others (Auer 1984b: 90).

According to Auer, the relationship between language choice and situational features is thus less rigid than proposed by Gumperz (1982), and he furthermore proposes that the distinction between situational and metaphorical code-switching be replaced by a continuum (Auer 1984b: 91). Based on this critique of Gumperz (1982), Auer (1984a) proposes a theory based on conversation analysis which has a sequential approach to code-switching. According to Auer (ibid.), the language a participant chooses for his or her turn exerts an influence on subsequent language choices by the same or other participants,
and consequently, the meaning of code-switching has to be interpreted in relation to the preceding and subsequent utterances. In his theory, Auer (ibid.) distinguishes between two functions of code-switching which he terms *discourse-related* and *participant-related code-switching*. In discourse-related code-switching, the function of code-switching is interpreted as contextualizing some feature of the conversation, such as a shift in topic, change in participant constellation, change in mode of interaction, or sequential contrasts such as side-remarks (ibid.). For discourse-related code-switching, Auer thus acknowledges and adopts Gumperz’s (1982) theory of code-switching as contextualization cues. Participant-related code-switching, on the other hand, is a negotiation of the language of interaction between participants and is motivated by the participants’ competences and preferences of code choice. Participant-related code-switches are thus used to signal the preferred choice of code on behalf of the speaker. If the preferred code of interlocutors diverges, a negotiation of language may thus occur. Although Auer distinguished between these two kinds of code-switching, he argues that discourse and participant-related code-switching are ‘not labels that can be unambiguously assigned to any instance of language alternation. Instead they stand for those local meanings of language alternation that are maximally ‘distant’ from each other and therefore represent ‘clearest’ and ‘most obvious cases’” (ibid.: 69). Consequently, polyvalent instances of code-switching that show characteristics from both discourse-related and participant-related code-switching may occur.

Finally, Auer (1995) is also sceptical towards Gumperz’s (1982) typology of the discourse functions of code-switching in that he believes that although such lists may give an initial clue as to what is going on, they will hardly bring us any closer to a theory of code-alternation. Auer argues that such a list will hardly ever be a closed one, which shows that code-alternation is used in a creative fashion and can therefore have conversational meaning even if it is only used once in a particular conversational environment (Auer 1995: 121). As this issue has been addressed
by several scholars within the field, I will discuss it further in Section 3.4.3.

Gumperz’s semantic model and Auer’s conversation analytic model are in this way both concerned with the discourse functions of code-switching: although they employ different terminology, both theories are concerned with code-switching as contextualization cues. Therefore, I find the theories to be complementary rather than contradictory, and consequently, both theories are employed in the present thesis.

3.4.3 The issue of categorization and interpretation of code-switching
Analyzing the functions of code-switching is a rather difficult task for several reasons. First of all, there is the question of categorization. Several researchers have attempted to make typologies or categorizations for the functions of code-switching, and these have often been criticized in the same vein as Auer (1984a, 1984b and 1995) above for being incomplete and ambiguous; one of the biggest critics is Myers-Scotton, who comments on the issue that ‘[a] favourite method of presentation is to use an open-ended listing of ‘functions’ with examples, with a final disclaimer to the effect that ‘there are many other functions as well’” (Myers-Scotton 1993b: 63). Her main point of critique is that it is often not very clear what is intended by the functions listed for code-switching or how these interrelate (ibid.: 59).

The second issue is the fact that there are so many factors to include in an analysis of code-switching, and that all of these may not always be evident or available to the analyst. This issue is addressed by Nilep (2006), who argues that ‘in order for observations about the contextualizing functions of language use to have validity and reliability, they should be based on close observation of discourse. At the same time, it should not be assumed that all elements relevant to discourse and social interaction are visible to the analyst, particularly when the analyst is not embedded in the particular social structures he or
she is studying’ (Nilep 2006: 15). Several linguistic and extralinguistic factors must in this way be taken into consideration when analyzing code-switching, but many of these may not be visible to the researcher. Table 2 contains a list of the factors that may influence language choice, provided by Grosjean (1982).

<table>
<thead>
<tr>
<th>Participants</th>
<th>Situation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language proficiency</td>
<td>Location/setting</td>
</tr>
<tr>
<td>Language preference</td>
<td>Presence of monolinguals</td>
</tr>
<tr>
<td>Socioeconomic status</td>
<td>Degree of formality</td>
</tr>
<tr>
<td>Age</td>
<td>Degree of intimacy</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
</tr>
<tr>
<td>Occupation</td>
<td>Content of discourse</td>
</tr>
<tr>
<td>Education</td>
<td>Topic</td>
</tr>
<tr>
<td>Ethnic background</td>
<td>Type of vocabulary</td>
</tr>
<tr>
<td>History of speakers’ linguistic</td>
<td>Function of interaction</td>
</tr>
<tr>
<td>interaction</td>
<td>To raise status</td>
</tr>
<tr>
<td>Kinship relation</td>
<td>To create social distance</td>
</tr>
<tr>
<td>Intimacy</td>
<td>To exclude someone</td>
</tr>
<tr>
<td>Power relation</td>
<td>To request or command</td>
</tr>
<tr>
<td>Attitude toward languages</td>
<td></td>
</tr>
<tr>
<td>Outside pressure</td>
<td></td>
</tr>
</tbody>
</table>

Table 2: Factors influencing language choice (Grosjean 1982: 136)

The final issue is whether the analyst interprets the code-switches as they were intended by the speaker. As Stroud (1992) argues, ‘The problem of intention and meaning in code-switching is the problem of knowing to what extent the intentions and meanings that we assign to switches can in fact be said to be intended by a speaker or apprehended by his or her interlocutors’ (Stroud 1992: 131). Even if comments from speakers or interlocutors are available to the analyst, they may not have perceived the situation in the same way. Furthermore, they may provide reasons for their code-switching that they believe to be politically correct – perhaps for instance not wanting to admit that their code-switching was used to exclude someone from a conversation – or they may not be able to give any answer at all as to why they code-switched, since code-switching is sometimes used subconsciously and is therefore difficult to account for when confronted about afterwards.
From these points of critique, it becomes clear that analyzing code-switching is no easy task, and one should be careful about making simplistic interpretations. Although the analysis of the present data will suggest a list of functions for the code-switches employed by the Danish university students, it is not the intention of this thesis to come to any final conclusions about the functions and uses of code-switching in the present data, but simply describe the instances of code-switching and try to discuss possible interpretations and functions, and furthermore discuss the implications the instances of code-switching may have for the classroom environment. In Appendix 1, some of the typologies of the functions of code-switching previously suggested are listed. From this overview it becomes evident that although the typologies share some categories, they all diverge both in relation to the number of categories included, the types of categories included and the types of bilinguals they apply to.

In the next section, I will review some of the previous studies on classroom code-switching that may be of relevance to the present study.

3.5 Previous studies on classroom code-switching
The purpose of this section is to present some of the previous studies on classroom code-switching. The presentation will focus on findings in the previous studies comparable to the findings of the present study. Since the present thesis is concerned with student code-switching only, studies on teacher code-switching will not be reviewed.

The studies relevant to the present thesis can be divided into three main categories: 1) studies on code-switching in second or foreign language classrooms, 2) studies on code-switching in content- and language integrated learning (CLIL) and 3) studies on code-switching in university classrooms. The following presentation of the studies will primarily focus on aspects relevant to the present study. A detailed overview of the studies
is provided in the original version of this thesis, which is available from the Royal Library.

**Studies on code-switching in second and foreign language classrooms**

A large amount of studies have been conducted within second or foreign language classrooms, but since the present study is not concerned with SLA or FLA classrooms, this section will focus on only three studies, which are found relevant to the present thesis.

The first study is Yletyinen (2004), *The functions of code-switching in EFL classroom discourse*. The purpose of this study was to analyze the functions of code-switching in EFL secondary and upper secondary school classrooms in Finland. The findings showed that code-switching was employed for both social, discourse and pedagogical reasons by students and teachers. It was found that most of the primary functions of student code-switching from English to Finnish were language-related, but that code-switching was furthermore employed for unofficial interactions. Finnish was in this way used for discussing issues not strictly related to the lesson, whereas English was used whenever it was required by the activity or text book. The two languages were thus assigned different roles and meanings by the students, and the findings furthermore indicate that the students did not see the classroom environment as a real communication situation where they should use English at all times, but that it was okay to resort to Finnish whenever a problem arose (Yletyinen 2004: 100).

The second study is a Danish study from 2003 in which Arnfast & Jørgensen aim at detecting the borderline between code-switching as a learning strategy among learners and as a competence among bilinguals. Based on a longitudinal study of code-switching among American and Polish first-year learners of Danish, the researchers argue that the discrepancy between the acquisition view and the bilingualism view of code-switching can be eliminated: although code-switching at an
early stage is often accompanied by heavy flagging (i.e. pauses, hesitation phenomena, repetition and/or meta-linguistic commentary), later stages of learning reveal that learners use code-switching not only for simple purposes, such as making up for deficiencies in their command of the L2, but also employ smooth code-switching as a competence used for advanced purposes, e.g. for social functions.

The third study within language acquisition is Hancock (1997) which examines the code-switching that goes on during group work, in this case role playing, in language classes in which the learners share an L1. The study concludes that the discourse in group work oscillates between a layer in which individuals wish to signal their in-group status to one another and an additional layer in which they defer to an out-group listener: In discourse produced in the non-literal frame, i.e. on-record, the unmarked choice is the L2, whereas in discourse produced in the literal frame, i.e. off-record, the unmarked choice is the L1 (ibid.: 218). In other words, whenever the students are behaving as their normal selves, i.e. in the literal frame, they switch to the L1, whereas in the non-literal frame, i.e. while role playing, the students employ the L2. Hancock argues that the L2 discourse in this way is a performance in which a third participant is implied, namely an idealized native speaker or the teacher (ibid.: 220).

Studies on code-switching in CLIL
A few studies on classroom code-switching within recent years have dealt with content and language integrated learning, abbreviated CLIL. Although English-medium instruction in higher education in Denmark is not categorized as CLIL since no actual language teaching is included in the university courses, studies on code-switching in CLIL are relevant to the present study, as they deal with the use of the L1 in content courses taught in another language. Two studies on code-switching in CLIL will be presented here.

In the first study by Liebscher & Dailey-O’Cain (2005), learner code-switching between the L1 and L2 in an advanced content-
based English language classroom in Germany is analyzed. The study found that students code-switch not only as a fallback method when their knowledge of the L2 fails them, or for other participant-related functions, but also for discourse-related functions that contextualize the interactional meaning of their utterances. According to the researchers, these discourse-related functions have previously only been identified in teacher talk and non-institutional conversation among bilinguals, and the findings thus indicate that language learners are able to conceptualize the classroom as a bilingual space in which they have the opportunity to behave as fluent bilinguals do.

In Nikula (2007) code-switching among students in biology and physics CLIL classrooms taught in English to Finnish seventh-grade and ninth-grade pupils is studied with a focus on the social and interpersonal aspects of language use. The conclusions of the study are similar to those of Liebscher & Dailey-O’Cain (2005) in that Nikula concludes that the students’ code-switching patterns indicate that they ascribe to an identity as users rather than as learners of English in that they confidently use English as a resource for the construction of classroom activities that earlier research on bilingual classrooms has shown to be prone to L1 use (Nikula 2007: 210), e.g. group work and off-task talk. Furthermore, the way the students slip in and out of English and Finnish indicates that they view the classroom as a bilingual space in which both English and Finnish can be employed.

**Studies on code-switching in university classrooms**

Only a few studies have dealt with code-switching in a university context of which most have focused on code-switching among university students in traditional bilingual communities, such as Muthusamy (2009) who investigates code-switching between Tamil, Malay and English in Malaysia, and Zabrodskaja (2007) who studies Russian/Estonian bilingual university students’ use of code-switching in Estonia. Another study by Taha (2008) focuses on teacher code-switching in
respectively Arabic and English-medium instruction during science and social science courses at a university in Sudan.

The only study that has investigated the use of the mother tongue in English-medium instruction at university level in a non-traditional bilingual community is the previously mentioned pilot study by Söderlundh, which has been a source of inspiration to the present study. Although Söderlundh does not base her analysis on code-switching as such, I find her study to lie within the study of code-switching if we employ the broad definition of code-switching as employed in the present thesis. Therefore, I have chosen to include Söderlundh’s study in this section. The aim of the study is to describe the linguistic milieu in Swedish university classrooms where English is the medium of instruction in order to investigate whether English is the only language of interaction, or whether there is a parallel use of the national language, i.e. Swedish, and furthermore detect the functions the national language has and what governs the use of English and the national language in English-taught courses (Söderlundh 2008a: 97). In her pilot study, Söderlundh finds that Swedish is used frequently by the students in situations where all present participants understand the language, especially in group work or small talk, or when talking to teachers during break or after class. Although the medium of instruction is defined as English, this does not necessarily mean that the mother tongue is not used during such courses. This finding suggests that in practice the interpretation of English-medium instruction is that lectures and joint course activities are in English, but that the language use in other student activities are governed by more basic sociolinguistic factors (Söderlundh 2008b: 6). Students interviewed about their use of Swedish suggest that lack of proficiency and awkwardness when speaking English are some of the main reasons for their use of the mother tongue, and furthermore admit that they sometimes deliberately use Swedish where English would be a more appropriate choice. At times, the students even switch to Swedish in situations where non-Swedish speaking international students are present, for example when asking a question or
doing a presentation in front of the class. The teacher will sometimes translate to the international students, but this is not always the case, and consequently, information is occasionally communicated in Swedish only. As this is a pilot study, Söderlundh does not go into the specific functions of the code-switches and the implications these may have on the linguistic and social milieu of the classroom.

In summary, the previous studies presented above have studied code-switching in three types of classroom settings: second or foreign language classrooms, CLIL classrooms and university classrooms. The present study is to be placed within the latter category in which little study on code-switching has been done. The present study is in this way novel in that it is the first study to analyze instances of student code-switching in English-medium instruction at a Danish university; an aspect of internationalization that I find important to look into, as these code-switches may have implications for the linguistic and social milieu of the university classroom that may stand in contrast to the intention with the internationalization process and the language policy implemented at the University of Copenhagen and the Faculty of Life Sciences.

In this first part of the thesis, I have situated the present study within the debate and study of English as medium of instruction in Danish higher education, and furthermore defined and discussed the theoretical basis of the empirical study, namely research on code-switching. The second part of the thesis will focus on my own empirical study of code-switching among Danish university students at two English-medium courses at the Faculty of Life Sciences, University of Copenhagen.
PART II: THE STUDY

4. METHODOLOGY

In this chapter, I will describe the research methods applied and argue why they have been chosen for the thesis and how the methods have been applied. Furthermore, I will describe the method of analysis. The chapter is introduced by a description of the participants in the study.

4.1 Participants
As argued in Section 2.2.1, I have chosen to study the use of student code-switching in English-medium instruction at LIFE since LIFE is the only faculty at the University of Copenhagen with an explicitly formulated language policy.

For the purpose of the study, I have chosen to observe two courses in order to be able to compare the use of code-switching between the two. Due to the scope of the thesis and the time available, I have chosen to include only two courses since the study is only to be considered a case study, but preferably, several courses should have been observed in order to conclude on any tendencies in the general use of code-switching among Danish university students.

Before describing the two courses and the participants, it is necessary to note that as I have guaranteed the students total anonymity, I will not include facts such as course titles, teacher and students names, as well as the nationality of the international students.

The two courses in the study have been chosen from a list of the English-medium courses offered at LIFE in the spring semester 2010. The criteria for the courses, besides the obvious fact that they had to be taught in English, were that they had to contain various didactic genres including lectures, group work and student presentations. Once such two courses were located, the
lecturers were contacted in order to be granted permission to observe and record their teaching.

The first course (henceforward named *course A*) was a course at MSc level, and was taught jointly by 7 lecturers, who all had Danish as their mother tongue. Between 17 and 22 students were present at each session, most of them being Danish biotechnology students. 5 international students were enrolled in the course and represented 4 different nationalities. None of the international students had English as their mother tongue. The course consisted of a mixture of lectures, IT-lab work, group work and group presentations. Groups of four were formed according to the students’ special interests, but it was stressed by the teacher that there had to be at least one international student in each group.

The second course observed (henceforward named *course B*) was a joint BSc and MSc course mainly for veterinary students, and was based on a mixture of lectures and some laboratory group exercises. During the period observed, the lectures were held by two lecturers with Danish as their mother tongue and two lecturers with a language other than Danish as their mother tongue. During laboratory exercises, one teacher with Danish as the mother tongue and two teachers with a language other than Danish as their mother tongue were present. No teachers had English as their mother tongue. Between 17 and 23 students were present at each session, and between 5 and 9 of these were international students who represented 3 different nationalities. Most of the international students were of the same nationality, though. As in the other course, none of the international students in this course had English as their mother tongue. Of the Danish students, it turned out that all of them were BSc students, although the course was offered as a joint BSc and MSc course. The lab-work groups were assigned by the teacher, and consisted of 3-4 students including at least one international student.

Since I am interested in the Danish university students’ use of English and Danish, it is important to know a little about their
English language background. As mentioned in Section 3.2, a wide variety of bilinguals exist, and the question of who and who is not to be considered bilinguals is not that straightforward. I will therefore try to establish whether the Danish university students in the present study can be considered bilinguals, and if so, what type of bilinguals. I am aware that it is difficult to make generalizations about a group that on the surface may seem homogenous, but no doubt will contain individual differences beneath the surface. Some students may have English-speaking family or friends; some might have lived abroad and some might stand out for various other reasons. Consequently, the following categorization of the students will be simplistic in that I describe the average, typical Danish university student following these two courses.

The Danish university students in the present study have been taught English approximately since the age of ten through formal instruction. Since we are dealing with university students who have all gone to the Danish gymnasium (upper secondary school), this means that they have received formal English instruction for at least 8 years before entering university. Although their language learning has primarily taken place through formal education in an EFL context, the picture is not all that clear cut, since they most likely have all been exposed to the language since late childhood through the media and popular culture, e.g. American and British movies, series and music, and within the last decade through the Internet as well. Although this type of exposure to the language can be argued to fall under the ‘naturalistic’ context, I believe that the English language has first and foremost been acquired through formal instruction. It can thus be established that the onset of acquisition for most of the students was approximately at the age of 10 and that the manner of acquisition has primarily been formal instruction.

Several terms from the list provided by Wei (2007), mentioned in Section 3.2, can be used to describe the type of bilinguals the Danish university students can be categorized as. Since the students have not been exposed to the English language since
birth or early childhood, one could describe them as *late bilinguals*, but they may also be termed *secondary bilinguals* or *elite bilinguals* since the second language has been learned through formal instruction. The term that I have deemed the most appropriate and fitting for the Danish university students in the present study is *academic bilinguals*, as defined by Valdés-Fallis (1978): ‘[the academic bilingual] becomes bilingual by choice, generally acquires such additional language skills in an academic context, and may or may not actually be a member of a bilingual community.’ (ibid.: 4). Since English has become the international language of science and academia, as discussed in Chapter 2, Grosjean (1982:35) argues that many educated people have in this way become bilingual in their native language and English, resulting in the fact that in many countries to be educated means to be bilingual.

Having described the participants in the study, the remainder of the chapter will describe the research method and method of analysis employed in the study.

**4.2 Research methods**

The present study is a non-longitudinal case-study using a mixed methods research design. The primary research method is semi-structured non-participant classroom observation, which is supplemented by a short written questionnaire designed for the participants observed. In this section, I will describe the two research methods and argue why and how they have been applied in the present study. The reflections on the methods applied are primarily based on Dörnyei (2007), Neumann (2006), Mackey & Gass (2005), Johnson (1992), Gillham (2008) and Hansen et al. (2008).

**4.2.1 Classroom observation**

As previously mentioned, the primary research method of the present study is classroom observation. In the following subsections, I will describe classroom observation as a research method and argue why I have chosen this method. Furthermore,
I will describe how the method has been applied in the present study.

**Classroom observation as a research method**

One of the most commonly used methods within classroom research is observation; the primary reason for this being the fact that this method is the only method that provides direct information rather than self-report accounts on the classroom interaction (Dörnyei 2007: 178). The aim of classroom observation is thus to provide a description of the activities and interactions taking place without influencing them unduly.

Within the observation of classroom interaction two distinctions are made: *participant* versus *nonparticipant observation* and *structured* versus *unstructured observation* (ibid.: 179). The first distinction is concerned with the observer’s role and participation in the group observed. A participant observer is an observer who becomes a full member of the group and takes part in all activities. This is the usual form of observation in ethnographic observation, but in classroom observation, the researcher is usually minimally involved in the classroom interaction, and can thus be said to be a nonparticipant observer. The distinction may not always be that clear, though, since it is argued that no observer is entirely a participant and no observation can take place without a minimum of participation in a non-experimental situation (ibid.: 179).

The second distinction, that between *structured* and *unstructured observation*, is that in highly structured observation, the researcher has a specific focus and concrete observation categories, whereas in unstructured observation the researcher observes first and then decides what is significant for the research; the two approaches are to be seen as a continuum, though, as a combination of the two approaches is most often used. The data collection method for unstructured observation is typically narrative field notes, whereas the data collection method in highly structured observation is an observation scheme. An observation scheme is an instrument which allows
the observer to quickly record events by ticking off a box in the scheme which contains a number of systematic categories. Several coding schemes have been proposed, such as the FLINT scheme (Foreign Language Interaction Analysis), the TALOS scheme (Target Language Observation Scheme), the MOLT scheme (Motivation Orientation in Language Teaching) and the COLT scheme (Communication Orientation of Language Teaching). For a further description of these, see Mackey & Gass (2005) or Dörnyei (2007). Although these schemes are readily available, they will in most cases have to be adjusted according to the specific research focus and classroom situation in the specific study (Dörnyei 2007: 179).

In addition to observing the classroom interaction, researchers often choose to either audio or video record the classroom interaction, each of these methods presenting the researcher with different advantages and disadvantages. Video recordings allow the researcher to capture the nature of the physical setting, the identity of participants interacting and furthermore aspects of nonverbal communication, such as gestures, facial expressions and body language (Johnson 1992: 86). There are a number of disadvantages to video recordings, however, relating to both technical and ethical issues (ibid.: 86). Firstly, video recordings are time-consuming in that the researcher has to spend some time prior to observation setting up cameras and microphones, and in addition, fixed cameras will present the researcher with blind spots, and microphones may not pick up every detail. Furthermore, some participants may not feel comfortable being video recorded, or may be distracted by the camera, and finally, there is the issue of consent and how to arrange students in the classroom if some of them have not consented to being recorded (Dörnyei 2007: 184).

Audio recording is another way of recording the classroom interaction which is less complicated technically than video recording, but consequently only captures the verbal interaction which at times can make it difficult to distinguish speakers from each other. Although the presence of an audio recorder can
inhibit students, it will most often be less so than with video recordings. In classroom observation, audio recordings are most often used as a supplement to the observation, either to allow the researcher to make detailed transcriptions of the interaction, or to allow the researcher to re-listen to certain passages deemed particularly significant or interesting.

As with any other research method, there are some disadvantages to classroom observation which are important to mention. First of all, observation does not allow researchers access to the participants’ motivations for their behaviors and actions which is often useful in order to make a complete analysis of the classroom interaction. Secondly, there is the issue of the observer’s paradox (a term introduced by Labov 1972). Although the aim of classroom observation is to collect data of natural speech as unobtrusively as possible, the mere presence of an observer can influence the linguistic behavior of those being observed, and consequently the data collected may not be truly natural speech. Related to this is also the Hawthorne effect (a term introduced by Landsberger 1958) which is an effect in which participants perform better due to the fact that they are aware that they are being observed.

Finally, there are also some ethical issues to consider in classroom observation, the most important being that of informed consent. Due to the observer’s paradox and the Hawthorne effect, researchers may be tempted to go ‘under-cover’, so to speak, and observe and/or record participants without their knowledge and awareness. However, this is highly unethical and the correct procedure within classroom research is to gain informed consent from the participants. All participants should thus be informed about the purpose of the research, what their participation entails and whether they are guaranteed total anonymity or not (Dörnyei 2007: 69). Informed consent can be gained either verbally or by having the participants fill out a consent form.
In the next subsection, I will argue why and how classroom observation has been applied as the primary research method in the present thesis.

Classroom observation of the two courses at LIFE
As the present study aims at describing the use of code-switching among Danish university students during English-medium instruction, observation proved to be the only method that would provide me with data to investigate this. As I am interested in both various didactic genres and interaction during breaks, it would first of all be very difficult to set up an experimental setting including all of these genres, and secondly, the experimental setting would not elicit the same degree of naturally occurring speech among the students as in a natural setting, i.e. the classroom. Furthermore, almost all previous studies on classroom code-switching have been based on observation as the primary research method, whereas controlled or experimental methods for studying code-switching are relatively rare (Gullberg et al. 2009: 26).

As I observe only two courses, the study can be defined as a case study which is the study of one unit (or few units) of analysis in its naturally occurring environment (Johnson 1992: 75). In classroom research this unit of analysis, i.e. the case, may be one specific learner or it may be a larger unit, such as the entire classroom, as in the present study. According to Johnson (ibid.), case study methodology is flexible and formulated to suit the purpose of the study, but most often case studies are qualitative and primarily naturalistic (ibid.: 83), as is also the case with the present study. According to Dörayei (2007), qualitative research is characterized by an emergent research design and a small sample size, and is essentially exploratory of nature, as is also characteristic of the present observation research design. The purpose of a case study is often to provide information about a phenomenon which has not been extensively studied, and is in this way used to lay the groundwork for subsequent more in-depth studies.
Although the two courses at LIFE were observed during a time span of two to three weeks for each course, the present study is non-longitudinal (ibid.: 78), as I am not concerned with any developmental aspects of the students' use of code-switching.

In addition to observation, the two courses have also been audio recorded. The purpose of the audio recordings was not to make detailed transcriptions of all of the interaction observed, but rather it was meant as an instrument allowing me to go back and re-listen to instances of code-switching when analyzing the data. Video recording the classroom interaction was also considered, but was not chosen as I found video recording to be more obtrusive than audio recording, both because the students would be more self-conscious when being video recorded and would also feel less anonymous. Secondly, there were also logistic and technical concerns, as video equipment is both more difficult to transport, time consuming to set up, and furthermore requires more technical knowledge on the part of the researcher on how to set up and place both cameras and microphones in order to record optimally. Consequently, audio recording was deemed the most suitable way of recording the interaction.

The study has been conducted through semi-structured observation (Gilham 2008: 19), as there is a specific focus of the observation, namely instances of code-switching, which are coded by means of an observation scheme. The scheme chosen as a template for the study is the COLT (Communicative Orientation of Language Teaching) observation scheme (Spada & Fröhlich 1995) which has been modified in order to suit the purpose of the present study. The scheme is divided into two parts: Scheme A is intended for real-time coding and is a means of describing how the course is organized. Scheme A includes categories such as participant organization and activities, content and materials used, whereas scheme B is intended for non-real-time post-hoc analysis of the interaction. The fact that part B of the scheme is not intended for real-time coding makes the COLT scheme a suitable template for the purpose of the present study, as not all categories for analyzing the student
code-switching were preset, but rather these categories emerged during the process of analysis. The data can thus be said to be analyzed from an emic perspective. Scheme B has been modified more extensively than scheme A in order to suit the purpose of the present study, and includes the categories 'didactic genre', 'base language' and 'type of code-switching'. Scheme A and B can be found in Appendix 2 and 3.

Informed consent from the students was gained orally on the first day of observation where I introduced myself and my project. Before the presentation I had thought carefully about what to tell the students about the project as an ethical dilemma arose as to how much information to give the students about the project. I was aware that if I told the students that I would be looking at their use of Danish during English-medium instruction, this would highly influence their language use as they would be extremely conscious of it. On the other hand, if I did not tell them anything about the purpose of the study, this would not only be somewhat unethical, but would furthermore lead the students to make their own speculations as to my being there, and most likely they would conclude that since I study English, I was probably there to look at some aspect of their English language proficiency which then might lead them to perform better than usual due to the Hawthorne effect. Taking all of these aspects into consideration, I chose to introduce myself and the project by telling the students that I was studying English at the University of Copenhagen and that I was writing my thesis on English-medium instruction at higher education in Denmark and therefore was interested in following some courses to see how the interaction takes place. In this way, I was not untruthful about the purpose, but did not reveal the specific focus area of my study either. The students were furthermore informed that I would be recording the courses, but that they were guaranteed total anonymity. It was furthermore stressed that they should and could let me know at any time if they had any objections to the recording of their interaction, but no objections were made at any point.
Prior to observation, the instructors of the two courses were informed about the specific purpose of the study. The choice to inform the instructors was first of all due to the fact that the instructors might have felt my observation of their teaching somewhat threatening if they had speculations about whether I was there to judge their English proficiency, and secondly because I felt it necessary and important to include as much information about my project as possible when contacting the instructors in order to gain permission to observe the courses. The instructors were furthermore told that it was important that they did not reveal anything about the specific purpose of the study to the students.

The two courses were observed for respectively 22 and 12 hours. The uneven distribution of hours observed is due to the fact that course A included more active student participation than course B, which was primarily based on lectures, and therefore I chose to spend more time observing course A. The schedule for the observation was made in collaboration with the instructors, both to make sure that the instructors would know on which dates I would be observing the courses, but also to make sure that the teaching sessions chosen were balanced so that they included the various didactic genres I was interested in observing. Table 3 shows how many hours the various didactic genres and breaks were observed in the two courses.

<table>
<thead>
<tr>
<th></th>
<th>Course A</th>
<th>Course B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lectures</td>
<td>13 hours</td>
<td>7,5 hours</td>
</tr>
<tr>
<td>Student presentations</td>
<td>3,5 hours</td>
<td>1,5 hours</td>
</tr>
<tr>
<td>Group work (including lab work)</td>
<td>4 hours</td>
<td>1,5 hours</td>
</tr>
<tr>
<td>Breaks</td>
<td>1,5 hours</td>
<td>1,5 hours</td>
</tr>
</tbody>
</table>

Table 3: Overview of number of hours observed according to didactic genre

The observation of the classroom interaction was nonparticipant as I did not participate at any point, placing myself in the back of the room in order to disturb as little as possible with the hope that the students would more easily forget about my presence. During lectures and student presentations, the recording device,
a dictaphone, was placed at the teacher’s desk, but comments and questions from the students are audible as well. During group work, groups were asked if they would mind being audio recorded, and if they agreed, were told to place the recorder somewhere in the middle of the group so all group participants would be audible. During group work, I either stayed in the background and observed from the periphery or simply sent the group off on their own with the dictaphone, as I believed that my presence in the group would disturb and influence the group dynamics and the natural behavior and interaction between the students in the group.

Having described classroom observation as a research method and how it has been applied in the present study, I will now describe the second research method used, namely a questionnaire.

4.2.2 The questionnaire
As previously mentioned, one of the limitations to observation is that it does not provide the researcher with self-report from the participants on the motivations for their behavior and actions. This information is important in the analysis of the functions of the students’ code-switching, as any conclusions based exclusively on classroom observation would more or less be speculations on the part of the researcher. One way of overcoming this limitation is to employ a mixed methods research design which is a combination of qualitative and quantitative methods within a single research project (Dörnyei 2007: 44). A mixed methods research design is thus a triangulation of methods; in this case, the qualitative method of observation is in this way supplemented by a quantitative research method. The advantage of applying a mixed methods research design is that it offers a multi-level analysis of complex issues and thus improves the validity (ibid.: 45), and is a research method that is deemed very useful in classroom research, as the classroom is a highly complex environment (ibid.: 186). For this study, I have chosen to use a questionnaire as the quantitative research method which allows me to gain
insight into the students' own perception of their use of code-switching. In the following sections, I will describe the questionnaire as a research method and describe how it has been designed for the purpose of the present study.

**The questionnaire as a research method**

Questionnaires are a means of collecting information on respondents' self-reported beliefs, opinions and behaviors (Neuman 2006: 273); when designing a questionnaire, the aim is thus to elicit information on what the informants do (behavior), what they mean (opinion) and/or what they know (knowledge) (Hansen et al. 2008: 71). The advantages to using a questionnaire, as opposed to other research methods eliciting self-reports, e.g. interviews, are for one that it is possible to provide the questionnaire to a large amount of people simultaneously, thus making it less time-consuming. Furthermore, a written questionnaire assures uniformity in that all respondents receive an identical set of questions. Finally, questionnaires permit total anonymity.

Designing a questionnaire is a rather difficult task, as there are a number of considerations to be made when designing the questions. First of all, it is important that questions are not ambiguous, confusing or vague (Neuman 2006: 278), and secondly, the researcher must be careful not to make implicit assumptions or ask leading, loaded or biased questions (ibid.: 279).

The questions in a questionnaire can either be closed or open (ibid.: 287). Close-ended questions elicit structured, fixed responses in that the respondents must choose from a fixed set of answers, whereas open-ended questions elicit unstructured, free responses. The advantages to close-ended questions are that it is easy and quick for respondents to answer, and that the answers can be coded and statistically analyzed. The disadvantages to close-ended questions, on the other hand, are that respondents may find that their desired answer is not an option, and furthermore, respondents with no opinion or
knowledge to a question can answer the question anyway. Close-ended questions can in this way often force people to give simplistic responses to perhaps complex issues (ibid.: 287).

The advantages to open-ended questions are that they permit the respondents to answer in detail and to qualify and clarify answers. Furthermore, unanticipated findings can be discovered through answers to open-ended questions. The disadvantages are, however, that different respondents may give different degrees of detail in their answer or their responses may even be irrelevant. Another disadvantage is that a greater amount of respondent time, thought and effort is necessary. Finally, coding of the responses is difficult, making it hard to compare and statistically analyze the answers (ibid.: 287). The choice of using open or closed questions very much depends on the intention and purpose of posing the questions, and it is important that the researcher has this in mind when designing the questionnaire.

Another aspect to consider when designing a questionnaire is how long it will take the respondents to fill out the questionnaire. Often people are reluctant to fill out questionnaires, especially if it takes more than a couple of minutes. This can result in respondents only answering some of the questions, or giving ‘sloppy’ answers, that is, either by ticking off a random box in close-ended questions or by giving very short and simplistic answers to open-ended questions. Furthermore, there is the issue of relevance. If people find the subject of the questionnaire irrelevant or unimportant to them, there is not much motivation for them to answer it.

There are in this way several considerations to be made by the researcher when designing a questionnaire. Consequently, it is crucial that a pilot test of the questionnaire is carried out (Hansen et al. 2008: 117). The purpose of the pilot test is first of all to test whether the questions in the questionnaire elicit the information the researcher intended, and to test whether the questions and answer categories are in any way ambiguous, confusing or vague. Secondly, a pilot test is important to ensure
that the questionnaire is logical and has a professional design. The last purpose of the pilot test is to test how long it approximately takes to fill out the questionnaire.

In this section I have described the questionnaire as a research method, some of the considerations to include in the design and some of the advantages and disadvantages this entails. In the next section, I will describe how the questionnaire for the present study has been designed and implemented.

**Questionnaire design and implementation**

The purpose of the questionnaire in the present study is to collect information on the students' self-report of their use of code-switching. Other research methods eliciting this type of information have also been considered, including retrospective think-aloud interviews in which the students listen to recordings of instances where they code-switch and are asked to comment on them. Although this type of interview could have been interesting to include in the study, the questionnaire was deemed more suitable for a number of reasons. First of all, interviews are very time-consuming, and the time available would only allow me to interview very few of the participants. Secondly, I would be dependent on students being willing to spend time after class on the interviews, and the students agreeing to be interviewed may not be representative of the group observed. A questionnaire, on the other hand, allowed me to distribute the questions to all of the students observed simultaneously.

The questionnaire is primarily based on closed questions and consists of 14 questions, whereof questions 1 to 11 are related to the students' self-report of their use of code-switching in various didactic genres and situations, their motivations for code-switching to Danish and their awareness of the code-switching taking place. The remaining three questions are included to elicit information on the amount of English-medium instruction the students have received (question 12), what their attitude towards the increasing use of English as the medium of instruction is (question 13), and finally a self-assessment of their English
language proficiency (question 14). As the questionnaire was only to be handed out to the Danish university students and not the international students, I decided to design the questionnaire in Danish. The questionnaire can be found in Appendix 4.

A small pilot-test of the questionnaire was conducted in order to test how long it would take to fill out the questionnaire and whether any of the questions were vague or could be misunderstood. Five respondents were included in the pilot-testing, all of these being university students or former university students who at some point had received English-medium instruction. From the pilot-testing it was concluded that it took about 10 minutes to fill out the questionnaire. Furthermore, some minor changes were made concerning the wording of a few of the questions.

The questionnaire was handed out to the Danish university students at the two courses at the end of the observation period. The reason for handing out the questionnaire subsequent to the observation was due to the fact that the questionnaire revealed the purpose and focus of the study. The questionnaire was handed out during the courses, ensuring a response rate of 100%, as all of the Danish students present filled out the questionnaire. For course A and course B, respectively 14 and 11 Danish students were present and filled out the questionnaire on the last day of observation.

4.3 Method of analysis
According to Pike (1967), there are two perspectives from which qualitative data can be analyzed: an etic and an emic perspective. The main difference between the two is that whereas an etic approach is based on units available in advance, units in an emic approach are determined during analysis. Etic analysis is thus based on preset categories or a conceptual framework with criteria external to the system. In emic analysis, on the other hand, the categories relevant to the specific study emerge from the data and thus provide an internal view with criteria chosen from within the system (Pike 1967: 38). The
analysis of the data in the present study is primarily carried out from an emic perspective, as most of the categories in the analysis are not preset, but emerge during the analysis.

In the following paragraphs, I will present the methods of analysis I will be employing when addressing the three research questions proposed in Section 1.1.

The first research question, *how do Danish university students code-switch during English-medium instruction?*, will be addressed by an analysis of the instances of student code-switching according to Poplack’s (1980) three types of code-switching: *inter-sentential code-switching, intra-sentential code-switching* and *tag switching* (see Section 3.3). As these categories are preset from Poplack’s framework, this particular part of the analysis has an etic approach. In my analysis, I will give an account of the types of code-switching employed by the Danish university students illustrated by examples from the data and furthermore the frequency of use of the three types will be discussed.

The second research question, *when do Danish university students code-switch during English-medium instruction?*, will be discussed through an analysis of the situations in which code-switching takes place, in order to try to answer whether there is a difference in the amount and types of code-switching used according to didactic genre, i.e. lectures, student presentations, group work and furthermore during breaks. The students’ answers to the questionnaire will be included in the analysis to see whether there is accordance between the code-switching observed and the students’ self-report of their use of code-switching according to didactic genre.

The third and final research question, *why do Danish university students code-switch during English-medium instruction?*, is by far the most difficult question to answer. The intention with the research question is to try to analyze the functions of code-switching, but as discussed in Section 3.4.3, this is no easy task.
It is therefore not the intention to come to any final and end-all conclusion regarding the functions of the code-switching employed by the Danish university students in the present data, but based on the tendencies observed during the two courses, a list of the functions that were found to emerge from the data is presented in the analysis. The approach to research question three is thus emic, in that the categories emerge from the data, rather than being preset.

The three questions and the analysis of them are difficult to discuss individually, as they are very much interrelated. For instance, it can be difficult to discuss the function of a certain instance of code-switching without looking at the didactic genre in which the code-switching takes place and what type of code-switching is employed. Consequently, the chapter will be concluded by a summary of the research findings and the interrelationship between how, when and why the Danish university students code-switch.

In this chapter, I have described the participants in the present study as well as the research methods and method of analysis employed. In the next chapter, I will be analyzing the data collected through the classroom observation and the questionnaire, using the methods of analysis presented in this chapter.
5. ANALYSIS

In the 34 hours of observation of the two English-medium courses at LIFE, a total of 67 code-switches occurred. The amount of code-switching was thus somewhat low, as only an average of two code-switches occurred per hour. The purpose of the present chapter is to analyze these 67 code-switches according to the three research questions, i.e. type of code-switching, didactic genre and function of code-switching. The presentation of the data will be based on illustrative examples, as well as comments on the frequency of use of the different types and functions of code-switching and the students' answers to the questions in the questionnaire relevant to the different aspects of the analysis. The questionnaire can be found in Appendix 4.

The total number of code-switches during the two courses according to didactic genre and types of code-switching is provided in Table 4. Since the three didactic genres have not been observed in an equal number of hours, and since the two courses have not been observed for the same number of hours, the average number of code-switches per hour has been calculated and is presented in parenthesis.

<table>
<thead>
<tr>
<th>Course A</th>
<th>Lectures (13 hours)</th>
<th>Student pres. (3,5 hours)</th>
<th>Group work (4 hours)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inter-sentential</td>
<td>1 (0,08)</td>
<td>0 (0,00)</td>
<td>21 (5,25)</td>
<td>22</td>
</tr>
<tr>
<td>Intra-sentential</td>
<td>0 (0,00)</td>
<td>1 (0,29)</td>
<td>16 (4,00)</td>
<td>17</td>
</tr>
<tr>
<td>Tag-switching</td>
<td>0 (0,00)</td>
<td>2 (0,57)</td>
<td>0 (0,00)</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1</td>
<td>3</td>
<td>37</td>
<td>41</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course B</th>
<th>Lectures (7,5 hours)</th>
<th>Student pres. (1,5 hours)</th>
<th>Group work (1,5 hours)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inter-sentential</td>
<td>0 (0,00)</td>
<td>0 (0,00)</td>
<td>23 (15,33)</td>
<td>23</td>
</tr>
<tr>
<td>Intra-sentential</td>
<td>1 (0,13)</td>
<td>1 (0,67)</td>
<td>1 (0,67)</td>
<td>3</td>
</tr>
<tr>
<td>Tag-switching</td>
<td>0 (0,00)</td>
<td>0 (0,00)</td>
<td>0 (0,00)</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1</td>
<td>1</td>
<td>24</td>
<td>26</td>
</tr>
</tbody>
</table>

Table 4: Overview of number of code-switches during the two courses observed
As the table shows, the distribution of the 67 code-switches is rather uneven: the data includes only 2 instances of tag-switching and 20 intra-sentential code-switches whereas the number of inter-sentential code-switches amounts to 45. The distribution according to didactic genre furthermore proved to be even more uneven: whereas only 2 and 4 code-switches occurred during lectures and student presentations respectively, a total of 61 code-switches occurred during group work. It should be noted that the number of code-switches during group work may be a bit misleading for a number of reasons: first of all, not all speech was audible during group work (due to other groups standing nearby, group members moving around etc.), especially in the group work recorded in the laboratory in course B. Consequently, the number of code-switches during group work may have been even higher. Secondly, Table 4 does not say anything about the length of the inter-sentential code-switches; that is, when a code-switch to Danish is made, whether it be for a shorter or longer passage of speech, this counts as one code-switch only. One inter-sentential code-switch may thus be a single utterance, or it may be an entire conversation taking place in Danish.

The illustrative examples in my presentation of the analysis are based on transcriptions made from the audio recordings of the classroom interaction. The examples are provided in Appendix 5. The base language in the examples is set in normal typography, whereas the code-switches are marked in bold. In the case of inter-sentential code-switches where there is no base language or embedded language, I have set the language in which the beginning of the conversation begins in normal typography and the language switched into in bold. The abbreviations 'T' and 'S' stand for teacher and student respectively. Where an example includes the speech of more than one student, the abbreviations S1, S2 and so forth are used. For each new example, the abbreviations S1, S2 etc. are used, and S1 in one example does thus not necessarily equal S1 in another example. If a student is an international student this is
noted in parenthesis. Some of the examples are discussed more than once; therefore, each example is given a number to refer to.

5.1 Types of code-switching used by the Danish university students

In this section, I will analyze the instances of code-switching in the observation data according to Poplack’s (1980) three types of code-switching: inter-sentential code-switching, intra-sentential code-switching and tag-switching, in order to answer the first research question, how do the Danish university students code-switch?. For each type of code-switching, examples from the observation data will be provided, as well as the frequency of use of the three types will be commented on. The examples will be further analyzed in Sections 5.2 and 5.3 where the second and third research questions, namely when and why the Danish university students code-switch during English-medium instruction, are addressed. Due to the uneven distribution of the code-switches in the data, the tag-switches will be analyzed first, then the intra-sentential code-switches and finally the inter-sentential code-switches.

5.1.1 Tag-switching

As previously mentioned, tag-switching occurred only two times during the 34 hours observed, namely during student presentations in course A; the two instances are provided in examples 1 and 2. In example 1, the Danish ‘ja’ is placed at the beginning and end of the utterance, with the purpose of signaling respectively the beginning and end of the utterance. It can be discussed whether these are indeed code-switches, as the Danish ‘ja’ is extremely close to the English ‘yeah’, but after listening closely to the recording, it was judged that the pronunciation of the word was indeed the Danish [ja] and not the English [jɛə], which is used by the student in the beginning of example 2. The code-switch in example 2 (‘bom bom bom bom’) is a typical Danish way of signaling that one does not know what else to say and thus functions as a sentence filler. From the data, it seems that tag-switching is a type of code-switching that is rarely employed by the Danish students, and
the few occurrences are not really problematic for the communication with the international students as the words are similar to their English equivalents and furthermore do not form part of the sentence itself, but merely act as interjections or sentence fillers. These tag-switches will therefore not be analyzed further.

5.1.2 Intra-sentential code-switching

The data gathered contains a total of 20 instances of intra-sentential code-switching; that is, approximately one third of the total number of code-switches is intra-sentential. The data both contains instances of intra-sentential code-switches from English to Danish and vice versa.

Examples 3 and 4 are instances of intra-sentential code-switches with Danish as the base language and English as the embedded language. In example 3, the code-switch occurred during group work on computers and is motivated by the fact that the students were using a patent search engine on the Internet in English, causing the students to use the terms relevant for the searches in English in an otherwise Danish conversation. In example 4, the student is asking the lecturer a question in Danish, but switches to English when repeating terminology used during the preceding lecture.

Other intra-sentential code-switches that occurred during the two courses were so-called flagged code-switches; that is, code-switches which are marked by pauses, hesitation phenomena, and/or metalinguistic commentary which may interrupt the smooth production of the sentence. Examples 5 to 10 are instances of such flagged code-switches. In all of the flagged code-switches in the data, English is the base language and Danish the embedded language. In the examples mentioned, the code-switching is marked by pauses and hesitation, and in example 6 to 10, a metalinguistic comment furthermore interrupts the smooth production of the utterance. Intra-sentential code-switching from English to Danish is in this way
employed by the Danish students in situations where they do not recall or know a word in English.

5.1.3 Inter-sentential code-switching
As mentioned in Section 3.3.1., inter-sentential code-switching includes not only code-switching within one utterance, turn or conversation, but also in the shift between social situations or social events as defined by Blom & Gumperz (1972), e.g. when a shift from lecture to break occurs or when the conversation shifts from being formal to informal. Consequently, and not surprisingly, inter-sentential code-switching is the type of code-switching that has the highest frequency of use in the present data; Table 4 shows that 45 out of the 67 instances of code-switching observed, that is approximately two thirds, were inter-sentential code-switches.

Inter-sentential code-switching within one utterance or turn, that is, code-switching between sentences within the uninterrupted speech of one speaker, rarely occurred within the 34 hours observed; examples 11 to 13 are examples of this type of code-switching. As becomes evident when looking at the data, the inter-sentential code-switching within one turn occurred both when the main part of the conversation took place in Danish, as is the case in example 11 and 12, and in English, as is the case in example 13. Furthermore, this kind of inter-sentential code-switching only occurred during one didactic genre, namely group work. Code-switching between turns, that is in the shift of language from the speech of one interlocutor to another, but within the same conversation, occurred more often, but was also only observed during group work, except for a single instance during a lecture. Examples 14 to 16 are examples of this type of code-switching. Thus the majority of the inter-sentential code-switches in the present data consist of switches between passages of speech in English and Danish during group work.

The most frequent type of inter-sentential code-switching, besides those just described during group work, occurred when a new social situation was introduced, namely when a shift from
lecture to break occurred in which the Danish students generally immediately switched to Danish. As the breaks have not been recorded, examples of this type of code-switching cannot be provided and are not included in Table 4, but I will discuss the language use during breaks further in Section 5.2.4.

In summary, the findings from the observation data shows that a total of 67 code-switches occurred during the 34 hours observed, and that the most frequently used type of code-switching by the Danish university students was inter-sentential code-switching which occurred 45 times, whereas intra-sentential code-switching was used less frequently (20 times) and tag-switching only occurred in two instances. The switch between English and Danish was thus most often characterized by shorter or longer passages of speech in respectively English or Danish, and rarely consisted of sentences containing elements from both languages.

5.2 Code-switching according to didactic genre
In this section, I will be analyzing the use of student code-switching according to the three didactic genres: lectures, student presentations and group work. Finally, I will make some comments on the use of code-switching during breaks. The purpose of analyzing the Danish university students’ code-switching according to didactic genre is to answer the second research question, when do the Danish university students code-switch?; that is, to establish whether there are any differences in the way students employ code-switching and in the frequency of use of code-switching in the various didactic genres in the two courses observed. Questions from the questionnaire related to the students’ own perception of their use of code-switching in the various didactic genres will furthermore be included.

5.2.1 Code-switching during lectures
Lectures do by definition not involve that much student interaction, but may, according to the type of lecture, include student questions, comments or answers to questions posed by the lecturer. In the lectures observed in both courses A and B, there was a very relaxed atmosphere, and the lecturers often
made jokes or casual side remarks. Students were furthermore encouraged by the lecturers to ask questions or make comments at any point, and furthermore, the lecturers occasionally asked the students questions. The students in the two courses did not seem to hesitate in asking questions, making comments or answering the lecturers' questions, and furthermore were able to do so in English without any apparent difficulties. The students did in this way not seem to have any difficulties putting forward their arguments in English, and only two instances of code-switching occurred during the 20.5 hours of lectures observed, namely example 7 and 17. In example 7, a student does not remember or know a word and therefore employs flagged code-switching in which the student inserts a metalinguistic comment and in this way seeks help from the lecturer who then provides the student with the correct term in English. This example is the only example from lectures in which a student does not know or remember how to say something in English. The laughter from the student clearly indicates that there is a relaxed atmosphere during lectures, and that the students find it natural to seek help from others in the rare cases where they do not remember or know a word in English.

The second instance of code-switching during a lecture, provided in example 17, is rather unintentional as the student 'slips' into Danish as he instinctively, and in eager to solve somewhat of a riddle posed by the lecturer, answers the question in Danish, but after the lecturer has repeated the answer in English, the student realizes that he accidentally answered the question in Danish and repeats the English equivalent of the word. I refer to this kind of code-switching as a 'slip'.

The fact that only two instances of student code-switching occurred during lectures suggests that the Danish students are comfortable speaking English during lectures, and that they furthermore do not seem to have any real communication break downs or difficulties getting their points across in English; and if they do, they solve these problems by using other strategies than code-switching, e.g. reformulation. No significant
differences were found between the two courses as the linguistic milieu of the two courses was very similar during lectures, and both courses contained only one instance of student code-switching during lectures. The students’ own perception of their use of code-switching during lectures corresponds with these findings as well, as Figure 1 shows that most students answered that they rarely or never switch to Danish during lectures.

![Bar chart showing code-switching frequency in lectures](chart)

Figure 1. Question 2: How often do you switch to Danish during lectures?

5.2.2 Code-switching during student presentations

The student presentations observed include students presenting themselves and their area of interest on the first day of the course (course A), as well as groups presenting their group work at various points in the course (both course A and course B). For both courses, it seemed that the students were used to making presentations in English, and only four instances of code-switching occurred during student presentations. Two of these are the tag-switches mentioned in Section 5.1.1, which I will not go further into. The only other instances of code-switching during student presentations are examples 5 and 18. Example 5 is as previously mentioned a case in which the student does not remember a word in English, but after having thought about it
for a few seconds recalls the word. Example 18, on the other hand, is an example in which the student is interrupted during her presentation because the teacher (T2) cannot find her on the list of participants in the course. Another teacher (T1) therefore points to the name on the list and says in Danish 'Hernede, nederst' (‘here, down below’). This causes the student to stop her presentation to make the side remark ‘Nederst’ (‘down below’) before continuing her presentation in English. The code-switch does thus not form part of the actual presentation, but is used for a side-remark, and the code-switch is furthermore influenced by the teacher speaking Danish in the preceding utterance. Following Auer’s (1984a) sequential approach, it can thus be argued that the code-switch here is both used as a contextualization cue to mark a sequential contrast, i.e. a side-remark, and moreover, the code-switch is influenced by the preceding utterance by another interlocutor, i.e. the teacher.

As only four instances of code-switching occurred during student presentations, the data suggests, as well as it did for lectures, that the students are comfortable and used to speaking English during presentations and are able to do so without any mentionable linguistic problems or impediments. The findings correspond well with the students’ own perception of their use of code-switching during student presentations, in which most students answered that they never or rarely switch to Danish during student presentations as shown in Figure 2.
5.2.3 Code-switching during group work
In most of the group work observed during the two courses, groups consisted of 3-4 students with at least one international student in each group. This organization of groups was due to the fact that the lecturer had either set the groups beforehand, or had set as a criterion for the group formation that there should at least be one international student in each group. During the IT-lab work in course A, though, students were doing patent searches on the Internet in groups, and these groups were on one occasion not set by the teacher, but chosen by the students themselves, causing students who knew each other beforehand to group together. Consequently, many of the groups consisted of Danish students only.

Group work was the didactic genre that turned out to be the most interesting, and complex, didactic genre in terms of code-switching. Furthermore, the use of code-switching differed very much in the two courses, and therefore the two courses will be analyzed independently in this section.
Code-switching during group work in course A

In course A, the first observation of group work was made during the abovementioned patent search in the IT-lab, and consisted of a group of three Danish girls who knew each other beforehand. The girls consequently spoke Danish together and furthermore asked the Danish lecturer questions in Danish as well. The language of interaction in this group work was thus Danish, and the code-switching instances that occurred were therefore from Danish to English. Furthermore, the instances of code-switching occurring during this group work, a total of 8 intra-sentential code-switches, were all instances where the students were discussing what they had written in the patent search engine or how to search for patents using the search engine, as is the case in examples 3, 4 and 19. In example 3, the student switches to English to quote what she has written as key words in the patent search engine on the computer. Example 4 is interesting in that the student uses the English verb ‘apply’, but inflects the verb in Danish, i.e. ‘applier’ (pronounced [a'plaiə]). In the same way, the English verb ‘combine’ in example 19 is used with the Danish infinitive marker ‘at’ and moreover the student pronounces the verb with the Danish infinitive ending [ɔ], i.e. [kom'baɪna]. The two words are thus morphologically and phonetically integrated into the Danish language by the two students, and it can therefore be discussed whether the English words used here are borrowings rather than code-switches, but since the words are not established loans in Danish and would most likely not be found in the speech of a monolingual Danish speaker, I would argue that this is not the case. From this observation, it seems that the tendency in groups with no international students present is for the language of interaction to be Danish, but that some terminology is used in English.

In course A, two other groups were observed during group work; both groups consisted of 3 Danish students and one international student. The linguistic practices of these two groups were very similar: the main language of interaction was English, but occasional switches to Danish were made. Many of these code-switches were used for addressee specification, as
defined by Gumperz (1982); that is, a student would switch into Danish when addressing only one Danish student in the group, as is the case in examples 13 and 14. In both these examples, the group was having a conversation on the task at hand. In example 13, student 1 turned to student 2 for help searching on the Internet, causing student 2 to respond in Danish, before continuing the conversation with the rest of the group in English. In example 14, the group was discussing what to draw on a mind map. The discussion took place in English, until student 3 switched into Danish to ask student 1 what she was drawing. The students thus on occasion used code-switching when addressing one specific Danish-speaking group member.

The Danish students would furthermore sometimes switch into Danish if the international student was not present for a period of time, but would instantly switch back when the international student returned. On one occasion this was even commented on by one of the Danish students:

S: Here comes the [nationality of the international student]

In this case, two Danish students in the group had been working on their own for a while and had been speaking Danish while doing so. As soon as the international student approached the two, one of the Danish students made the above comment in a low voice, and an instant and effortless switch to English hereafter occurred. Thus the presence of an international student seemed to be the defining factor for the language of interaction.

Students sometimes also code-switched into Danish when addressing the entire group, including the international student, but these code-switches were all intra-sentential flagged code-switches or 'slips' into Danish; examples 6, 8, 9 and 10 are examples of the first, whereas examples 20 and 21 are examples of the latter. In example 8, student 1 does not remember the word 'precipitation' in English and therefore makes a flagged code-switch into Danish. Thereafter the three Danish students negotiate what the correct term is, before student 1 finishes his
utterance in English. Whenever a Danish student does not remember or know a word in English, it thus seems natural for the students to help each other out in order for communication not to break down, which is also the case in example 9 and 10. One could thus say that a negotiation of meaning takes place, and incidental language learning can in this way furthermore be facilitated through these negotiations of meaning. Examples 20 and 21 are cases of false starts where a Danish student slips into Danish, but quickly realizes and starts over in English.

In summary, the following tendencies were found during observation of group work in course A: When groups consisted of Danish students only, or when the international group member was not present for some reason, the language of interaction was Danish with occasional switches into English, whereas in groups including international students the language of interaction was English with occasional switches into Danish, either for addressee specification or due to slips or flagged code-switching. This corresponds well with the students’ answers on the questionnaire where most of the students answered that they once in a while switch to Danish in group work with international students present, whereas in group work without international students almost 100 % of the students answered that they often switch to Danish - Some students even made a side-remark saying that they always speak Danish during group work with Danes only. The students’ answers are shown in Figure 3.
Figure 3. Question 4 and 5 (course A)

When asked whether there were any situations in which it would be a problem if Danish students switched to Danish (question 10 in the questionnaire), many of the students in course A wrote that generally when international students were present only English should be spoken. Below are some of the answers to question 10 in the questionnaire:

‘Generally, it is very impolite to speak Danish if there are non-Danish speakers present’

‘A differentiation of the teaching takes place if everything does not take place in English’

‘If it is relevant for the teaching, it is important that all understand what is said. In group work, I actually think it is quite provocative [to speak Danish] if there are international students present, whether it is relevant for the course or not.’

‘The international students may think it is something they are not suppose to hear and may feel left out’
From the observations made and the answers to the questionnaire, it is found that the students in course A were very conscious of, and showed consideration to, the fact that a non-Danish speaking student was present, and adjusted their linguistic behavior accordingly. For course B, the linguistic practice during group work was somewhat different, as discussed below.

**Code-switching during group work in course B**

For group work in course B, the picture was somewhat different than for course A. The group work observed took place in a laboratory in which groups of three students, including an international student, were doing laboratory experiments. Two groups were observed and recorded in which the same tendency on language use was observed: surprisingly, a very large part of the interaction took place in Danish, despite the fact that an international student was present. In the first group, the Danish students did speak English most of the time during the group work, but often switched into Danish, only to switch back into English when addressing the international student directly, as is the case in example 11 in which a Danish student asks the teacher a question in Danish, but instead of waiting for her reply, decides to ask the international student instead, and therefore switches into English. Another example, which is very illustrative of the problems it can entail when the Danish students use Danish as the language of interaction during group work with international students, is example 15. From this example, it is clear that the international student is confused and somewhat frustrated as to what is going on. Only when confronted with this frustration does one of the Danish students switch into English in order to explain what they are to do next. The Danish students in this way, intentionally or unintentionally, at some points excluded the international student from the group work, causing the international student at some points during the group work to small-talk in his mother tongue with other international students from the same country in groups standing nearby.
In the second group, the international student stood at some distance from the rest of the group and was rather passive; in fact, the international student did not make a single comment during the 30 minutes the group was recorded. The two Danish students spoke Danish together for a large part of the time, but switched to English e.g. when asking questions to the non-Danish speaking teacher, or when reading the instructions for the laboratory exercise.

There are several possible explanations for or interpretations of the linguistic behavior during group work on the part of the Danish students in the two groups observed in course B. First of all, the course was a BSc course, as opposed to course A which was an MSc course, and therefore the students may not have been as used to English-medium instruction as the students in course A: Whereas 64 % of the students in course A had had five or more courses taught in English at BSc level, and 79 % furthermore had had five or more English taught courses at MSc level, the students in course B had only had an average of 2 courses taught in English according to the answers to question 12 in the questionnaire. Consequently, the students in course B may in this way not have been as conscious of their linguistic behavior and the consequences this may have, as the students in course A. Secondly, they may not have felt as proficient and comfortable speaking English as the students in course A, but this interpretation does not correlate well with the students’ self-assessment of their English language proficiency, where all except one student assessed their general English proficiency to be ‘good,’ ‘very good’ or ‘excellent’, and when assessing their English speaking skills, most students further assessed them to be ‘good’ or ‘very good’. The students’ self-assessment of their English language proficiency for both courses is shown in Figure 4.
A third explanation may be that the nature of the group work in group B was quite different than in course A: whereas group work in course A consisted of groups sitting together discussing, group work in course B was in a laboratory where students moved around a lot and interacted with other groups as well. Furthermore, there was a lot of waiting time during the lab work where the students small-talked across groups. Since the atmosphere during the lab work was very casual, this may have resulted in more code-switching. A fourth explanation may be that the Danish students perceived the international group member to be passive and unengaged in the group work, and therefore did not see it as their job to include the student in the group work. One student thus commented in the questionnaire:

'If the international student does not participate actively, I might talk Danish to my Danish partner'

Here I find it difficult to determine the relationship between cause and effect: is the international student passive because the Danish students speak Danish, or do the Danish students speak Danish because the international student is passive? There are in this way several possible interpretations and explanations for the
Danish students’ linguistic behavior during group work, but it is not within the scope of the present paper to assess which of these, if any of them, is the defining factor for the linguistic behavior described. Finally, the students’ switches into Danish may simply be a natural reaction to the artificial situations English-medium instruction sometimes entails.

The students’ answers to question 4 in the questionnaire, which is a self-report of their use of Danish during group work with international students, are rather interesting when compared to the students’ actual linguistic behavior: Respectively 45 %, 73 % and 73 % of the students answered that they rarely or never switch to Danish for a single word or two, a whole sentence, or an entire conversation or discussion during group work with international students. I find it very interesting that the students’ own perception of their use of code-switching is so different from the behavior observed, and this may indicate that the students are not very conscious of or willing to accept their linguistic behavior. The students’ answers to question 4 and 5 in the questionnaire are shown in Figure 5.

![Figure 5. Question 4 and 5 (course B)](image_url)
From the observations made during group work in the two courses, it was found that there was a great difference in the Danish students' language use during group work. Whereas the Danish students in course A were very attentive to the fact that international students were present, and adjusted their linguistic behavior accordingly, the Danish students in course B often switched to Danish despite the fact that non-Danish speakers were present. An average of 16 code-switches per hour thus occurred during group work in course B, whereas the average for course A was somewhat lower, namely 9.25; almost twice as many code-switches thus occurred per hour during group work in course B than in course A. I find the observations made during group work, especially in course B, and the consequences it may have very interesting and somewhat alarming, and will therefore return to this issue in the discussion of the research findings in Chapter 6.

In relation to group work, two final comments are warranted. First of all, the groups observed may not be representative of all of the participants in the courses. Consequently, the tendencies observed only apply to the groups observed and do not necessarily reflect the linguistic behavior of the other students enrolled in the courses. Secondly, the observer's paradox may have influenced the linguistic behavior of some of the students observed. On two occasions where I was not observing the groups, but had left a recording device with them, the students addressed me via the recording device and made some silly remarks at the beginning of the recording. After a few minutes, though, they seemed to forget about the recorder. It is possible, however, that some students spoke more English than they otherwise would have, due to the fact that they knew that the focus of the observation was on English-medium instruction (cf. the Hawthorne effect), but on the other hand, some students may have been more reluctant to speak than they otherwise would have been, because they were aware that they were being recorded.
5.2.4 Code-switching during breaks

As previously mentioned, breaks during the two courses were not recorded, but smaller breaks were observed during which field notes were made. For both courses, there was a clear tendency in the linguistic practices of the Danish students during breaks: the students almost instantly switched to Danish as soon as breaks began, and following Blom & Gumperz's (1972) theory, situational code-switching in this way occurred whenever the social situation changed from lecture to break. A change in the participants' definition of each other's rights and obligations thus occurred in that the Danish students did not seem to feel obligated to include the international students in the social life and milieu during breaks. As one student comments in the questionnaire:

'I in no way feel obligated to include the international students in the social life'

Danish can in this way be interpreted as the Danish students' *we-code*; that is, the code they use for in-group and informal activities, whereas English is the *they-code* associated with more formal and less personal out-group relations, as defined by Gumperz (1982). During breaks, Danish students in this way tended to group together, and so did the international students, especially those of the same nationality. Consequently, very little interaction between the Danish and international students occurred during breaks.

The analysis of the Danish students' code-switching according to didactic genre shows that code-switching rarely occurred during lectures or student presentations, in fact only respectively 2 and 4 code-switches occurred, but during group work the picture was somewhat different, in that code-switching was employed 61 times during the 5.5 hours observed. Furthermore, a switch to Danish was made whenever there was a break during the two courses.
In the previous sections, I have commented briefly on the possible functions of the Danish students’ use of code-switching during the two courses, and in the following section these will be analyzed in more detail in order to answer the third research question, *why do Danish university students code-switch during English-medium instruction?*.

### 5.3 Functions of student code-switching

Although it can be somewhat problematic to set up typologies or categories for the functions of code-switching as discussed in Section 3.4.3, I will nonetheless present a list of categories of the functions I found to account for the code-switches made by the Danish students in the present study. From the observations made during the two courses, the six functions of code-switching in Table 5 emerged:

| 1. Lexical need in English | Language-related |
| 2. Slips into Danish | Language-related |
| 3. Lexical 'quotes' in English | Language-related |
| 4. Danifications | Language-related |
| 5. Addressee specification | Social/discourse-related |
| 6. Small-talk/private talk | Social/discourse-related |

Table 5: Functions of the Danish university students’ code-switching

The categories have been inspired by pre-existing categories in the typologies summarized in Appendix 1; however, some of the category names have been changed or modified and new ones have been added. In the following sections, I will present and discuss the six functions individually, as well as provide examples from the data within each category. It should be noted that these six categories may not account for each and every instance of student code-switching during the two courses, as the function of some code-switches may not be possible to code (cf. discussion in Section 3.4.3), but I do believe that the six categories can account for the majority of the code-switches observed.
5.3.1 Lexical need in English
The first functional category has been inspired by Valdés-Fallis's (1978) category 'switches that reflect lexical need' which accounts for instances where one either does not know a word or it has been momentarily forgotten. These code-switches are therefore often flagged code-switches as well, as they are often identified by hesitation, pauses and in some cases metalinguistic commentary. Examples of such code-switches have been presented in the preceding sections; see examples 5 to 10. As is evident from these examples, whenever these flagged code-switches occur, and the student speaking does not recall the word after a few seconds of hesitation, the students, and sometimes the lecturer, help each other out in finding the correct or an equivalent term in order for communication not to break down. As previously mentioned, this negotiation of meaning can have a positive effect in that it can facilitate incidental vocabulary acquisition.

The function of code-switching for lexical need in English, I would argue, is not problematic in the two courses observed for three reasons: first of all, they can facilitate vocabulary acquisition as mentioned above, and secondly, they are not problematic for the communication with non-Danish speakers as the English equivalent term is always provided afterwards by one of the interlocutors. Thirdly, this function of code-switching occurred only 6 times during the 34 hours observed and is in this way not a common feature in the student interaction; had they occurred more often, this could potentially have been very disturbing and would somewhat interrupt the smooth interaction, though.

5.3.2 Slips into Danish
The second category has been termed 'slips into Danish', as these code-switches are instances where the student seems to unconsciously or unintentionally slips into Danish, but switches back into English as soon as he or she realizes this (see examples 17, 20 and 21). Code-switching in these instances is not an intentional strategy on behalf of the speaker, but rather
they suggest that Danish is the default language of the Danish students as it is their mother tongue. Consequently, the students can easily make false starts and slip into Danish unconsciously whereas the use of English will almost always be a conscious language choice. This function of code-switching I do not find problematic either, first of all since they occurred very rarely, only 3 times in total. Secondly, the students quickly after these false starts switched to English, and no information was therefore lost for the international students. No previous typologies have included this functional category, perhaps because this function of code-switching is, as mentioned above, not intentional.

5.3.3 Lexical ‘quotes’ in English
When English is the medium of instruction, and text books and other materials furthermore are in English, this often entails that the students use certain terms in English when discussing their subject in Danish. The students in this way ‘quote’ terminology that has been used in preceding lectures, in text books, or in other materials such as in the search engine used during IT-lab group work in course A. From the observation of the IT-lab work, I found that when students spoke Danish together during group work, intra-sentential code-switching to English was often used to quote what had been written in the patent search engine, including terms such as ‘fermentation’, ‘malolactic’, ‘beer’ and ‘wine’. In the same way, the student in example 4 used the word ‘obviousness’ in an otherwise Danish utterance because the term had been used by the lecturer in the preceding lecture. English terms were in this way occasionally inserted into an otherwise Danish utterance, and furthermore, these code-switches were so-called smooth code-switches in that a smooth transition between L1 and L2 elements occurred, and the code-switching was thus unmarked by hesitation, pauses or meta-linguistic commentary. A total of 8 instances of this kind of code-switching occurred during group work.

The code-switches used for ‘quotes’ were in this way smooth in contrast to the code-switches employed when a student did not
remember or know a word in English in which the code-switches were flagged, as discussed in Section 5.3.1. It should be noted, however, that the fact that the students use some of these terms in English does not necessarily mean that they do not know or have never heard the Danish equivalent, but rather that the English term is more automatically retrieved in that it is used in the materials or by the lecturer.

No pre-existing categories cover exactly this function of code-switching, although Gumperz (1982), Grosjean (1982) and Valdés-Fallis (1978) include functions of code-switching related to quoting someone, but these functions do not refer to intra-sentential switches as in the examples from the present data, but rather longer passages of speech quoted in the language of the original speaker.

5.3.4 Danification
On two occasions (examples 4 and 19), English words were inflected and pronounced in Danish by the students, as mentioned in Section 5.2.3, i.e. ‘applier’ [a'plaɪə] and ‘combine’ [kɒm'baɪnə]. These examples are interesting in that the English terms are employed as loan words in Danish being morphologically and phonologically integrated into the Danish language. However, as previously argued they cannot be defined as established loans since it is unlikely that a monolingual Danish speaker would employ these words. I have therefore chosen to categorize these instances of code-switching as ‘danifications’ (in contrast to ‘anglification’ which is the process of making something English, e.g. by altering the spelling and pronunciation of a word). No previous typologies include categories similar to this category.

5.3.5 Addressee specification
The fifth function of student code-switching is that of addressee specification, which both Gumperz (1982) and Grosjean (1982) include in their typologies. As defined by Gumperz (1982), code-switching can have the function of directing a message to one of several possible interlocutors, accommodating
monolingual speakers, or excluding someone from a conversation or parts of a conversation.

As previously mentioned, the Danish students in the present study at times switched to Danish for shorter or longer passages of speech during group work, and many of these can be analyzed as having the function of addressee specification. In some cases, the students thus switched to Danish during group work even though international students were present, as in example 13 and 14. In both these examples, I believe the code-switches have the function of addressing one of several possible interlocutors, namely only one of the Danish students in the group. This hypothesis is furthermore supported by the fact that these utterances in Danish were said in a lower voice than the rest of the conversation taking place. In this way, the student speaking does not believe that the utterance is relevant to all group members, and therefore switches to Danish.

In other cases, the opposite scenario occurred: Students who had been speaking Danish for large parts of the group work would switch back to English in order to address the international student in the group, as in example 11. This code-switch is employed both to address a certain interlocutor and to accommodate a non-Danish speaker, i.e. the international student in the group. In fact, all speech in English during group work in the two courses can be argued to have the function of accommodating non-Danish speakers, as the presence or non-presentation of an international student seemed to be the most important defining factor in the choice of code, i.e. the language of interaction, at least for course A.

As previously mentioned, code-switching for addressee specification can also have the function of excluding someone from a conversation or parts of a conversation. Since the Danish students, especially in course B, sometimes switched to Danish in the presence of an international student, one could be tempted to analyze this as an exclusion of that group member; indeed there is no doubt that the international student is excluded from
the conversation in these cases, but it is my impression from the observation that this was not necessarily the Danish students’ intention with these code-switches to Danish. In Section 5.2.3 I presented possible explanations and interpretations for this linguistic behavior on behalf of the Danish students, but the thesis remains inconclusive to the motivations for these code-switches as it is difficult to know whether the intention and meaning of code-switching assigned is in fact intended by the speaker or apprehended in this way by the interlocutor, as argued by Stroud (1992) in Section 3.4.3. One way of eliminating this problematic issue would have been to include retrospective interviews of the participants. I will return to this issue in the discussion of the research methods in section 6.1.

5.3.6 Small-talk/private talk
The final functional category emerging from the data has a social function as it was found that the Danish students in the present study immediately switched to Danish when a shift from lecture to break occurred, i.e. situational code-switching, and furthermore that the students also on occasion switched to Danish for small-talk or private talk during group work, i.e. when a switch in social event occurred. Following Auer’s (1984a) theory, these code-switches are discourse-related, as defined in Section 3.4.2, in that they contextualize a change in mode of interaction. This final function of code-switching is similar to both Valdés-Fallis’s (1978) categories ‘situational switches’ and ‘contextual code-switches’, as well as Yleityinen’s (2004) category ‘unofficial interactions’.

As previously mentioned, a change in the participants’ definition of each other’s rights and obligations occurred in these situations, and as argued in Section 5.2.4, Danish can in this way be interpreted as the Danish students’ we-code; the code they use for in-group and informal activities, whereas English is the they-code which is associated with more formal and less personal out-group relations; in this case, the language of interaction for academic purposes. This furthermore indicates that the students do not see the breaks as an integral part of the
course, and that they therefore do not feel obliged to speak English with the effect that the international students and Danish students rarely interact during breaks. In the discussion of the research findings in the next section, I will touch upon the consequences this may entail.

From the observation of the two courses at LIFE, six functional categories thus emerged to account for the code-switching employed by the Danish university students. The four first categories, *lexical need in English, slips into Danish, lexical 'quotes' in English* and *danifications* are, as the titles indicate, language-related, whereas the last two categories, *addressee specification* and *small talk/private talk* have social or discourse functions.

The language-related functions turned out to be fairly easy to code, and the data was found to include respectively 6, 3, 8 and 2 instances of these functions of code-switching. Furthermore, in all of these instances the code-switches were intra-sentential. The discourse and social functions, on the other hand, were more difficult to code, first of all since these functions are based on my interpretations, and furthermore since one code-switch may be assigned to more than one function. It is therefore difficult to assess exactly how many instances can be assigned to the two categories, but it can be concluded that the majority of the code-switches employed by the Danish students were employed for discourse and/or social functions. All of these code-switches were furthermore inter-sentential code-switches.

The overall tendency found on the function of student code-switching was thus that intra-sentential code-switching was employed for language-related functions and inter-sentential code-switching was employed for discourse and social functions.

Having analyzed the Danish university students’ code-switching at the two courses observed at LIFE, I will in the final chapter of the thesis summarize and discuss the findings of the present
study and the possible implications the linguistic behavior and milieu found in the two courses may entail in relation to the internationalization process and LIFE's language policy. Furthermore, the findings from the present study will be compared to findings of some of the previous studies on English-medium instruction in Danish higher education presented in Section 2.2.2 and studies on classroom code-switching presented in Section 3.5. Finally, the chapter concludes with suggestions for future research.
6. DISCUSSION AND CONCLUSION

The aim of the present study was to contribute to the debate on and study of English-medium instruction in Danish higher education by investigating Danish university students’ use of code-switching during English-medium instruction. The study is to my knowledge the first of its kind to investigate student interaction during English-medium instruction in Danish higher education, aiming at describing and analyzing the use and role of the mother tongue, Danish. The study was a case study based on observation of two English-taught courses at the Faculty of Life Sciences at the University of Copenhagen during the spring 2010. The Faculty of Life Sciences was chosen for the present study as it is the only faculty at the University of Copenhagen with a specific language policy. The two courses observed each included three didactic genres: lectures, student presentations and group work, and were observed for a total of 34 hours. In addition to the observation, a questionnaire was handed out to the participants, in order to collect information on the Danish students’ self-report on their use of code-switching.

Three research questions were addressed in the thesis: how, when and why do Danish university students code-switch during English-medium instruction.

The first research question, how do Danish university students code-switch during English-medium instruction?, was addressed by an analysis of the students’ code-switching according to Poplack’s (1980) three types of code-switching: inter-sentential code-switching, intra-sentential code-switching and tag-switching. The findings showed that tag-switching rarely occurred during the two courses, whereas approximately one third of the code-switches were intra-sentential and two thirds were inter-sentential. A total of 67 code-switches occurred during the 34 hours observed.

The second research question, when do Danish university students code-switch during English-medium instruction?, was
answered by analyzing the students’ code-switching according to the three didactic genres: lectures, student presentations and group work. It was found that hardly any code-switching took place during lectures and student presentations, and a vast majority of the code-switches thus occurred during group work. In relation to group work, the two courses observed diverged in that the students in course A primarily code-switched without international students present, whereas students in course B also code-switched with international students present. Possible explanations and interpretations of this behavior were discussed, but the study remains inconclusive to the students’ motivations for this behavior as any conclusions would be speculations on behalf of the researcher. Furthermore, students in both courses immediately switched to Danish whenever a shift from lecture to break occurred, and Danish and international students did in this way rarely interact with each other during breaks. According to the students’ answers to the questionnaire, their own perception of their use of code-switching during the various didactic genres corresponded well with the findings from the observation, except for group work with international students present, where most students in course B answered that they rarely or never switch to Danish, although the observation of their group work suggested otherwise.

The third research question, why do Danish university students code-switch during English-medium instruction?, proved to be the most difficult research question to answer for various reasons, including the fact that it can be difficult to know whether the intentions assigned are indeed intended as such by the speaker. Partly inspired by previous typologies, the following six functions of code-switching emerged from the data: 1) Lexical need in English, 2) Slips into Danish, 3) Lexical ‘quotes’ in English, 4) Danifications, 5) Addressee specification and 6) Small-talk/private talk. It was stressed, however, that not necessarily each and every code-switch in the data fits neatly into one of these categories. The analysis of the code-switches in the data showed that the intra-sentential code-switches could be assigned to one of the first four functions and were thus
language-related, whereas the inter-sentential code-switches in
the data were found to have a social or discourse function and
could primarily be assigned to one of the two latter categories.
These code-switches proved to be more difficult to code than the
intra-sentential code-switches as the intention and function of
the language-related code-switches were easier to assess than
the social and discourse functions which required more
interpretation on behalf of the researcher.

The overall conclusion to the findings in the observation of the
two courses at LIFE is that the Danish university students in the
present study seem to be perfectly capable of communicating
and putting forwards arguments in an academic context in
English and only occasionally slip into Danish or use Danish
terms when they cannot recall a term in English. In relation to
LIFE’s goal to ‘ensure that as graduates from our University,
our students are provided with (...) a fluent command of the
English language’, the study seems to indicate that the Danish
students do not seem to have any problems functioning in the
frame set by LIFE. Although the students’ English proficiency
seems to be adequate for receiving and participating in English-
medium instruction, it was nonetheless found that the students
regularly switched into Danish during group work. Possible
explanations and interpretations for this linguistic behavior have
previously been touched upon in the present study, and the
discussion here will therefore concentrate on the possible
consequences of this linguistic behavior.

In LIFE’s language policy, it is stated that courses where the
medium of instruction is English requires that ‘all textbooks,
handouts, curriculum descriptions, etc are in English, project
work is in English and the final exam (oral or written) is in
English’. In the courses observed, all of these requirements were
met, except for project work, i.e. group work, in which the
language of interaction was not necessarily English at all times.
The question, then, is whether this is problematic. First of all,
there is the question of whether Danish students should speak
English in groups with no international students present which is
a somewhat artificial situation. In these situations, the Danish students observed seemed to have a very pragmatic approach to their language choice; that is, the presence or non-presence of an international student seemed to be the most important defining factor for the language of interaction. In this way, English and Danish are used where it makes sense to the Danish students although the medium of instruction is stated as English in the course description. The lecturers seemed to have the same approach to language choice as the lecturers observed never told the students to speak English when they spoke Danish during group work, and furthermore often answered questions in Danish during group work or breaks. In Jakobsen (2010), lecturers also noted that Danish was often used during group work with only Danish-speaking students present and did not express that they found this to be problematic. This behavior during group work is thus not unique to the students in the present study. Both students and lecturers thus seem to follow the principles of parallel language use where the choice of language depends on what is deemed most appropriate and efficient in a specific situation, rather than strictly following LIFE’s general language policy.

The use of code-switching, I believe, becomes more problematic when the Danish students switch to Danish in group work with international students present, as was often the case in course B. Furthermore, the Danish students spoke Danish during breaks and therefore did not really interact socially with the international students. Although the instructors made an effort to mix students during group work, and one instructor even explicitly stressed the importance of making the international students feel welcome, the Danish students would nonetheless switch to Danish on these occasions. One of the reasons presented by LIFE for formulating their language policy is ‘to enable our university to attract the best and brightest students (...) globally’. The interesting question is what impression the international students are left with after having spent a semester or two at the University of Copenhagen, and consequently what reputation the University of Copenhagen has among students at
universities around the world: are the Danish students perceived as arrogant, stand-offish and unwilling to cooperate and interact with international students? What is the international students’ perception of the Danish students’ behavior? One might therefore ask oneself whether the University of Copenhagen is perceived as an attractive milieu for international students, and whether they will recommend other students to spend a semester or two at the University of Copenhagen. It would have been very interesting to gain insight into how the linguistic behavior observed in the present study was perceived by the international students; unfortunately, this was not within the scope of the present study, but could be the focus of future research.

Although the above discussion may be rather gloomy, it is important to note that the overall impression from the observation was positive in the sense that the students seemed very proficient and comfortable in speaking English and did not hesitate to ask questions, answer questions or make comments during lectures. The findings of the present study thus correlate well with the results of CIP’s (2009) survey in which the lecturers did not find it more difficult to involve the students when the medium of instruction is English; most lecturers in Jakobsen’s (2010) interviews shared this viewpoint as well. The present findings together with CIP’s results do in this way not correlate with Tange’s (2010) findings in that the lecturers in Tange’s study found that the students are more passive and hesitant to make questions and comments during English-medium instruction as was also the perception and experience of some lecturers in Jakobsen’s (2010) study. It should be stressed, though, that as the present study has only observed English-medium courses, it is not possible to say whether students would have been even more active had the courses been taught in Danish.

From these findings, it seems that the lecturers’ perceptions in relation to student interaction diverge, which indicates that the medium of instruction is not the only defining factor for the amount of student interaction, and it would therefore be
interesting to investigate further which factors — social, pedagogical and linguistic — that influence these perceived differences in relation to student interaction.

Having compared the present study to previous studies on English-medium instruction in Danish higher education, I will now compare the study to the previous studies on classroom code-switching mentioned in Section 3.5. In the previous studies of code-switching within FLA and SLA, it was concluded that code-switching apart from being employed by language learners for making up for language deficiencies was also employed for social functions. This also turned out to be the case in the present study, but here only a small amount of the code-switches were language-related, whereas the majority were discourse-related or had a social function. This finding thus supports the argument that the students in the present study are not defined as language learners, but rather academic bilinguals. The students can in this way be compared to the students in Liebscher & Dailey-O’Cain (2005) and Nikula (2007) within CLIL in which it was concluded that the students ascribe to an identity as language users rather than learners of English, and furthermore view the classroom as a bilingual space. Finally, when comparing the findings of the present study to Söderlundh’s pilot study (2008a), it becomes clear that the findings of the two studies are very similar: the Swedish and Danish university students both switched to their mother tongue in situations where all participants understood the language, e.g. during group work or small talk, or when talking to teachers during breaks. As was concluded by Söderlundh (ibid.), the students in this way interpret English as the medium of instruction in practice as meaning that lectures and joint activities should be in English, but that in other activities the language choice is rather defined by sociolinguistic factors. Both the Swedish and Danish students furthermore occasionally switched to their mother tongue even though international students were present, and the only discrepancy between the findings of the two studies turned out to be the fact that the Swedish students would also occasionally switch to Swedish during lectures or student
presentations. This finding and the fact that the Swedish students suggested that lack of proficiency and awkwardness speaking English were the main reasons for switching to Swedish, suggests that the Danish students in the present study are more confident when speaking English than the Swedish students, and furthermore are better able to express themselves in English. It will be interesting to compare the two studies further when the results from Söderlundh’s PhD project are published.

6.1 Discussion of research method
The purpose of this section is to discuss the research method applied in the present study, and to discuss how well this method has enabled me to answer the three research questions of the thesis.

In general, classroom observation proved to be the optimal research method for answering the three research questions as it is the only research method that provides direct information on the use of code-switching. Minor problematic issues arose in the way the observation was conducted, especially related to the audio recordings. First of all, students would move around during group work which at times made some speech inaudible as the recorder was stationary. Secondly, it occasionally proved difficult to assess whom a speaker was addressing, as well as no information on body language, facial expressions and gestures was available which at times could have been useful in order to analyze the functions of certain code-switches. These problems could have been solved by video recording the students and placing a microphone on each student during group work, but video recordings would have presented other problems, both in relation to technical issues and to the observer’s paradox as discussed in Chapter 4 on methodology.

Another problematic issue is, as previously mentioned, the fact that when analyzing the functions of code-switching the researcher can never be certain that the intention and meaning assigned to the code-switches are in fact intended by the speaker
or apprehended in this way by the interlocutors. One way of eliminating this problematic issue could have been to conduct retrospective interviews of students in which recordings from the observation would be played to the students in order for them to give retrospective comments on their use of code-switching. This research method would in this way have provided me with interesting insights into the students’ own perception of their code-switching behavior. The method was discarded, however, for a number of reasons previously discussed in the methodology chapter (see Section 4.2.2). Instead, I chose to hand out a questionnaire to the Danish students in the two courses in order to gain some insight into the students’ self-report of their use of code-switching. The largest problem in relation to the questionnaire was the fact that the questionnaire had to be designed before the analysis of the students’ code-switching was made, and consequently before the categories emerged from the data. In retrospect, some questions and answer categories in the questionnaire should in this way have been modified. It would for example have been interesting to include the six functions of code-switching which were found to be the primary reasons for code-switching in the questionnaire, to see whether the students’ perception of their code-switching would correlate with the typology suggested in the present analysis.

Finally, it should be stressed again that since the present study is a case study, the study does not necessarily say anything on Danish students’ use of code-switching in English-medium instruction in higher education in general, as the students and courses in the present study may not be representative. Furthermore, the groups chosen for the observation of group work, in which the data proved to be most complex and interesting, may not have been representative either.
6.2 Suggestions for future research
The present thesis has contributed to the debate and study of English-medium instruction in Danish higher education by providing information on the actual language use of Danish university students during English-taught courses. The findings of the study can in this way help shed light on the student interaction during English-medium courses in order to determine whether there are aspects - pedagogical, social or linguistic - that need to be addressed in relation to the internationalization process and the language policies at force. As the present study is a case study, the conclusions from the study can consequently only say something about the two courses observed, and may not necessarily be applicable to English-medium courses in Danish higher education in general. A suggestion for future research is therefore to conduct a large-scale study of university students' code-switching during English-medium instruction in order to establish whether the findings of the present study are representative of Danish university students in general. Furthermore, it is suggested that further studies into the area should include retrospective interviews with students in order to gain more insight into the motivations and intentions with the students' use of code-switching. Finally, the international students' perception of the social and linguistic milieu in Danish university courses is an area that should be investigated further, as the attraction of international students is a key issue in the internationalization of Danish higher education.
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ABSTRACT

In Danish higher education, English is increasingly being used as the medium of instruction, and this development has spurred a number of studies on the subject within recent years. Previous studies (e.g. Jensen et al. 2009, Jakobsen 2010 and Tange 2010) have mainly focused on lecturers' experiences with and attitudes towards English-medium instruction, while Didriksen (2009) investigated Danish first-year students' English reading comprehension and their attitudes towards the use of English as the medium of instruction. The present study is thus the first of its kind since the focus here is on student verbal interaction, and the aim of the thesis is to investigate Danish university students' use of code-switching, defined by Auer (1984a) as 'the alternate use of more than one language', during English-medium instruction. The study is a case study conducted through classroom observation of two English-taught courses at the Faculty of Life Sciences at the University of Copenhagen during the spring 2010, and includes observation of lectures, student presentations and group work. In addition to observation, a questionnaire has been distributed among the participants in order to gain information about the Danish students' self-report on their use of code-switching. This data collection method makes it possible to address the three research questions of the thesis: how, when and why do Danish university students code-switch during English-medium instruction?

The study concludes that of the 67 instances of code-switching that occurred during the 34 hours observed, approximately one third of these are intra-sentential and are assigned to one of four language-related functions: lexical need in English, slips into Danish, lexical 'quotes' in English or danifications. The other two thirds of the code-switches are inter-sentential and are assigned to social and/or discourse functions, as they are primarily employed for addressee specification or small-talk/private talk. Furthermore, code-switching rarely occurred during lectures and student presentations, and the students are in this way found to be perfectly capable of putting forward arguments in English. The
students nonetheless often switch to Danish during group work and breaks, on some occasions even when international students are present, and the possible interpretations, explanations and consequences of this behavior are further discussed. Finally, the findings of the present study are compared to previous studies on English-medium instruction in Danish higher education as well as previous studies on classroom code-switching.
## APPENDIX 1: TYPOLOGIES OF FUNCTIONS OF CODE-SWITCHING

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Quotations</td>
<td>• Fill a linguistic need for lexical item, set phrase, discourse marker, or sentence filler</td>
</tr>
<tr>
<td>• Addressee specification</td>
<td>• Continue the last language used</td>
</tr>
<tr>
<td>• Interjections</td>
<td>• Quote someone</td>
</tr>
<tr>
<td>• Reiteration</td>
<td>• Specify addressee</td>
</tr>
<tr>
<td>• Message qualification</td>
<td>• Quality message: amplify or emphasize</td>
</tr>
<tr>
<td>• Personalization vs. objectivization</td>
<td>• Specify speaker involvement</td>
</tr>
<tr>
<td></td>
<td>• Mark and emphasize group identity</td>
</tr>
<tr>
<td></td>
<td>• Convey confidentiality, anger, annoyance</td>
</tr>
<tr>
<td></td>
<td>• Exclude someone from conversation</td>
</tr>
<tr>
<td></td>
<td>• Change role of speaker: raise status, add authority, show expertise</td>
</tr>
<tr>
<td>------------------------------------------------------</td>
<td>------------------------------------------</td>
</tr>
<tr>
<td>Switching patterns that occur in response to external factors:</td>
<td>• Lack of facility</td>
</tr>
<tr>
<td>• Situational switches</td>
<td>• Lack of register</td>
</tr>
<tr>
<td>• Contextual switches</td>
<td>• Mood of the speaker</td>
</tr>
<tr>
<td>• Identity markers</td>
<td>• To emphasize a point</td>
</tr>
<tr>
<td>• Quotations and paraphrases</td>
<td>• Habitual experience</td>
</tr>
<tr>
<td>Switching patterns that occur in response to internal factors:</td>
<td>• Semantic significance</td>
</tr>
<tr>
<td>• Random switches of high frequency items</td>
<td>• To show identity with a group</td>
</tr>
<tr>
<td>• Switches that reflect lexical need</td>
<td>• To address a different audience</td>
</tr>
<tr>
<td>• Triggered switches</td>
<td>• Pragmatic reasons</td>
</tr>
<tr>
<td>• Preformulations</td>
<td>• To attract attention</td>
</tr>
<tr>
<td>• Discourse markers</td>
<td></td>
</tr>
<tr>
<td>• Quotations and paraphrases</td>
<td></td>
</tr>
<tr>
<td>• Stylistic switches</td>
<td></td>
</tr>
<tr>
<td>• Sequential switches</td>
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</tr>
<tr>
<td>------------------------------------------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>• Lack of one word in either language</td>
<td>• Explanation</td>
</tr>
<tr>
<td>• Some activities have only been experienced in one of the languages</td>
<td>• Requesting help</td>
</tr>
<tr>
<td>• Some concepts are easier to express in one of the languages</td>
<td>• Pupils helping each other</td>
</tr>
<tr>
<td>• Some words are easier, more distinguishable and easier to use in one language</td>
<td>• Self-corrections</td>
</tr>
<tr>
<td>• A misunderstanding has to be clarified</td>
<td>• Moving from one activity to another</td>
</tr>
<tr>
<td>• One wishes to create a certain communication effect</td>
<td>• Code-switching in clearing misunderstandings</td>
</tr>
<tr>
<td>• One continues to speak the language latest used because of the trigger effect</td>
<td>• Not knowing the English counterpart</td>
</tr>
<tr>
<td>• One wants to make a point</td>
<td>• Checking for understanding</td>
</tr>
<tr>
<td>• One wishes to express group solidarity</td>
<td>• Unofficial interactions</td>
</tr>
<tr>
<td>• One wishes to exclude another person from the dialogue</td>
<td>• Pupils’ comments</td>
</tr>
<tr>
<td></td>
<td>• Pupil initiation</td>
</tr>
<tr>
<td></td>
<td>• Teacher admonitions</td>
</tr>
<tr>
<td></td>
<td>• Grammar translation</td>
</tr>
<tr>
<td></td>
<td>• Grammar explanation</td>
</tr>
<tr>
<td></td>
<td>• Lapses</td>
</tr>
<tr>
<td>CONTENT</td>
<td>SOURCE</td>
</tr>
<tr>
<td>--------------------</td>
<td>--------</td>
</tr>
<tr>
<td></td>
<td>TEXT</td>
</tr>
<tr>
<td></td>
<td>OBJEQT</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>PARTICIPANT ORGANISATION</th>
<th>INDIVID.</th>
<th>GROUP</th>
<th>CLASS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>S/C</td>
<td>S/C</td>
<td>S/C</td>
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</table>

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<thead>
<tr>
<th>ACTIVITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIALECTIC GENRE</td>
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</table>
APPENDIX 4: QUESTIONNAIRE (IN DANISH)

Spørgeskema om danske universitetsstuderendes brug af dansk i engelsksproget undervisning

Som afslutning på min observation af jeres undervisning, vil jeg bede dig udfylde dette spørgeskema. Jeg er interesseret i at vide, om der er situationer i engelsksproget undervisning, hvor du skifter over til dansk, og om det drejer sig om enkelte danske ord, eller om du i visse situationer skifter helt over til dansk i et kortere eller længere stykke tid.

Resultaterne fra denne spørgeskemaundersøgelse samt observation af jeres undervisning vil indgå i mit speciale om kodeskift blandt danske universitetsstuderende i engelsksproget undervisning.

Jeg håber, du vil bruge ca. 10 minutter på at udfylde skemaet. Som med observationen af jeres undervisning er data fortrolige, og alle respondenter vil være anonyme.

1) Hænder det at du skifter over til dansk i engelsksproget undervisning?

Ja

Nej

Hvis nej, gå til spørgsmål 12

Hvis ja, hvor ofte og i hvor stort omfang sker det, at du skifter over til dansk i de følgende undervisningssituationer:
2) Forelæsninger (når du stiller spørgsmål eller har kommentarer)

<table>
<thead>
<tr>
<th>Et enkelt ord eller to i en sætning</th>
<th>Ofte</th>
<th>Mellem</th>
<th>Sjældent</th>
<th>Aldrig</th>
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<tbody>
<tr>
<td>En hel sætning</td>
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<tr>
<td>En helt samtale/diskussion</td>
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<tr>
<td>Andet:</td>
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</tbody>
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Eventuelle kommentarer:

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3) Når du holder oplæg for de andre studerende

<table>
<thead>
<tr>
<th>Et enkelt ord eller to i en sætning</th>
<th>Ofte</th>
<th>Mellem</th>
<th>Sjældent</th>
<th>Aldrig</th>
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<td>En helt samtale/diskussion</td>
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<td>Andet:</td>
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Eventuelle kommentarer
4) Gruppearbejde *med* internationale studerende i gruppen

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<th>Sjældent</th>
<th>Aldrig</th>
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<td>En hel sætning</td>
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<td>En helt samtale/diskussion</td>
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<td>Andet:</td>
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</table>

Eventuelle kommentarer:

5) Gruppearbejde *uden* internationale studerende i gruppen

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<th>Ofte</th>
<th>Sjældent</th>
<th>Aldrig</th>
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<td>Et enkelt ord eller to i en sætning</td>
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<td>Andet:</td>
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Eventuelle kommentarer:
6) Når du har spørgsmål til underviseren i pausen eller efter undervisningen (når underviseren er dansk-talende)

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<th>Ofte</th>
<th>Melle</th>
<th>Sjæld</th>
<th>Aldrig</th>
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<td>Et enkelt ord eller to i en sætning</td>
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<td>En helt samtale/diskussion</td>
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<tr>
<td>Andet:</td>
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</table>

Eventuelle kommentarer:


7) Hvor ofte er de følgende udsagn årsagen til at du skifter over til dansk?

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<th>Ofte</th>
<th>Melle</th>
<th>Sjæld</th>
<th>Aldrig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jeg kan ikke finde de(t) rigtige ord på engelsk</td>
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<tr>
<td>Jeg er i tvivl om hvordan man udtaler et ord på engelsk</td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>Jeg vil uddybe en pointe eller forklare mig bedre</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jeg føler mig usikker, når jeg skal formulere mig på engelsk</td>
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</tbody>
</table>
Der bliver talt dansk til mig, så jeg svarer også på dansk

Der er ikke nogen internationale studerende i nærheden

Jeg vil sige noget sjovt

Jeg vil tale om noget der ikke har med undervisningen at gøre

Andet:

8) Har du oplevet at du er blevet gjort opmærksom på det, hvis du skifter over til dansk?

Ja

Nej

9) Hvis ja, hvem har gjort dig opmærksom på det?

Underviseren

Dine danske medstuderende

Dine internationale medstuderende

Du har selv opdaget det selv
10) Er der nogen situationer, hvor du føler, at det er et problem når/hvis du eller dine danske medstuderende skifter over til dansk, når undervisningssproget er engelsk?

Ja [ ]

Nej [ ]

Ved ikke [ ]

Hvis ja, hvilke situationer? (skriv gerne flere)


11) Er der nogen situationer, hvor du ikke føler, at det er et problem når/hvis du eller dine danske medstuderende skifter over til dansk, når undervisningssproget er engelsk?

Ja [ ]

Nej [ ]

Ved ikke [ ]

Hvis ja, hvilke situationer? (skriv gerne flere)


120
12) Hvor mange engelsksprogede kurser har du cirka haft i løbet af din uddannelse?

<table>
<thead>
<tr>
<th>Kurser på bachelor niveau</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>&gt;5</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Kurser på kandidat niveau</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>&gt;5</th>
</tr>
</thead>
</table>

13) Hvad er din generelle holdning til, at engelsk i stigende grad bliver brugt som undervisningssprog på universitetet?

- Meget positiv  

- Positiv  

- Hverken eller  

- Negativ  

- Meget negativ  

Begrund evt. dit svar:

---

121
14) Hvordan vil du vurdere dine engelskkundskaber?

<table>
<thead>
<tr>
<th></th>
<th>Frem</th>
<th>Rigtig</th>
<th>Gode</th>
<th>Tilfred</th>
<th>Tilstræk</th>
<th>Ikke</th>
<th>Ved</th>
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<td>Engelsk generelt</td>
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<td>Fagligt engsk</td>
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<td>Læse engsk</td>
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<tr>
<td>Skrive engsk</td>
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<tr>
<td>Forstå talt engsk</td>
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<tr>
<td>Tale engsk</td>
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</tr>
</tbody>
</table>

Tak for din besvarelse!
## APPENDIX 5: EXAMPLES OF CODE-SWITCHING FROM THE OBSERVATION DATA

<table>
<thead>
<tr>
<th>Example</th>
<th>Type of code-switching</th>
<th>Function of code-switching</th>
<th>Didactic genre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Example 1</td>
<td>Tag-switching</td>
<td></td>
<td>Student presentation</td>
</tr>
<tr>
<td>S: ... Ja, my name is xx and I am a biotechnology student... And I am Danish... And I am not sure what my thesis is going to be about next year... And I am also here with an open mind for this course... So I am mostly excited about the turn out... Øhh, ja.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Example 2</td>
<td>Tag-switching</td>
<td></td>
<td>Student presentation</td>
</tr>
<tr>
<td>S: Yeah, I am xx and I am also a Danish biotechnology student. My main interests are biomedicine and biophysics and lab animals, I think. For my master thesis I have to investigate some special nano particles as they are used for drug delivery system... bom bom bom bom (laughs). Expectations... I think it is mostly the property rights I am interested in.</td>
<td></td>
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<tr>
<td>Example 3</td>
<td>Intra-sentential</td>
<td>Lexical 'quote' in English</td>
<td>Group work</td>
</tr>
<tr>
<td>S: Jeg har fået to [resultater] på ‘determination’ and ‘beer’ and ‘bitter’</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Example 4</td>
<td>Intra-sentential</td>
<td>Lexical 'quote' in English + Danification</td>
<td>Group work</td>
</tr>
<tr>
<td>S: Er der noget at teste for obviousness for før man applier?</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>
Example 5  S: For example they say that information is so key and proper guidance is really key, but they really do not give any suggestions on how to reach this in the community and that kind of makes this article ehm... **overflodig**... unnecessary.

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Example 6  S1: We all have our favorite of the four.
S2: And as for the fifth I would say that xx is a really good ehm... **hvad hedder vejleder?**... I forgot the word... supervisor

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Example 7  T: What is happening in the myosis? ...You tell me what is happening in the myosis.
S: I can’t remember what it is called in English, but **overkrydsning**.
T: Yes, recombination
S: Yeah (laughs)

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Example 8  S1: My point was that if you add the antibodies probably... **udfældning, hvad hedder det på engelsk?**
S2: Participating
S1: Yeah, precipitate
S2: Precipitate yeah
S3: Precipitation
S1: you could precipitate all the gluten epitopes.

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### Example 9
S1: We could also make a strategy for... because what you do when you do the malting is that you take the grain and you let them germinate like for one day because then they break down a lot of the őhh... stivelse, hvad er det det hedder?
S2: starch
S1: starch to sugar and then you stop the germination and usually you roast them to get some of the other flavors out.

### Example 10
S1: But if you have a plant, no a small tree with őhh hvad hedder appelsiner?
S2: Oranges
S1: Oranges, then instead of big you have a small you will not get that much product.

### Example 11
S: Skal vi til punkt syv nu, eller hvad?
T: Undskyld?
S: Vi skal ned til punkt syv nu, eller hvad?... Do you know?

### Example 12
S1: Hvis vi kun har en time kan det godt være vi skulle gå i gang med nogle af de andre ting
S2: Nej, vi har to
S1: Nej, de siger vi kun har én
S2: Fuck, såeh, nå... yeah okay, we should probably stop now.
| Example 13 | S1: So, this gluten, is it just an epitope of the starch or what? Where does the... S2: Gluten is a pretty big ehm... S1: Can you find... **ogh er det rigtigt?** S2: **Der er ikke et billede. Ellers så prov at google det...** It is really big starch proteins ehm... so once you eat them they start breaking down and then you get these different epitopes. |
| Example 14 | S1: You want to draw? S2: You just draw. I think it is good. S1: What color?... Okay, how did he make that? S3: **Hvad er det du tegner?** S1: **Det er en sommerfugl.** |
| Example 15 | S1: Jeg kan ikke lige finde det S2: Hvad? S1: Jeg kan ikke lige finde det. S2: Finde hvad? Hvad laver denne her her? (pointing at a pipette) S3 (international): **I don’t understand. What do we have to do?** S1: **She just said we have to calculate how much to take out, but I don’t know what to calculate it to.** |
| Example 17 | T: Ideas?  
S1: It's a lid  
T: A lid? Hmm, could be... Other ideas? Or interpretations or whatever you want to call it. I can say that much that it is a product. And most of you have used it.  
S2: **En nogle**?  
T: **En nogle**? A key?  
S2: Yeah, a key. |
|---|---|
| Example 18 | S1: My name is xxx and I am Danish and I study biotechnology and my main interest (interrupted by T1)  
T1: **Hernede, nederst** (pointing at the student’s name on the list of participants)  
S1: **Nederst**.  
T2: **Ja her**, sorry  
S1: ...would be plants or medicine and I don’t have any expectations because I really don’t know quite what to expect. |
| Example 19 | S: Jeg vil gerne prøve det der med at **combine**  
| Example 20 | S1: **Kan vi**... Can you say that this is a bioactive compound?  
| Example 21 | S1: **Okay, jeg kan ikke finde**... I couldn’t find anything on precipitation. |