Anja Stapel

Content and Language Integrated Learning (CLIL) in Medicine Programs in Higher Education

Content and Language Integrated Learning in Medicine Programs in Higher Education

Giessener Fremdsprachendidaktik:online 6

Herausgegeben von Eva Burwitz-Melzer, Hélène Martinez und Franz-Joseph Meißner

GiF:on

Giessener Fremdsprachendidaktik:online

Anja Stapel

Content and Language Integrated Learning (CLIL) in Medicine Programs in Higher Education

Bibliografische Information der Deutschen Nationalbibliothek

Die deutsche Nationalbibliothek verzeichnet diese Publikation in der Deutschen Nationalbibliografie. Detaillierte bibliografische Daten sind im Internet unter http://www.dnb.de abrufbar.

Acknowledgement

This master's thesis, written under the supervision of Professor Wolfgang Hallet, deals with the integration of CLIL designed English courses into medical studies. The study was conducted within the frame of the master's program in 'Neue Fremdsprachen und Fremdsprachendidaktik' at the Justus-Liebig-University in Giessen.

I would like to take the opportunity to thank all those who supported me, especially professor Hallet, followed by the editorial board of GiF:on, the professors Eva Burwitz-Melzer, Hélène Martinez and Franz-Joseph Meissner. Their guided support and advice helped to facilitate the publication and printing of said thesis.

It is my hope that this thesis will provide an interesting and insightful read.

Anja Stapel

Braunschweig, January, 2016

Abstract

This thesis explores the ways in which Content and Language Integrated Learning (CLIL) with English can be implemented in medicine programs for higher education. This teaching approach emphasizes learning content while simultaneously developing language skills and promoting an effective motivational learning arrangement whilst occupational language skills and knowledge of interest are acquired. The necessity for students of medicine to have a certain proficiency of English and how they can be supported in improving their language skills is discussed.

Keywords:

Table of Contents

List of Abbreviations

ÄAppO	**German Medical Licensure Act (Ärztliche Approbationsordnung)**
ADRs	**Adverse Drug Reactions**
BICS	**Basic Interpersonal Communication Skills**
CALP	**Cognitive Academic Language Proficiency**
CBI	**Content-based Instruction**
CEFR	**Common European Framework of Reference for Languages**
CLIL	**Content and Language Integrated Learning**
DAAD	**German Academic Exchange Service**
EAP	**English for Academic Purposes**
EMA	**European Medicine Agency**
EOP	**English for Occupational Purposes**
EPP	**English for Professional Purposes**
ESP	**English for Specific Purposes**
GiSim	**Gießener Simulationszentrum für Anästhesie und Notfallmedizin**
GP	**General Physician**
GRIPS	**Zentrum für praktisches Lernen und Simulation in der Medizin**
HOTS	**Higher Order Thinking Skills**
IE	**Immersion Education**
L1	**First Language (also native language or mother tongue)**
L2	**Second Language (also foreign language)**
LOTS	**Lower Order Thinking Skills**
OPD	**Outpatient Department**
PhD	**Philosophiae Doctor (Doctor of Philosophy)**
PJ	**Practical Year (praktisches Jahr)**
PSURs	**Periodic Safety Update Reports**
RAS	**Rapid-Alert-System**

List of Tables

Introduction

Due to international and global collaborations, English has become the *lingua franca* for exchanging information. Moreover, English as a scientific language is omnipresent and required within the majority of professions. A question that is likely to arise when reading the title of this thesis is why German medical students should possess good English language skills. Besides being able to understand and communicate medical concepts in their native language, future medical practitioners should also have good command of the English language.

There are several main reasons why English education for students of medicine is essential: Firstly, English is the scientific language used for the spread of knowledge. English comprehension in the medical sector is vital in order for practitioners to be up-to-date with current innovations, to understand ongoing discourses and to participate in the medical community. Secondly, medical practitioners are increasingly confronted with English in their daily actions since medical documentations within hospitals have to be conducted in English and information on risk assessments or recommendations on the use of medicines are only provided in English. Furthermore, the shortage of skilled workers in Germany requires working with colleagues of different backgrounds where a communication in English might be easier in some situations. Moreover, English is needed for collaborating in international teams and for interacting with non-native patients who might not be able to communicate in German. However, medicine programs in Germany are almost exclusively in German and do not necessarily integrate English in their course of study.

In times of internationalization, higher education needs to keep up with current developments and promote students to develop professional

communicative competences. Universities seek to improve their students' preparation and it can be recognized that the number of universities offering courses or programs taught exclusively in English is increasing. Nevertheless, it is necessary to revise current higher education programs in order to provide high quality education and to maintain Germany´s good reputation in the educational rating community.

Content and Language Integrated Learning (CLIL) is an approach for teaching content subjects in a foreign language and, thus, emphasizes learning content while simultaneously developing language skills. This approach promotes effective motivational language learning since it includes both occupational language skills and knowledge of interest. Furthermore, it should be taken into account that CLIL does not only promote the subject-specific knowledge and linguistic skills but is far more complex and multi-faceted. In CLIL, intercultural knowledge and a more general linguistic awareness are simultaneously promoted and cognitive development and learning are facilitated (Gavriola & Trostina 2014:7-8).

CLIL is still a concept that is not widely represented at European universities, especially in German educational programs. Rather, CLIL is popular in the context of school education. However, some faculties are beginning to implement CLIL in their programs, at least in certain subjects. In a European context English is mostly used as a language of instruction (Gavriola & Trostina 2014:7-8). Therefore, this thesis discusses the implementation of CLIL with English in medicine programs of higher education in Germany.

In Chapter 1 the necessity of English language skills in the medical sector is elaborated by emphasizing English as the language of science and due to the physician's confrontation with English in daily interactions. Moreover,

aspects such as the shortage of skilled workers and working in or with international teams and patients are outlined.

Chapter 2 outlines the underlying principles and methodology of CLIL. After CLIL is differentiated from other teaching approaches, this chapter presents some benefits and challenges associated with this method. Subsequently, the premise that has to be considered when integrating CLIL in higher education medicine programs is also elaborated. This premise encompasses higher education didactics, the role of language in CLIL settings by paying particular attention to the features of scientific language, and the implications for teachers.

Chapter 3 includes an analysis of the structure of German medicine programs in higher education. Another aspect of investigation is the confrontation of students with English during their medical study. This is followed by an outline of medicine programs in other European countries. Chapter 3 concludes with a discussion of educational possibilities and restrictions for enhancing medicine students' English skills in the course of their study.

Chapter 4, then, contains suggestions and ideas for the implementation of CLIL in German medicine programs. This chapter presents a tentative design outline and curriculum development for CLIL in the clinical stage.

The last two chapters (5 and 6) focus on two possible modules of a hypothetical course syllabus: general medicine and pediatrics. These lead to a teaching proposal with a detailed description of the courses' content and objectives. Furthermore, this chapter elaborates on what kind of materials and activities could be used in the respective contexts.

This paper attempts to show how a possible implementation of CLIL in medicine programs in higher education can be structured and what aspects

need to be taken into consideration in the process. The conclusion of this thesis, finally, gives further possibilities for the implementation of CLIL in medicine programs and includes a discussion as well as an outlook.

1   Necessity for English in the Medical Context

Over the course of the past few decades, English has gradually become the established language of scholarly communication. This development has also had an effect on scientific communication: English is the universal language of science and numerous scientific journals, research and professional releases in the medical sector are primarily published in English. These publications encompass, for instance, clinical trials, innovative methodologies, and treatment programs. By using English, scientists around the world are able to access a vast amount of information and to communicate with other professionals in order to participate in the professional discourse of the community worldwide. However, this may also cause challenges for non-native speakers of English when preparing oral presentations, writing medical articles or communicating directly with colleagues (Drubin & Kellogg 2015:1399). It can be more challenging for non-native speakers to get a fair and objective assessment on their work since it is their English rather than the content of their scientific work and the results that is criticized by reviewers. Consequently, non-native speakers should "recognize that their ability to participate in the international scientific enterprise is directly related to their ability to produce manuscripts in English that are clear, simple, logical, and concise" (Drubin & Kellogg 2015:1399). Often researchers wish to publish their work in esteemed scientific journals; the majority of them published in the USA. Thus, German scientists also have to write in English in order to be internationally respected (Degner 2011). In her analysis Tardy (2004) was able to determine a rising amount of journal articles published in English by non-native researchers and it is proven that less research is published in German, particularly in natural sciences. This illustrates that "the use of English as the scholarly *lingua*

franca has become self-reinforcing, with academic reward schemes in many countries placing great emphasis on publication in international (mostly English-language) journals" (Tardy 2004:247–269). Essential findings and new discoveries tend to be published in English to make them available to a vast community[1], while scientific conferences are increasingly held in English as well (Fiebach 2010, Degner 2011). From a current perspective, it is most likely that English will continue to be the global language of science, improving international discourse and scientific progress (Porzucki 2014).

Besides, the influence of English is also evident in the course of everyday activities of medical practitioners. Even in Germany information on risk assessments and recommendations on the use of medicines, provided on the website of the *European Medicine Agency* (EMA)[2], are passed on in English via the *Rapid-Alert-System* (RAS)[3]. Likewise, modes of action and side effects of certain medicines are based on English language references. Additionally, medical documentations within hospitals have to be conducted in English. For instance, blank patient files are composed in English and have to be understood in order to be completed correctly. Since many drugs and medical products are available in several European member states it is necessary to cooperate on a broader level with European partners. In order to identify risks associated with medical products, the *Federal Institute for Drugs and Medical Devices* (BfArM)[4] does provide several online documents, which are mainly in English. An important tool for documenting *adverse drug reactions* (ADRs) is for example the spontaneous reporting

---

[1] For example, the research of the Norwegian couple May-Britt and Edvard Moser who were awarded by the Nobel Prize for their discoveries of cells that constitute a positioning system in the brain.
[2] *Europäische Arzneimittel-Agentur.*
[3] *internationales Schnellwarnsystem.*
[4] *Bundesinstitut für Arzneimittel und Medizinprodukte.*

system that is effective due to physician's reports on authorized medical products and suspicious effects. Medical practitioners are obliged to complete the *Periodic Safety Update Reports* (PSURs)[5] in English at certain intervals (BfArM 2013). In addition, a notification sheet in case of a quality defect or batch recall is available for physicians and pharmacists in English (BfArM 2010, 2013). Hence, even for day-to-day interactions, it is highly essential that German physicians have a basic knowledge of English or can at least understand English instructions.

Another important factor is the shortage of skilled workers. The current situation in Germany shows that the demand of qualified employees in various sectors is increasing. However, Germany itself cannot satisfy the need of skilled personnel (BMBF 2014). Consequently, the number of skilled workers with foreign qualifications or with a migration background needed to fill the vacancies is rising. This development is also noticeable in the medical sector, especially for nursing occupations and specialized doctors. A statement by the Federal Government underlines this with the following declaration: "Germany needs experts! Many companies, craft businesses, hospitals and care facilities have already come to depend on experts from abroad" (BMBF 2014). In order to recruit foreign qualified employees the *Federal Office for Migration and Refugees* and the *Ministry of Education and Research* facilitate both possibilities of obtaining valid licenses and processing pursuing employment. Thus, the recognition of foreign professional qualifications has been significantly improved over the last decades. The German government introduced diverse laws and regulations as the *Professional Qualification Assessment Act.*[6] These regulations do mainly assess the equivalence to German reference occupations and vocational

---

[5] regelmäßig aktualisierte Berichte über die Unbedenklichkeit von Arzneimitteln.
[6] Berufsqualifikationsfeststellungsgesetz; also referred to as *Recognition Act.*

qualifications (BMBF 2014). Consequently, "individuals who have gained professional qualifications abroad" have increased chances "to practice their learned professions in Germany and […] be better integrated into the labour market" (BMBF 2014). According to the Federal Ministry, the Recognition Acts is quite successful. On their website they even publish success stories, below is one about a doctor from Cameroon:

"A doctor of medicine from Cameroon: Michelle Ange Monteu (33) is from Cameroon and has lived in Germany for nearly 5 years. She studied medicine and then worked as a physician in Mali. Following a successful assessment exam, she obtained her license to practice medicine and now works at a hospital as a doctor" (BMBF 2014).

Another project initiated by the European Union in 2012 is comparable to the *Green Card* in the USA: the *EU Blue Card* allows academics and highly educated skilled workers of non-EU-States to legally work and live in Europe. Applicants can obtain a residence title which facilitates migration of possible experts to European member states. The program supports the idea of leading a life in new surroundings without many complications or unnecessary bureaucracy (BAMF 2015, Verein für soziales Leben 2015). The "Welcome to Germany" Portal of the *Federal Ministry for Economic Affairs and Energy*, *Federal Ministry of Labour and Scocial Affairs* and the *Bundesagentur für Arbeit* also promotes Germany's healthcare system to attract "good doctors" (BMWi 2015). Besides listing the possibilities of medical treatment in German facilities, the status of the doctor in the German society is described as follows: "Doctors are held in great esteem by the German population. In surveys, the medical profession is consistently one of the most highly regarded in Germany, followed in second place by the

nursing profession" (BMWi 2015). Potential candidates receive more information on working opportunities, salary and the possibility to obtain foreign medical training. Moreover, the portal outlines that a shortage of doctors exists and that the demand for doctors will continue to rise. Practitioners already have problems finding successors and many vacancies are available in private practices. The demand is especially high in Eastern Germany and rural areas and it is very likely that this development will also spread to other regions (BMWi 2015). This illustrates that in the future more foreign skilled workers are expected to work in the German medical sector. In order to facilitate a mutual understanding, medical practitioners should be able to communicate with colleagues of different backgrounds. In a diverse working environment it might be helpful in some situations to have English communicative skills in order to be able to express thoughts spontaneously, fluently and precisely. English can have many benefits for qualified workers and in this case doctors and nurses, especially when discussing medical concepts among professionals.

Moreover, professionals have to interact with patients who do not have sufficient German language knowledge to be able to describe their symptoms. In emergency cases a common linguistic basis is particularly of crucial importance. English as *lingua franca* and the most widely-spread international language serves this purpose. Another factor not to be forgotten in this context is that of international aid associations in which some medical practitioners may want to participate. A good example is the medical humanitarian organization *Doctors Without Borders*. In the instance of severe medical crisis or when developing countries face endemic diseases members of such organizations voluntarily travel to these regions to provide medical aid. For instance, in 2014 many medical specialists travelled to Western Africa to provide aid in the Ebola epidemic. In these situations it is necessary

to have a common knowledge of English in order to communicate with patients and to collaborate with international teams (Bruns & Christ 2014).

Thus, it is apparent that common standards regarding English language skills are required due to the international interconnectedness of the scientific medical sector. Consequently, medicine programs in Germany need to ensure that students are sufficiently educated in English. As the language education should be part of their studies, it is reasonable to teach content and language simultaneously. The following chapter introduces a teaching approach, *Content and Language Integrated Learning,* which could be applied for educating medical students in English in the course of their studies.

2   Content and Language Integrated Learning (CLIL)

A description of the concept and methodology of CLIL is followed by a detailed description of the CLIL matrix which can be used as an educational framework. Thus, the chapter distinguishes CLIL from other teaching approaches which promote content and English language learning and outlines some benefits and challenges which this method brings. Only then it is possible to suggest an implementation of the CLIL approach in medicine programs in higher education.

2.1 Concept and Methodology of CLIL

In Europe, the term CLIL is now widely accepted and the most commonly used term for teaching content subjects through a foreign language (Wolff 2009:545-572). The Eurydice report (2006:8) gives a generally valid definition by saying that CLIL „is used to teach certain subjects in the curriculum other than language lessons themselves". The term CLIL was coined by David Marsh (2002:2) who said: "CLIL refers to situations where subjects, or parts of subjects, are taught through a foreign language with dual-focused aims, namely the learning of content and the simultaneous learning of a foreign language". Even though the idea of teaching in a foreign language is a rather ancient practice (considering e.g. Latin), it is now no more limited to elite education. Instead, CLIL is now "rooted within mainstream education" (Dalton-Puffer, Nikula & Smit 2010:3). There are different termini used for these teaching practices, varying due to country-specific or didactical contexts in which they emerged such as *immersion education* in Canada or *bilingual education* in Germany[7] (Klaassen 2001:15,

---

[7] In the German context often referred to as *bilingualer Sachfachunterricht.*

Eurydice 2006:7-8). In the European context it is used to "create a neutral and generally accessible label to facilitate communication among international experts" and found general acceptance in the education and research community (Dalton-Puffer, Nikula & Smit 2010:3). Beyond that, it is associated with characteristics as "innovative, modern, effective, efficient and forward-looking" and still retains a rather open nature for further possibilities (Dalton-Puffer, Nikula & Smit 2010:3). At first, the approach to learn subjects through a foreign language was discussed controversially by experts from the field but CLIL has become "a fast developing phenomenon across Europe" (Eurydice 2006:2). In 2012, the European Commission stated: "CLIL is taking place and has been found to be effective in all sectors of education from primary through to adult and higher education. Its success has been growing over the past 10 years and continues to do so" (EC 2012).

The rapid spread of CLIL in Europe and its increasing popularity was caused among others by politics. CLIL is seen as a useful attempt to increase the multilingualism in Europe. This development was influenced and supported by the *European Commission's White Paper on Education and Training* from 1995, initiating the 1+2 policy with the following objective: European citizens should be proficient in their mother tongue and in two foreign languages (Llinares, Morton & Whittaker 2012:1-23). Since the European Union with diverse languages is multilingual, the language policy is one step towards implementing unity in diversity (Llinares, Morton & Whittaker 2012:4, Györffi 2008). In 2003, it was stated that CLIL "has a major contribution to make to the Union's language learning goals" (EC 2003:8). In order to educate multilingual citizens, the *European Commission* and the *Council of Europe* even advocated extending models of integrated content and language learning (EU 1995). This resulted in an implementation of CLIL in nearly all member states of the EU, but as national governments

decide upon educational legislative, the realizations in each country differ. One of the reasons is that socioeconomic, political and socio-psychological forces have an effect upon the implementation of educational programs and as such also on CLIL (Llinares, Morton & Whittaker 2012:5). Other reasons are globalization and internationalization processes and corresponding challenges for education (Dalton-Puffer, Nikula & Smit 2010:IX-20, Graham 2007:1-13). The implementation of CLIL is a reaction to shifts in society, the increasingly international economy, and requirements on better educated employees. Knowledge of foreign languages is essential or at least beneficial for future careers and enhances the chances for employment (Llinares, Morton & Whittaker 2012:4, Ferguson 2006:128). Therefore, CLIL gains popularity in Europe (Llinares, Morton & Whittaker 2012:6). Although the medium of instruction in the European context is often English, it does not necessarily have to be the case. As Marsh and Langé (2000:iii) state, it can be any foreign language: "CLIL is a generic term and refers to any educational situation in which an additional language, and therefore not the most widely used language of the environment, is used for the teaching and learning of subjects other than the language itself". For instance, regions in Northern Germany may integrate Danish in their curricula or regions nearby Alsace French. In this thesis, however, the focus will be on English as medium of instruction.

Conceptual learning and the acquisition of competences in the foreign language are the main objectives of this educational approach. CLIL is a dual-focused education, which emphasizes not just content or language learning individually. Rather, both aspects are interwoven and constantly intertwined, language and content objectives are combined (Dale & Tanner 2012:3, Coyle, Hood & Marsh 2010:41-45, Marsh &Wolff 2007:8). Moreover, CLIL is an efficient and effective educational setting in which

content is delivered in a more reliable way since an authentic, meaningful use of the language is implied (Dalton-Puffer, Nikula & Smit 2010:6, 34). The aim is that the foreign language is mainly acquired while learning content. Corresponding with Krashen's *Monitor Model* (1985), acquisition will occur if students are exposed to comprehensible input and a positive learning environment prevails. Likewise, Swain's output hypothesis (1995) plays an important role in this discussion. According to him, the individual production in the target language is relevant for expanding one's language skills. This condition is given in CLIL since it is primarily focused on content and communicative skills rather than on accuracy of words and grammar (Dalton-Puffer et al. 2010:6-7). However, Dalton-Puffer et al. (2010:7) emphasize that the importance of focusing on form should not be disregarded.[8] Furthermore, it should not be forgotten that teaching non-lingual subjects in a foreign language could enhance intercultural understanding which is highly important for international interactions. As students are in contact with the target culture and get to know its perspectives and habits, they are more likely to reflect upon their own culture and to understand diverse attitudes. Hence, students gain intercultural awareness of both language cultures (Dalton-Puffer et al. 2010:6).

The spread of CLIL across various content-subjects and institutions requires a profound pedagogical concept and methodology with its own didactics for a successful implementation (Hallet 1999:23-27). Even though CLIL is used in Europe as umbrella term for teaching non-linguistic subjects in a foreign language, there is still lots of work necessary to "create a conceptual framework that is both coherent and applicable to different local

---

[8] Even Nations model of the four strands can be used to find a balance between input, output, acquisition and learning (e.g. in Nation, Paul (2007): "The four strands." In: *Innovation in Language Learning and Teaching,* (1/1:1-12).

conditions" (Dalton-Puffer et al. 2010:24). The pedagogical and didactical methodology of CLIL that is outlined in this thesis is based on the „CLIL matrix" of the European Centre of Modern Languages (ECMF 2012) and the "Extended CLIL Matrix" introduced by Inglin (2013).[9]

2.2 The CLIL Matrix

The CLIL matrix is described as "awareness raising and training tool" for CLIL settings (ECML 2011). It was developed as a framework for successful teaching units by using the core elements *Content, Language, Integrated* and *Learning* along with the four parameters *Culture, Communication, Cognition* and *Community* (also known as the 4Cs) (OESZ 2010:10, EMCL 2011). However, the model of the ECMF only encompasses the 4Cs and the core elements. In order to describe the underlying methodology in more detail another matrix is necessary. Thus, in the following the extended matrix of Inglin will be presented. This matrix serves as basis for the development of specific course outlines presented within this thesis.

In order to work out a conceptual tool for CLIL settings, Coyle developed the **4Cs** framework. Her framework differs from other educational language methodologies since the focus is not on the language curriculum but it rather emphasizes the content (e.g. themes, subject matter). Moreover, her concept focuses on the interrelation between Content (subject matter), Communication (language), Cognition (thinking) and Culture (awareness of perspectives). This framework unites learning theories, language learning theories and intercultural understanding (Inglin 2013:18-19, Coyle 2008:97-

---

[9] According to Bonnet (2010:5) several CLIL concepts with different emphasis exist as e.g. the 4Cs (Coyle), Reflexive Didaktik (Breidbach), Bilingual Triangle (Hallet), Sachfachliteralität (Zydatiß), Text-Kompetenz (Portman-Tselikas), Diskurskompetenz (Bonnet/ Breidbach/ Hallet), Bildungssprache (Gogolin) Bifokale Unterrichtsplanung (Habekost), and Scaffolding (Zydatiß). These will not be described in more detail here.

111, Coyle 2011:50). The first element, *Content,* defines what should be taught in class, respectively what the matter of discussion should be (subject matter, theme). *Communication* is concerned with the question which linguistic skills are necessary, whereas *Cognition* deals with how students could and should immerse in the respective subject and what kind of tasks can be used. The last element *Culture* represents the idea of intercultural learning. As the relationship between cultures and languages is rather complex, references of subject matters to real life should be addressed in the learner's and the target's culture. Consequently, students can also acquire intercultural awareness through CLIL (positioning of oneself and others, understanding and accepting different perspectives) (Inglin 2013:18-19, Coyle 2008:97-111). According to Coyle (2010:36-38) the category communication and, thus, language as learning tool operates in three ways: "language of learning" (needed to express key aspects of content, e.g. key words or vocabularies of context that are necessary to understand the subject or matter of discussion), "language for learning" (needed to participate in discourse and enabling linguistic interaction) and "language through learning" (emerges when students are cognitively involved and express meaning related to content or encompasses linguistic learning, application of strategies, competence enhancement) (Inglin 2013:18-19). Although they can be differentiated, all of them are intertwined and interconnected: There is no use of language without content and no content without language. Accordingly, as both are interrelated they should not be isolated from each other (Llinares et al. 2012:9-14, Coyle 2010:36-38).

In order to comprehend the matter of discussion as good as possible learners need certain skills and strategies for speaking, writing, listening and reading. To define these in more detail the **Thinking Skills** based on *Blooms taxonomy* are used for the CLIL matrix. Bloom's taxonomy is an effective

learning theory presented by Bloom and his collaborators in 1956 for categorizing educational goals that can be applied in diverse learning environments and situations. The framework depicts the thinking processes that should be considered while defining learning goals and creating lesson plans. It encompasses six categories: "Knowledge, Comprehension, Application, Analysis, Synthesis, and Evaluation" (Amstrong 2009). In order to better describe the cognitive processes of each category the taxonomy was revised in 2001 by using verbs instead of nouns: "remembering, understanding, applying, analyzing, evaluating, and creating" (Amstrong 2009). Moving away from the rather static notion of educational objectives, the edited taxonomy emphasizes the dynamics of this classification. The six thinking skills of the taxonomy are graded from simple to complex. Additionally, these are often divided into *lower order thinking skills*, LOTS, (such as remembering, understanding and applying) and *higher order thinking skills*, HOTS (analyzing, evaluating and creating). This distinction refers to the different cognitive processes involved in the learning process (Anderson & Krathwohl 2001:67-68). According to Inglin (2013:15), it is possible to add specific linguistic activities to each verb in order to define potential learning outputs (identify, classify/define, describe, explain, conclude/argue, evaluate, report/narrate). Thus, Bloom's taxonomy serves as methodical foundation to define and organize objectives. This is beneficial to develop appropriate instructions, tasks, and assessments which are aligned with the defined objectives.

Likewise belonging to the matrix are the categories **Language Skills** and **Scaffolding - Media**. Since language learning is as much a part of CLIL settings as content learning the linguistic skills should also be enhanced during teaching. The *Common European Framework of Reference for Languages* (CEFR) can be effectively implemented, e.g. while planning

teaching units to define competences. Additionally, the framework helps to integrate a variety of methods and to train all skills in a balanced way (Inglin 2013:16). Scaffolding in the CLIL context does not just relate to linguistic difficulties but rather to all measures taken that facilitate the accessibility and handling of themes. Although this may include the work on vocabulary, it encompasses all kinds of media that are integrated in the educational setting to support learning processes (i.e. images, maps, diagrams, tips, glossaries, toolkits/templates, visual/graphic organizers, questionnaires or advance organizers for reading/writing strategies) (Inglin 2013:15). All these techniques and use of different media have a scaffolding-function by making the matter of discussion more accessible.

One fundamental aspect of CLIL is the distinction between *Cognitive Academic Language Proficiency* (**CALP**) and Basic *Interpersonal Communication Skills* (**BICS**), introduced by Cummins (1979). BICS refers to the conversational fluency in a language, i.e. the ability to understand and participate in everyday conversation, daily activities and informal communications[10] (Dale, Tanner & Es 2010:35-45). BICS refers to the day-to-day language that normally entails many contextual clues and is cognitively undemanding. CALP, on the other hand, refers to the more formal academic language use, i.e. the ability to understand and express concepts and ideas relevant to educational success. Due to this, CALP primarily encompasses the higher order thinking skills. It includes less or no clues facilitating comprehension and presented concepts are more demanding. Therefore, the language of CALP is more complex than that of BICS (Dale & Tanner 2012:35, Dale, Tanner & Es 2010:35-45). Students particularly have difficulties with developing cognitive academic language

---

[10] These are mostly situations in which visual clues such as gestures or facial expressions are also playing a major role.

proficiency. Henceforth, in order to bridge the gap between BICS and CALP in CLIL settings students need to be enabled to become competent in both conversational and academic language use.

Thus, according to Bonnet et al. (2003:176-196), five dimensions of learning and teaching in CLIL can be defined: the cognitive-conceptual, the discursive, semiotic, methodological and reflective dimension. First, students learn the core concepts of the subject, the scientific knowledge. Then, language learning through interaction takes place since students learn how to communicate something in the subject specific language (express ideas, exchange opinions, negotiate meaning, etc.), linguistic knowledge is enhanced. Furthermore, learners get to know specific phrasal constructions on three levels: the discipline discourse (e.g. the terminology), within the classroom (how to discuss or communicate concepts) and outside of the classroom (communicate concepts in other contexts). In the third dimension, the semiotic one, students learn the subject's sign systems (e.g. diagrams, models, etc.). Besides understanding what these signs represent, they gain the ability to interpret and apply these, i.e. symbolic learning occurs. The next dimension is the methodological one in which students learn the subjects' specific language and methods, i.e. the way of communication (how something is done in the subject, the operational knowledge). Due to certain strategies and techniques this should lead to self-directed learning. The reflective dimension is the last one. Here, learners reflect upon "new" concepts and adapt knowledge to their prior concepts. In the course of this process they realize differences between CLIL and everyday concepts, which may arise their awareness, promotes critical thinking, and a change of perspective.

Since there are various realizations of the CLIL approach, it is important to distinguish CLIL from other teaching approaches (Dalton-Puffer, Nikula &

Smit 2010:2). The focus on this thesis' distinction is on models often confused with CLIL settings that aim at teaching content and English as a foreign language, namely *Bilingual Education*, *Immersion Education, Content-based Instruction* as well as *English for Specific Purposes*.

2.3 Distinction of Teaching Approaches

As mentioned above, the term CLIL is used to describe a model of bilingual education in which new content and concepts are introduced to the students. The foreign language is medium of communication and instruction. Even though CLIL is sometimes used synonymously with other teaching concepts, certain features differentiate CLIL from *bilingual education*: "CLIL is about using a foreign language, not a second language"(Dalton-Puffer, Nikula & Smit 2010:X). This means that the language used for instruction is mainly present in the institutional context (e.g. school or university) but is typically not used in society and everyday life. Thus, teachers are normally non-native speakers of the target language. Additionally, CLIL is an approach that is in most cases only applied when literacy skills are already acquired in the mother tongue. Consequently, students are able to transfer their L1 knowledge and literacy skills to the foreign language. Bilingual education in the German context defines a specific way of teaching in which the policy and philosophy of German education programs is playing a part. Normally, a subject is taught in a foreign language and additionally in German, if necessary.

Both CLIL and *Immersion Education* (IE) concentrate on teaching and learning content through the target language. The difference is that in CLIL the focus is not on language learning, but on learning information of the subject while acquiring language skills. Immersion education, on the other

hand, is another form of bilingual education that aims at developing language competence in the target language across the curriculum. Simultaneously, it has to be ensured that students achieve high standards in the first language as well (McKendry 2006:3-39). In immersion education, however, the language is mostly part of local communities. Teachers are normally native speakers or bilingual and offer courses to students that have little or no knowledge of the target language in the beginning. Therefore, contact with the foreign language happens earlier and there is a greater exposure because the whole curriculum is taught in the target language. Furthermore, usual curricular activities are conducted in the same foreign language that is also used for administration and throughout the institution (McKendry 2006:3-39, Richards & Rodgers 2001:206). Thus, in immersion education that goes beyond one or two subjects, the time spend on the target language is normally greater (Manitoba 2008:3-7). A well-known example for this is the *Canadian Immersion Education* in which students acquire linguistic competence in their mother tongue English as well as in French as second language. As a result, Canadian students can communicate in both languages on a personal and professional level. Additionally, the immersion education fosters cultural awareness and intercultural learning (Manitoba 2008:3-7). Bostwick states that: "Unfortunately, in most cases, the term is misused. For many, the term *immersion* seems to imply any class that is taught through the medium of a second language. However, simply teaching a content class (e.g. Math, Music, Science, etc.) in a foreign language is not immersion" (Bostwick 2011:1). Nevertheless, both teaching approaches share the objective of gaining functional communicative competence and the ability to participate in society with the target language as e.g. French in Quebec and English in the European context (Llinares et al. 2012:2). Hence, the term immersion

describes educational settings in which all subjects are taught in another language. There is no focus on language in subject lessons, though.

The approach of *Content-based instruction* (CBI) also emphasizes learning content while simultaneously developing language skills (Crawford 2004, Mackenzie 2000). According to Wolff (2007:15-16), CLIL differs from CBI since the "classroom content is not so much taken from everyday life or the general content of the target language culture but rather from content subjects, from academic/scientific disciplines or from the professions". Even though students use the target language in order to learn something, CBI lessons focus on anything interesting to the students. Although language is used and learned within the content context, CBI courses do not orientate themselves on a specific non-linguistic subject and its curriculum. However, CBI is rather student-centered and aims at developing language skills in a rather unconscious way through the content dealt with (Richards & Rodgers 2001:204-205). CBI describes the teaching of content in language lessons, whereas in CLIL teaching of the subject and teaching of the language happens at the same time.

Another educational settings with English as a foreign language that is often confused with CLIL is *English for Specific Purposes* (ESP).[11] This approach aims at teaching the language needed for specific situations (Ruiz-Garrido & Fortanet-Gómez 2009:1). The term refers to teaching or studying English for particular careers, disciplines or occupations (Strevens 1988:1-13). Accordingly, the objective of these courses is to prepare students especially for their profession. It is closely linked to a certain area of interest or profession that has to be performed in English (Bracaj 2014:40-44). ESP students are usually adults who learn the language in order to perform job-

---

[11] also *English for Special Purposes* (ESP).

related functions for which English is required. Consequently, it is integrated into their everyday life and they can apply their English knowledge immediately. Hence, ESP teaching concentrates more on language in context rather than on form (Fiorito 2005). Two different types of ESP can be distinguished: *English for Occupational Purposes* (EOP)[12] and *English for Academic Purposes* (EAP). If English is needed as a part of professional life the term EOP is used (Kennedy & Bolitho 1984:4). The language skills needed to study or work in higher education is referred to as EAP (Bracaj 2014:40-44). Both are a type of ESP since the content is matched to the learner's needs (Gillett 2011). Robinson (1991:2-5) describes specific characteristics of ESP courses saying that they are goal-directed, since English is or will be needed in the profession, and based on needs analysis that specify what is necessary to focus upon. Therefore, it is important to define the learner's motivation for learning English and what kind of practices they will need to carry out afterwards (Gillett 2011).[13] Henceforth, these courses are language courses tailored to satisfy particular needs of future professionals within a certain working field. EPP does focus primarily on language skills and vocabulary in certain areas (Gavriola & Trostina 2014:8). In CLIL, however, contextual factors are considered as well. Learning focuses on both content and language and not just the training of language competences within a certain field. Hence, the focus in CLIL is broader and learning takes place across different subjects. Teachers must be confident and skilled in both subjects in order to focus on content and language. In ESP or EPP it is beneficial if teachers have further knowledge of

---

[12] also *English for Professional Purposes* (EPP).
[13] Dudley-Evans defines "absolute" and "variable" characteristics of ESP. These can be found in Dudley-Evans, Tony (1998): *Developments in English for Specific Purposes: A multi-disciplinary approach.* Cambridge UP.

content or specific subjects. However, they are primarily language teachers and no experts in the specific professional field.[14]

In short, it can be stated that there are differences between CLIL and other teaching approaches, even though "CLIL resembles other forms of bilingual education programmes such as content-based instruction and immersion education" (Dalton-Puffer, Nikula & Smit 2010:XI). CLIL means learning content through another language and implies that attention is paid to two subjects, the language and the content subject (Dale & Tanner 2012:4-5). CLIL courses establish a connection between the two subjects; both are "dealt with as a whole" and "not in isolation" (Wolff 2009:547). Before premises for CLIL in medicine programs are outlined, the following section illustrates some benefits and challenges of CLIL.

2.4 Benefits and Challenges of CLIL

Naturally, there is also criticism concerning the CLIL teaching approach. In the following, some of the benefits and challenges will be outlined and discussed in more detail.

If properly implemented, the integrated and interdisciplinary approach of CLIL can contribute to improve language skills and subject knowledge alike (Gavriola & Trostina 2014:8). In CLIL courses, students acquire both general language and specific language skills and learn to use the target language in a variety of situations. Moreover, students achieve a general linguistic awareness as well as communicative strategies. Furthermore, this educational setting can facilitate cognitive development. Students seem to remember more effectively and acquire useful strategies. Beyond that, learners enhance

---

[14] An overview of different teaching approaches can be seen in the appendix –illustrating different methods and the kind of instruction used for each of these.

their ability to study in a more independent way by learning to make connections between language and prior knowledge, and expand their memory by broadening and deepening concepts (Dole & Tanner 2012:12). In higher education, the risk of fossilization[15] is rather low. Rather, learners understand how the language is used (form) and what it stands for (meaning). Consequently, they can reach a high level of proficiency if lots of input is provided and various activities are carried out to effectively process the information (Dole & Tanner 2012:12). Additionally, Gavriola & Trostina (2014:9) as well as Dole & Tanner (2012:11-12) found out that students show higher motivation as CLIL is linked to their study and professional activity. Thus, they get actively involved in the learning process since the educational setting seems to be more appealing.

In order to provide high-level education and to receive good reputation in educational ratings, teaching subjects in foreign languages needs to be implemented. It is important to enhance the professional communicative competence in higher education which frequently implies solving professional activities in a foreign language. CLIL may bring about many benefits because the synergy between language and academic subject can result in what is needed to prepare highly-qualified specialists (Gavriola & Trostina 2014:7). Henceforth, CLIL can help universities to improve their language studies, reputation and student's preparation for the future. Gavriola & Trostina (2014:7-8) underline that it is important to bear in mind that CLIL plays a major role in achieving the European goal. Its objective is that each citizen can speak two foreign languages in addition to their mother tongue. Furthermore, CLIL promotes multiculturalism and enhances intercultural

---

[15] Fossilization in the context of language acquisition refers to a loss of progress in the acquisition. Instead of further improving the language skills, incorrect language use becomes a habit.

understanding since cross-cultural topics are addressed and students become familiar with different perspectives and attitudes (Dole & Tanner 2012:12, Gavriola & Trostina 2014:7). In addition, central to CLIL are interactions within the classes, the "interplay of cultures" as Hallet states (2001:103). According to Dalton- Puffer et al. (2010:8), since language is both a cognitive and a social phenomenon, student's socio-cultural backgrounds need to be taken into consideration in order to achieve trans- and intercultural competences. The whole concept of CLIL refers to the needs of the future and prepares students to study and work in other countries using the target language. In order to contribute and transfer information and knowledge it is necessary to understand specialized jargon and specific discourse used by professionals. The ultimate objective of each higher education should be to equip students with the knowledge needed, which implies the language used within the professional framework and everyday professional communication (Gavriola & Trostina 2014:10).

Although there are many undeniable benefits of CLIL, there has also been criticism expressed. On the one hand, critics are concerned that students achieve less knowledge of content due to the teaching in a foreign language. On the other hand, it is argued that there is no clear focus on language learning. But even though the language is medium of instruction, it is also in focus, especially whenever it is necessary or essential for understanding (Wolff 2009:547). Thus, it is important to keep the objective of this approach in mind, just as Wolff (2009:547) says: "Many scholars tend to believe that within the CLIL paradigm content subjects are taught in a foreign language only to improve the students' foreign language competence. But this is not the intention of this approach, which is geared towards content learning as much as towards language learning". Nevertheless, it cannot be denied that some challenges might make a successful implementation slightly

complicated. Will teachers manage to focus on content and language learning simultaneously and offer enough support? How can teachers make sure that students understand everything that is necessary if the subject is taught through another language? These questions may arise when considering the implementation of CLIL.

Gavriola and Trostina (2014:11) define three major factors that can impede "wider implementation of CLIL". First, there is the *management factor*: The shift of curricula and the process of integrating new educational settings require much administrative work and bring about additional costs. The attempts of teaching subjects normally taught in the mother tongue may initially cause errors "in terminology understanding and application" (Gavriola & Trostina 2014:11). Hence, careful consideration is needed to find a balance between enthusiasm and actual needs of students. Besides, it should not be forgotten that CLIL courses need more preparation time and must fit into the curricula (Gavriola & Trostina 2014:11-12).

Another aspect to be considered is the *teacher factor*: Several aspects contribute to this factor, among others the language level. Teachers are often not bilingual subject teachers and, thus, they might not be proficient enough in their linguistic competence. This does, however, not mean that teachers have to be native speakers since this might even hinder the learning process or cause anxiety due to the speaking at full speed or because of complex constructions (Gavriola & Trostina 2014:8-10). A survey in Russia even found out that 70% of the students prefer bilingual local subject teachers who might be able to explain difficult aspects in their mother tongue. Nevertheless, it implies that the language level of CLIL teachers must be thoroughly proficient (Gavriola & Trostina 2014:12). Another aspect is the collaboration of colleagues across curricula and within international associations in order to maintain a good quality of education. For instance,

teachers can participate in joint projects and exchange professional knowledge and expertise in CLIL communities or invite native speakers (Gavriola & Trostina 2014:15-16). Further, teacher must be aware of the underlying methodology. Courses should be cognitively demanding while simultaneously providing content in an understandable way so that a progression in learning can be manifested. Hence, teachers and students have to gain awareness of how the foreign language works and how the language of the content subject is used (Gavriola & Trostina 2014:12-13). Teachers have to make sure that students understand the meaning of subject-specific concepts in both languages. Likewise, teachers should provide a great repertoire of activities and techniques to develop necessary skills. However, obtaining resources might be another challenging factor, especially for students of lower level. Teachers see themselves confronted with questions of what material to use, where to find appropriate one, and if original documents can be used or if these might be too demanding. Therefore, teachers do mostly have to invest a great amount of time to find or develop appropriate material for their learners, to embed concepts in context and to revise language matters (Gavriola & Trostina 2014:13).

CLIL settings are expected to be interactive which leads to the third factor, the *learner factor*: This might facilitate or hinder a successful procedure depending on interest and motivation. In particular, when being confronted with many participants, learners can be very heterogeneous. Their range of knowledge language-wise and content-wise may differ which can frustrate or dissatisfy weaker students. However, academic failure of weaker students has to be prevented e.g. by offering optional tutorials (Gavriola & Trostina 2014:13-15). Just the same, some study subjects can be even difficult to comprehend in one's mother tongue due to which demotivation and underperformance can be an undesirable side effect (Gavriola & Trostina

2014:8-10). Especially content or concepts not yet known in the mother tongue might be complicated at first. Dale and Tanner (2012:30-32) also determined six different steps that might entail challenging situations as e.g. the activation of students, the guiding of understanding and sort of questions that could be asked. In addition, finding a balance between focusing on language and diverse skills but also on content might not always be easy. Especially assessment might pose problems to CLIL teachers as e.g. when to judge language problems or not. Therefore, clear criteria and a range of assessment methods should be used (Dale & Tanner 2012:30-32).[16]

Normally, CLIL programs receive great popularity among students since it enhances their future prospects. Even though this educational setting might be cognitively more demanding and challenging, it can be more stimulating and rewarding for students and teachers (Marsh 2002:72, Gavriola & Trostina 2014:13). After all, the degree to which it is possible to implement CLIL depends on the willingness of students and institution. In the beginning it might, thus, be helpful to get the council of students involved in institutional and subject-specific considerations in order to decide what topics and courses are best to offer as CLIL classes.

2.5 Premises for CLIL in Medicine Programs

In order to implement CLIL in medicine programs in higher education, certain premises have to be taken into consideration. After certain requirements of higher education didactics are described, the role of language

---

[16]Many researches on CLIL either provide general information on behalf of the approach, the learning outcomes or investigate individual aspects of language competence. Nevertheless, there is a complexity of factors involved in CLIL and there is still a lot to investigate, especially concerning possibilities and constraints in education or experiences of participants (Dalton-Puffer, Nikula & Smit 2010:8-9, 11).

in CLIL is discussed. Another section focuses in more detail on the characteristics of scientific language. The chapter concludes with a presentation of various implications teachers of medicine programs have to bear in mind when implementing CLIL educational settings.

2.5.1 Higher Education Didactics

Higher education didactics is concerned with the assurance and improvement of the quality of teaching and studying. It continually tries to enhance the development of higher education on the basis of theoretically established higher educational concepts. It does constitute the connection between content knowledge and the transmission of information to students, thus, the pedagogical and didactical approach of teaching. Higher education didactics can either be interdisciplinary or subject-related (Wildt 2011:9). In order to hold professional standards it is important to have continuous trainings in didactics (Baranova & Kröber 2011:55, 69).

As a result of academic reforms higher education in general is by now more practical-oriented and aims at developing skills and abilities needed in future professions. Even in higher education it is noticeable that the teaching attitude is more student-centered and competence-oriented e.g. by offering more seminars (Walter & Waldherr 2011:91). To meet vocational requirements or to enhance and improve chances of employment is of great relevance. In order to participate in international competitions, study programs have to be adapted, keeping track with ongoing changes in society and professions. Thus, it is inevitable to analyze how practical ideas meet these requirements, i.e. how practical-oriented courses can be integrated and what kind of effects this might have on the study (Krömmelbein & Reitz 2011:83-84). Even though most study areas integrated practical experiences

in their programs, students do often acquire relevant know-how, that is interactions in specific professional contexts, only after their academic career (Krömmelbein & Reitz 2011:86). Is the assumption wide spread that soft skills and core competences are indispensable for professional life and significantly improve one's situation on the market, it is often forgotten that these are probably most useful if learnt in conjunction with the subject-specific content. Consequently, to meet national and international high quality standards it is necessary to integrate more internships and practical sessions in study programs (Krömmelbein & Reitz 2011:86-87). Higher education didactics should try to make the interrelatedness of theory/study and practice/profession visible and give students more opportunities to gain experiences and insights in different specific professional fields. It will be easier for students to decide e.g. where they want to work when finishing their study or what qualifications they will need. As a result the majority will be more target-oriented and motivated or even realize if they want to shift to other programs (Krömmelbein & Reitz 2011:89). However, theoretical knowledge is prerequisite for each internship or practical activity. Thus, it is obviously not enough to demand more practical-oriented programs, the use- and helpfulness have to be thoroughly reflected. Helpful may be to have internships supervised by university personnel, which again depends on each institution and its financial situation for the organization and cooperation (Krömmelbein & Reitz 2011:90, 98). Even if it might be difficult to address all demands within the academic framework, higher education should offer possibilities to look beyond the academic structure at real life, the status quo with all its rules, requirements and social structures (e.g. workshops, volunteer projects, etc.). Only then it is possible to participate in diverse occupational contexts after graduating (Krömmelbein & Reitz 2011:99). Higher education didactics is primarily concerned with an orientation on

interactive, problem-solving and reflexive learning processes. Furthermore, the activation of prior knowledge should lead to independent learning and teachers are seen as advisers and scaffolders (Krömmelbein & Reitz 2011:107). Still, the objective of universities is a scientific, academic education and the learning of core competences that are subject-related. Despite of this, students gain the ability to reflect and think critically. Naturally, the amount of participation, research and practical orientation is distinct in each discipline. However, in general, it can be determined that it is systematic, includes scientific working, the comprehension of complex contexts and concepts as well as the communication and transmission of results (Krömmelbein & Reitz 2011:138). Yet, a bureaucratized organization of studies often hinders an interest-based study. Unfavorable learning/teaching arrangements and formal obstacles may make both interaction and practice orientation more difficult and complex (e.g. time-wise, location-wise or due to lack of personnel or large groups of students). In consequence, it is of special relevance for higher education to facilitate exchange and cooperation of faculties and departments, nationally and internationally. Moreover, both the consideration of employing more personnel and enabling cooperation or internal communication can be of mutual benefit for students, teachers and institutions (Krömmelbein & Reitz 2011:139-41).

Accordingly, higher education didactics is influenced by diverse factors. It is an interplay of living environment, culture and society, on the one hand, and professional practice, science and educational systems and as such the institution, teacher and subject, on the other hand. These aspects play an important role for the concepts and structure of higher education didactics and are considered when developing the curricula for each specific subject (Jahnke & Wildt 2011:14-15). Therefore, to ensure good quality

methodologies, pedagogical and didactical approaches as well as topics are organized by considering cognitive, social and pragmatic aspects (Wildt 2011:201,209). As such, the main objective of higher education is to link theory and practice. Higher education didactics can be seen as framework of education and study, and at best focuses on theory and practical experience alike while supporting goal-oriented and effective learning (Wildt 2011:19-20). Consequently, didactics have the responsibility to organize and reflect content and teaching/learning arrangements that provide these opportunities (Wildt 2011:22-25, Krömmelbein & Reitz 2011:84-85).

Even though there are subject-specific principles existing, it can be advantageous and effective to have a close cooperation between multidisciplinary and subject or discipline-specific didactical perspectives (Wildt 2011:10-11, 25). Given a close internal cooperation, it may lead to effective knowledge transfer, beneficial teaching/learning arrangements and as such to professionalism (Wildt 2011:30). Some areas of study developed their own higher education didactics related to their specific field. For instance, medicine is in the field of medical education already well advanced, offers training, publishes journals and is relatively flexible towards innovations and reforms (Wildt 2011:27). Nevertheless, medicine didactics does not represent the whole complexity and diversity of the medical study. Rather, it plays a minor role in most departments. Reiber and Göpel (2011:240) see a reflexive higher education especially in health care related studies as important since it is relevant to analyze medical situations from different perspectives. Students should work on problem-solving tasks and authentic practical cases. These activities would also serve as basis for future professional and interdisciplinary communication just like cooperative solution finding (Reiber & Göpel 2011:241). They mention seven points that can be considered when including problem-oriented learning. A problem

which is complex and close to reality serves as starting point. For further analysis brainstorming can follow that activates knowledge and leads to the developing of hypotheses. Next, the ideas should be systematized and missing aspects included, before a decision is taken whether an interdisciplinary approach is necessary. The whole process should be concluded by a presentation of results (Reiber & Göpel 2011:242). This would also meet the requirements of research-based learning, one of the key elements of health-related study programs. In higher levels, it can also be useful to form learning communities consisting of students with different specializations that may collaboratively solve a case. However, there should still be a connection made to theoretical backgrounds and experiences (Reiber & Göpel 2011:243, Jahnke & Wildt 2011:237).

In this sense, there is a correlation with the suggestion of this thesis that should be directly addressed in higher education: One of the requirements for future practitioners is the need of English. Therefore, higher education didactics should promote the implementation of CLIL classes in order to maintain good standards in content teaching while also enhancing language skills. After all, students should gain the ability to act appropriately in a given situation which encompasses the confrontation with English in their profession. The University of Marburg, for instance, offers special programs in medical didactics for physicians and lecturers of medical departments. These courses address the need to ensure quality in teaching and studying and do also serve as proof of higher educational trainings, required e.g. for habilitations (Pohl et al. 2014). It would be best to offer special trainings in this area on CLIL as well, i.e. provide quality teaching and language support for university staff teaching the medical content through English.

2.5.2 Role of Language in CLIL

One question to be considered when introducing CLIL is what foreign language should be chosen. As international language and lingua franca English does have influence on various domains, especially science, business or research. Furthermore, it has a high sociolinguistic status and is often chosen as medium of instruction in European contexts (Graddol 2006, Llinares et al. 2012:6). However, one has to keep in mind that some students in higher education may still learn the national language (e.g. exchange students). Therefore, it should be considered that the degree of similarity or difference between student's mother tongue and language of instruction influences the accessibility to the foreign language. In order to not exclude anyone, academic education institutions have to ensure that CLIL programs are inclusive and learner's educational chances are not negatively affected (Llinares et al.2012:7).

Especially the exposure of the foreign language or the role of language within CLIL classes is often under discussion. Programs are primarily based on the curriculum of the content subjects. Language goals, on the other hand, do often remain implicit (Wolff 2007:16 in Dalton-Puffer et al. 2010:2). CLIL in Europe is slightly more content-driven than language-driven. Therefore, a balance between these two should be found to improve the language proficiency as well (Dalton-Puffer et al. 2010:2). Llinares, Mortan and Whittaker (2012:8) introduce the role of language in CLIL with the statement that "students will encounter and have to use a whole range of the language which shapes educational knowledge" while working with content. That encompasses languages skills not just to manage everyday tasks but simultaneously to communicate experiences or express attitudes. All this "is

fundamental to achieving understanding of complex subject matter taught through that language" (Llinares, Morton & Whittaker 2012:9). Moreover, students do have to acquire the subject literacy. In other words, learners should become acquainted with spoken and written language forms and texts through which content knowledge is accessed (Llinares, Morton & Whittaker 2012:14). On one side, that implies subject-specific genres and different text types. On the other side, students should be aware of the register and have to develop linguistic competences such as lexical and grammatical forms which are necessary to express ideas or concepts of the subject (Dalton-Puffer, Nikula & Smit 2010:14,17). In order to communicate within the subject students should have no difficulties to express their opinions both on BICS and CALP basis. Prerequisite is that teachers themselves are aware of meta-lexical language demands of their subjects and get enough training in CLIL education (Dalton-Puffer, Nikula & Smit 2010:30).

Moreover, some studies "have pointed towards beneficial effects of CLIL on various areas of language learning, i.e. it seems to have potential as a language learning environment" (Dalton-Puffer, Nikula & Smit 2010:12). In comparison to regular classes students often show a more active and competent communicative interaction. Maillat (2010:49) found out that CLIL students benefit especially from role play activities and spoken interaction. Since precise responses are required, students see the reactions of their fellow students, reformulate their ideas and reflect their output (Maillat 2010:39-61, Dalton-Puffer et al. 2010:33). Might, for example, accuracy be a problem at earlier stage, students show great flexibility and communicative competences after becoming acquainted with the learning environment (Dalton-Puffer, Nikula & Smit 2010:31). Additionally, students transfer their L1 academic knowledge into the L2, i.e. they use the same structures and feel confident in doing so. This constitutes that CALP is "linguistically transferable skill"

(Cummins 1984 in Lorenzo & Pat 2010:31-32). Even though the likelihood of fossilization in academic discourse is smaller, it is important that correction and focus on form continues to be part of education (Dalton-Puffer, Nikula & Smit 2010:33).

Hellekjaer (2010:233) conducted a study in Norway where English was introduced for teaching non-linguistic subjects in higher education. She observed that students had great difficulties during first years of implementation. She states that one has to be aware of practical and pedagogical implications of using a foreign language as medium of instruction. It was considered not to pose problems to conduct university courses in English, especially since students in Scandinavian countries do already have a proficient level in English due to their former education (Hellekjaer 2010:234). Although students can understand and participate in English without difficulties, they opposed to this new attempt and worried e.g. about their writing proficiency. The analysis showed that most students in lower educational level have initial problems but may adapt after a while to the learning environment (Hellekjaer 2010:234). Nevertheless, a documentation of these difficulties can be helpful to find suitable solutions for improvement. In particular, listening comprehension is relevant at university level as e.g. for lectures[17] (Hellekjaer 2010:235). In case of the Norwegian students, basic language difficulties could be determined that had an impact on comprehending lectures. However, it was notable that many of these problems were also present in learner's L1 (Hellekjaer 2010:248). Therefore, the author suggests supporting students during lectures with e.g. visuals. Lectures are easier to follow if a clear structure and copies are

---

[17] Listening is a bottom-up and top-down process: various skills are combined, learners have to use their prior knowledge as well as the context to make meaning of the input and need skills to compensate missing information with background information.

provided while the content is delivered in an understandable proficient way. Vocabulary problems can be handled if key terms and concepts are explained beforehand or extra time is available for clarifications. The whole learning process should be transparent as introducing language learning goals or outlining value and benefit of learning in a foreign language. Furthermore, the kind of assessment should be defined, assistance provided with domain-specific texts and a close cooperation of professors and fellow students be promoted (Hellekjaer 2010:249). Given Norwegian English proficiency it can be assumed that other countries have similar problems when implementing CLIL in higher education (Hellekjaer 2010:250). Consequently, the realization should be carefully observed and possible difficulties assessed in order to modify the CLIL design, if necessary.

2.5.3 Scientific Language

Scientific language does have certain characteristics that should be considered when CLIL is implemented in medicine programs, i.e. teaching medical subjects through English. According to Reeves (2005:1-4), one way to understand science is to understand the language used.

It is often assumed that scientific language should "be free of bias and emotion" and rather transmit facts by using objective language (Reeves 2005:5-9). Just in the sense of CLIL it is necessary to understand both aspects of language use, the general and academic one. Students have to understand how language is used within science "to explain, argue and characterize phenomena as well as the language used outside science to explain and report its findings to all of us" (Reeves 2005:1). For being productive scientists, students have to gain confidence in using oral and written language. For instance, when working together they share findings, exchange ideas or argue

over explanations and try to find solutions. They might do the same in written form if specialists work elsewhere. Furthermore, they may attend conferences and release articles or write reports on clinical trials. Scientific writing competence is essential, for example, for the exact recording of experiments and for explaining interpretations of data (Reeves 2005:1-2). Likewise, it will in future most likely no longer be sufficient for physicians to write patient's documentations or data collections only in German. Thus, it can be determined that language knowledge is essential in German and English.

Additionally, the language in scientific context should not be arbitrary as it might be the case in other disciplines. Nevertheless, Reeves (2015:2) acknowledges that there is not always an "absolutely accurate way to describe" issues in medical contexts. As consequence, students who are good scientists have to carefully choose their words and be aware of differences in meaning. As Reeves (2015:2) correctly concludes, scientific language is still "made by human beings who cannot entirely control the effects their language choices have on others". In CLIL context it is therefore inevitable to analyze the scientific language of medicine and to identify the context and objective of texts. Hence, classes should address questions of why problems may occur (e.g. either when speaking with patients or when being confronted with new terminology for the first time), or what features of scientific discourse are most common (e.g. the grammatical or organizational features employed). Thus, students get to know discursive patterns they might apply when interacting either with other professionals or patients (Reeves 2015:3-4).

Obviously, it is easier to describe something of medical relevance if the specific terminology already exists than explaining new or not well investigated features (e.g. a new disease and its pattern). This is illustrated by Reeves's analysis of scientific language used during the AIDS epidemic. The

first physician who recognized AIDS "had to alert the medical community to a new disease that could become epidemic" (Reeves 2015:14). Hence, it was necessary to describe the basic symptoms in such a way that they are recognizable in other patients. However, these descriptions have to be constantly updated and further developed in order to have a complete clinical picture of the disease. Not just the "most observable aspects of the disease" lead to the right conclusion but, instead, to an incomplete understanding. Henceforth, newspapers e.g. defined the disease in the beginning as "Gay Cancer" and "Gay-related Immune Deficiency" (Reeves 2015:14). Spread through the media it conveyed the assumption that only homosexuals were at risk (Reeves 2015:16). To prevent such misunderstandings the disease was eventually defined as "Acquired Immunodeficiency Syndrome". However, the term "acquired" is associated with the idea that an infection is the result of one's own behavior. The term currently used, "Human Immondeficiency Virus (HIV) […] erases all such connotations" (Reeves 2015:16). This demonstrates that although professionals try to develop precise and meaningful terminology, problems may occur due to "confusing, misleading or vague terms" (Reeves 2015:16). Reeves mentions three causes that may lead to these problems. Firstly, distinct subfields or disciplines may define the same terms differently (Reeves 2015:16-17). Secondly, rather vague terms may imply distinct meanings to diverse people (Reeves 2015:18). And last, "inappropriate scientific terms" can lead to difficulties in understanding. These are e.g. terms used for theories that cannot be tested or are not yet validated and may, therefore, increase the risk of spreading false theories (Reeves 2015:18). These examples illustrate how important it is to use objective language in medical discourse and that scientific language should be rather denotative.

As Wellington and Osborne (2001:1) state "one of the major difficulties in learning science is learning the language of science" and Postman & Weingartner (1971 in Wellington & Osborne 2001:3) note that "the key to understanding a subject is to understand its language". Correspondingly, more attention should be paid to scientific language use even though it is often considered to be just of marginal relevance (Wellington & Osborne 2001:1). According to the authors, learning the language of science in each specific subject is essential since it can improve the overall quality of science education. After all, each science lesson is also a language lesson, which is why "all teachers should see themselves as teachers of language" (Bullock 1975:141 in Wellington & Osborne 2001:3). Language is often the major barrier in understanding science which is why students need strategies to compensate linguistic difficulties (Wellington & Osborne 2001:2). When learning the scientific medical language students might be confronted with some difficulties. In particular words or concepts that have "a precise meaning in science and exact definitions" may have absolutely distinct connotations in everyday life. Just alike, they have to deal with familiar words and concepts and realize that these might have diverse meanings in new context (Wellington & Osborne 2001:5). Teachers should be aware of possible difficulties and foster all skills by using a range of activities that do simultaneously contribute to literacy development in both BICS and CALP (Wellington & Osborne 2001:2). It is, therefore, beneficial to integrate diverse interactions in which students achieve the ability to express themselves by using appropriate medical terminology, follow conventions and write precisely and coherent (Wellington & Osborne 2001:4-5). In order to learn the language and literacy in scientific education, it is best to combine language learning with diagrams, tables, graphs, pictures or special symbols. Accordingly, a focus is not just on the language itself but also on what is

done with it and how it is applied to communicate. This is entangled with learning to use the language as scientists do (Lemke 2001:IV-V). In their medical courses students have to consider scientific concepts and values while learning how something "should be logically connected" and "put into the right kind of words". To support students with specific techniques and forms of expressions, not only with specialized vocabulary but rather the right kind of language for reasoning and expressing hypotheses, is essential. One of the main objectives of explicitly teaching the language of science is to promote student's intellectual development, imagination and participation (Lemke 2001:V). Once students get used to the style of e.g. scientific analysis or deductions, they will find the logical way of using the language quite easy (Lemke 2001:V).

2.5.4 Implications for Teachers

A conceptual change is one of the major objectives of CLIL classes and as such the idea of BICS and CALP. General concepts should be transformed and adapted to scientific concepts. Besides, successful implementation is based on cooperation and mutual support on various levels. Interaction and negotiation of meaning are essential conditions for CLIL to succeed. Johnson and Swain (1997:3)[18] see three main goals that have to be achieved in immersion education of which they see CLIL as specific form:

1) Acquire proficiency in the medium of instruction/L2

2) Mastery of subject/content, knowledge should not be negatively affected by L2

3) Competence of L1 should not suffer

Inglin (2013:8) defines six different principles for CLIL settings that encompass the 4 Cs as well as various language skills. First, objective should be to finally use authentic material of the target language's culture. Only then these cultures and manners can be recognized and differences addressed. Second, a conscious analysis or involvement with topics of the target language and culture should take place. Third, Inglin uses the term "Mind the Gap" which does not mean to focus on less content. Rather, classes should be student-centered with room for discussion to intensify content. The fourth principle goes into the same direction. In order to have content-wise and linguistic-wise challenging, communicative and interactive classes, students need more talking time. Additionally, the fifth principle states that "learners need more wait time", "redundancy" and "recycling". The suggestion here is

---

[18] also in Dalton-Puffer, Nikula & Smit (2010:45).

to show more patience until students work out their answers or participate in discussions. Moreover, they should use new vocabulary or specific terms in different contexts to enhance their language competence. Finally, more sensational classes, using multimodal settings and addressing all senses, lead to more involvement (Inglin 2013:10-12).

During the preparation of CLIL lessons, teachers should consider the above mentioned extended CLIL matrix, i.e. the 4 Cs Framework, Bloom's Taxonomy, the CEFR, the Thinking skills and Scaffolding-Media. These are fundamental to define different activities students have to fulfill to get involved with the matter of discussion. In addition, the matrix can be taken as basis to determine possible outputs and to set learning goals (Inglin 2013:14-16). Likewise, it facilitates to prepare lessons according to the European standards of teaching by defining competences, objectives and conducting fair assessment (Inglin 2013:17, 20-21). The implementation of CLIL in general and in higher education causes changes and challenges on various levels. Besides equally emphasizing content and language learning, teachers have to decide what kind of resources or material should be taken and how new themes become more accessible (Inglin 2013:14-16). Depending on context and learning environment materials might have to be developed or adopted. In best case scenario authentic material can be used as e.g. texts published in the target culture. However, this greatly depends on learner's abilities and the matter of discussion (Ikeda et al. 2013:1-3). Encouraging students to read authentic materials by themselves can be very beneficial, especially if time and institutional constraints are an issue. Further criteria for good materials in CLIL settings is to provide rich multimodal input in content and language that involve various levels of thinking skills, both LOTS and HOTS. Multimodal instructions and activities contribute to learner's motivation and the authenticity of content. The material should contribute to

gradually develop academic skills and stimulate output. In addition, teachers would best initiate a change of perspective which is of central significance in CLIL by incorporating elements that favor cross-cultural understanding or are global issues (Inglin 2013:8-9). Within teaching units all four skills should be integrated and further scaffolding material provided, if necessary (Inglin 2013:13). Moreover, strategies for accessing unknown topics or concepts can be integrated or aids that facilitate understanding e.g. using visuals or advance organizers. Furthermore, the concept of reflective practice is often mentioned in the context of teacher education and teacher professional development. This reflective practice refers to the ability to reflect on action by paying attention to theories and practical values. Correspondingly, in educational context this refers to the process of teachers studying their own teaching methods and deciding how to proceed. CLIL teachers should learn from their own professional experiences, observe and continually improve their practice to become "reflective practitioners" (Schön 1983 in Inglin 2013:8, Breidbach & Viebrock 2007:127). Further, it is ascertained that an effective learning environment should be student-centered rather than teacher-centered by e.g. using task-based approaches. This does also lead to a change of roles and responsibilities. Teachers are seen as scaffolders who encourage independent learning, promote learner's autonomy and assist students in their learning processes (Gavriola & Trostina 2014:15-16). In some cases, teachers might have to compensate the lack of specialized training in CLIL. Even then, it is possible to become a proficient CLIL teacher depending on motivation and time constraints.

Dale and Tanner (2012:19) define three phases of development teachers may experience while becoming more confident and professional in CLIL settings. The first phase is to develop one's own language skills. New teachers might feel insecure when teaching in a foreign language and tend to

use learner's first language. Instead, they should try to activate the students, use rather simple and direct language which may even be easier for learners. During the second phase, when being more self-confident themselves, learner's vocabulary should be enhanced. Encouraging learners and organizing various activities besides assisting with difficulties are just a few examples that belong to this stage. The third phase is concerned with facilitating learner's language use which means that students should acquire more knowledge and the ability to be more flexible in applying the language. Therefore, teachers should provide many different activities addressing diverse skills. They should be aware of possible challenges, give students opportunities to interact and encourage cooperative learning. Essential for the learning process is also to give feedback as often as possible. The goal is to reach *Basic Interpersonal Communication Skills* and help students to gradually develop *Cognitive Academic Language Proficiency* (Dale & Tanner 2012:19-20).

Methods and techniques should, therefore, focus on communication and cognitive involvement while maintaining a balance between content and language. The language of instruction should be used during the whole class to reach a point at which it is regarded as normal. Nevertheless, German as national language can be used in some cases to clarify matters of discussion or to compare German perspectives with these of the target language. Team teaching and a close cooperation within the institution and across the curriculum can be beneficial and may take the pressure off individuals. Colleagues may help each other e.g. if the subject teacher remains unsure of specific language skills or specific terminology. Further, they can divide activities or tasks, teach in teams or work together on projects. Hence, language teachers may prepare scaffolding media before the subject lesson, design possible tasks or edit material. This, however, requests that both

teachers agree to the procedure and find a mutual understanding in order to create an effective and friendly professional working atmosphere. Likewise, there are possibilities of pre-teaching such as to practice certain language skills, focus on specific text-types and typical structures or provide strategies. Even though various variants of CLIL's implementation exist, most have in common that reading skills are highly important. Therefore, reading strategies and skills should be fostered. In the context of higher education, listening skills are just as relevant, especially if lectures take place in the language of instruction (Wolff 2009:556). As Coyle et al. (2010:44) determine "there is no single model for CLIL and that its theoretical as well as practical basis has to take account of the context in which it is being developed. We suggest that this demands an inquiry-based approach to practice". To maintain a good quality of education it has to be ensured that CLIL teachers in higher education receive enough training for teaching in a foreign language (Dafouz & Núñez 2009:214, Dafouz & Llinares 2008:50-59). For educational purposes it can e.g. be helpful to conduct analysis of CLIL lecturers to determine how content is delivered, what choice of words is used and what might be improved. Consequently, it can be assessed what kind of training teachers need to successfully implement CLIL in higher education (Dafouz & Núñez 2009:215). Dafouz and Núñez (2009:217) found out that lecturing in a foreign language requires "better organisational skills and a clearer structure than lecturing in one's L1". Especially in university contexts it is important in order to maintain a clear structure and to communicate content explicitly but in an understandable way (Dafouz & Núñez 2009:230). Therefore, they suggest to support students during lectures with e.g. visuals or to provide copies that make following the content easier. Concepts might be explained beforehand or extra time provided to focus on difficulties, review unclear matters or carry out follow-up activities. During

the lesson teachers should monitor the process and support learners, if necessary. Clear instructions and reminders of strategies can facilitate learning, just like giving feedback may be encouraging (Dale & Tanner 2012:23). Obviously, the whole learning process should be transparent to the students, meaning that learning objectives and assessment are defined and communicated: "Whilst CLIL is flexible and can be adapted to different contexts, nonetheless, for the approach to be justifiable and sustainable, its theoretical basis must be rigorous and transparent in practice" (Coyle, Hood & Marsh 2010:1). Subsequently, it is important to introduce the assessment criteria in advance that students know what is expected of them (Dale & Tanner 2012:21-23). By using the CEFR, assessment criteria may be defined and it can also be ensured that diverse methods such as teacher-, peer-, or self-assessment are carried out.

Consequently, teachers have to keep in mind the following pedagogical considerations: The subject requires certain language demands for which learners may need language support. Thus, more strategies to support understanding and learning have to be included in CLIL settings. Moreover, there is no reason to exclude the mother tongue in class since a linguistic transfer is natural and might be helpful. While the teacher becomes a scaffolder, classes are more learner-centered and participative. Classes should primarily focus on fluency rather than on form. However, students should develop strategies for decoding new information and use a greater variety of communication strategies. Recommendations for CLIL in higher education encompass that while preparing classes teachers should consider the CLIL matrix and structure the lesson plan accordingly.[19] To make teaching more transparent, the kind of assessment should be clear and an overview of the

---

[19] An example can be found in Inglin, Oswald (2013:20-21): *CLIL Little Helper'*s.

content should be provided in the beginning of the class. Furthermore, it is useful to facilitate the handling of new vocabulary and content by e.g. glossaries, the use of visuals and graphic organizers. Students should be encouraged to ask questions, guess and speak spontaneously while teachers should offer additional scaffolding media for enhancing comprehension and self-study. Likewise, the rate of speech should not be too fast in order to not overwhelm students with the new educational setting. The repetition and consolidation of learned knowledge has to be especially considered when planning lessons.

3 Analysis of Medicine Programs in Higher Education

Within the framework of this chapter, the study program of human medicine is analyzed. The aim of the analysis is to provide a general overview of the structure of German medicine study programs. Subsequently, it is examined whether students of medicine are confronted with English within their study or whether they have opportunities to enhance their English skills in the course of their study. Finally, possibilities and restrictions for the implementation are discussed.

3.1 Study of Medicine in Gießen and Marburg

A general framework regarding the structure and content of medical study programs and examinations are provided by the *German Medical Licensure Act* (ÄAppO).[20] This legal basis is standardized across all German educational institutions and determines certain study regulations. Hence, the study order of medicine programs in Germany is comparable between different universities. Nevertheless, the implementation of these regulations can slightly differ from university to university, especially regarding optional courses or possibilities to obtain different language skills either abroad or in specific language courses. Standard period of study at all universities is six years and three months (ZSB 2015:6). The final degree students obtain is the state examination. As all German universities have to comply with the ÄAppO, medicine study programs at Germany universities are all divided into three phases (Reg.-Pr. Gi 2015a). Therefore, for the analysis of this thesis it is sufficient to choose the study programs of the Justus-Liebig

---

[20] German Medical Licensure Act = Ärztliche Approbationsordnung (ÄAppO).

University in Gießen and the Philipps University in Marburg as examples, as a comprehensive description of all German universities' medical study programs would go beyond the scope of this discussion. However, in addition to these two, some of the programs at other German and European partner universities, that participate in exchange programs with Gießen and Marburg, will be described as well.

The structure of medicine programs in Gießen is rather traditional, based on years of experience.[21] The whole program is divided into three stages that are successfully completed when students pass a medical examination in accordance with the regulations for the licensing of medical doctors in Germany. The first study stage is the *pre-clinical* section (1st through 4th semester). Students will be introduced to the basics of natural sciences relevant to medicine (biology, physics and chemistry), physiology, and anatomy. In other words, medical students learn the fundamental aspects of the human body's structure and function as well as basic mechanisms. Furthermore, students must choose an optional course (e.g. molecular cell biology or immune system),[22] learn the medical terminology, and have to complete a three-month internship. Only then they are eligible to take the first "Medical Licensing Examination", called *Physikum* (ZSB 2015:6-8).

This first study section is followed by the *clinical* stage (5th through 10th semester). During these semesters, students gain an in-depth understanding in 21 specific subjects plus one optional subject (e.g. human genetics,

---

[21] An overview of the structure and content can be found in the information leaflet of the ZSB (2015) and is indicated in the list of references.

[22] A great diversity of optional courses is offered by the university. The majority of these courses change every semester. Optional courses for the pre-clinical stage can be found on the website (JLU-FB11 2015a). A list of current options is available under: (JLU-FB11 2015b).

pharmacology or forensic medicine).[23] Moreover, students have to attend 13 cross-sectional courses related to the medical profession (e.g. health economics or history, theory and ethics of medicine); five of these are elaborated in block practical trainings. The duration of block practical trainings can last from one up to six weeks, depending on content and number of students. Students learn to carry out differential diagnosis, therapies and treatment methods of the most common and important clinical presentations they will be confronted with in day-to-day routine work. Trainings are designed to illustrate the correlations of theory and practice and encourage students to identify interdisciplinary connections between medical basis and clinical application. These block practical trainings can consist either of lectures, seminars, internships or hospital visitations or a combination of these (JLU-FB11 2015d). In addition to this, it is essential that the students carry out medical visitations in a hospital, which is called *Famulatur,*[24] before they can take the second "Medical Licensing Examination" (ZSB 2015:8-9). According to the German Medical Licensure Act, each medicine student has to complete three of these hospital visitations. Two have to last a minimum of four-weeks and students can chose to do the visitations either in the *outpatient department* (OPD) of a hospital, in doctors' surgeries, or in the area of general practitioner care. The third consists of an eight-week visitation of a hospital or rehabilitation facility with the purpose of becoming acquainted with the routine. These visitations aim at giving ongoing medical students insights into the daily duties of physicians (§7 ÄappO 2002, ZSB 2015:13, Fsmed 2015).

---

[23] An overview of options during clinical stage available under: (JLU-FB11 2015c).

[24] The German term is not equivalent to what is known as a clerkship or medical elective in other medical educational systems.

The final year of German medicine programs is the so-called *practical year*[25] (11th through 12th semester), in which students receive more hands-on patient training before they become practicing physicians. Students can intensify what they learned during their first ten years and acquire further experience, besides gaining insight into practical duties. The practical year is divided into three 16-week segments that are normally carried out in hospitals. While the two departments surgery and internal medicine are mandatory, one of the three segments can be done in a department of choice (ZSB 2015:9-10). Usually, medicine programs consist of a series of lectures, seminars, practical trainings, tutorials and internships and will provide students with knowledge needed to eventually become a practitioner. Students will not only gain understanding of science and scientific methods used in medical practices, but also the ability to participate in ongoing discourses and to make contributions to medical research.

Besides the standard study program, the faculty of Gießen offers priority programs for four areas of study: *Global Health, Pediatrics, Musculoskeletal System* or *Anesthesia/Intensive-care medicine*. Students can choose these specializations after their *Physikum*. The program *Global Health* encompasses internationally oriented courses, which suggests that this priority program includes lectures partially in English. However, this does not seem to be the case. Rather, it is concerned with topics of global relevance such as tropical medicine, different health systems or migration and medicine (JLU-FB11 2015e). The University of Gießen also provides information for international students coming to Gießen. For instance, there are German classes given to foreign students of medicine by fellow German students (JLU-FB11 2015f). Besides, all students have the possibility to

---

[25] In German: Praktisches Jahr = PJ.

attend tutorials called "study skills" concerned with key competences necessary for the medical study. Although possible challenges students may face during their academic career are addressed during these tutorials, they only include topics such as self-organization, motivation and learning strategies. Likewise, students are informed about upcoming conferences and events taking place in Gießen of which some are in English or at least partly (JLU-FB11 2015g).[26] PhD programs are almost entirely in English, since these in particular are open for students interested in in-depth research and various projects. These are three-year programs in combination with an experimental project. Since highly regarded international scientists participate and lecture, courses are conducted in English. Nevertheless, some German courses are also offered for national and international students. The final thesis may be written in German or English.

As mentioned above, the study order of Marburg is basically the same and consists of the *pre-clinical stage*, *clinical stage* and the *practical year*. The *pre-clinical* stage is also composed of basic courses and internships to provide students with general knowledge in the field of medicine (PUM-FB20 2013). Even in this study phase, students have the opportunity to attend a priority program in "primary care". The *clinical* stage of study has the same structure as in Gießen, but varies in the choice of optional courses (PUM-FB20 2014). During this stage it is also possible to participate in further priority programs either on *oncology, immunology and infectiology, clinical neurobiology, operative medicine, pediatrics*, or *primary care*. The university does offer further interactive educational trainings in the interdisciplinary *Skillabs*. Among other opportunities for both lecturers and students, one can find the reference to medical language courses, called "Fit für den Job".

---

[26] Please note that the online announcements are constantly updated.

These are carried out in cooperation with the language centre of Marburg. However, it exclusively addresses non-native students who run into problems due to their limited German language competence. During this course students learn to act appropriately in daily situations or how to apply professional terminology. In the end of the course, attendants can take a practical-oriented exam in oral and written form. Thus, they receive a certificate that is acknowledged by the German license to practice medicine (Pohl et al. 2015). After all, there does not seem to be the possibility to take any medical specific courses in English, even seminars and lecturers are only in German.

3.2 Exchange Programs

Besides having close collaborations with national hospitals and faculties, most universities cooperate with partner universities in other countries. This connection enables students to take part in an exchange program of the *German Academic Exchange Service* (DAAD) or *ERASMUS*.

Even though the medical section has a high rate of students participating in the ERASMUS exchange program (either for spending a semester or the practical year abroad), the list of partner universities of Gießen does not include any in a country which official language is English (JLU-FB11 2015h). In most programs the courses open to international students are limited due to linguistic difficulties or organizational constraints. As it is often the case in these exchange programs, there are specific courses offered in English for international students. Although Norway, Finland, and the Netherlands can be considered as exception, since most universities in these countries do offer regular programs in higher education in English, just a few partnerships are established with these. Mainly partner universities located in

Spain, Turkey and France can be found on the list. Among others, exchange programs with two faculties in each Finland, Greece, Italy, Portugal, Czech Republic, the Netherlands and Austria exist. For exchanges with non-European countries, students have to consult the DAAD. There is, however, no list of collaborative universities that do offer medicine programs in higher education. However, the exchange office provides additional information on what has to be considered when planning a stay aboard, among others a reference to language courses and the suggestion to learn the target language. Still, it is directly pointed out that the German study structure has to be kept in mind. According to medical students in Gießen it is often not easy to take part in exchange programs, at least during lower semesters. It might be difficult to integrate a semester abroad if specific courses have to be taken and no substitution is possible. Thus, students do mostly have to accept to prolong their study in order to gain experiences aboard. However, not all students can afford the stay aboard or to prolong their study. Though, they need English in their life as future practitioner as well. This does also apply for the ones who do not want to go abroad for any other reason. Moreover, the medical faculty in Gießen does also have an office of the "German Medical Students' Association", a student council who offers assistance in organizing exchange programs during medical study programs.[27] For all students taking advantage of spending time abroad, the medical faculty of Gießen offers written descriptions about the German *Famulatur* in English.[28] Additionally, an outline of what has to be considered and how to plan a

---

[27] The German *Famulantenaustausch* is part of the *bvmd*, who represents the interests of medical students on a national and international level. They support medical students in projects, and do support international exchanges by organizing placements in the *International Federation of Medical Students' Associations.*

[28] Explanation concerning the purpose and expectations of the German Famulatur, in case students want to apply in another country.

Famulatur can be found both in English and Spanish, a text on how to plan a *PJ* is also available in English (Snipes 1998).

In comparison to the University of Gießen, the University of Marburg does not provide further information for students interested in doing internships aboard. Neither does Marburg offer documents in other languages (Busch 2014). Instead, there is only a reference to the regional examination office of Hesse for further information (Reg.-Pr. Gi 2015a). Only the descriptions on the practical year, following the successfully completed *Second Medical Licensing Examination*, contain little information on gaining practical experiences in another country, though it is possible to spend the *PJ* aboard. However, documents and information are only provided in German, the certificate that has to be submitted can be found in English and French. Students are directly informed that no list of acknowledged hospitals is available. They have to find possible partners on their own and have to clarify further steps with the examination office beforehand (PUM-FB 2015).

Naturally, students of medicine in Marburg can participate in the ERASMUS exchange program as well. Mainly partner universities located in Italy and Spain can be found on the list, a few in France and Austria. Besides, there are bilateral agreements with two universities in Rumania and one each in Belgium, Finland, Poland, and Portugal. Once again it can be noticed that there is no cooperation with countries that do carry out most of their higher education in English (PUM-IO 2014). In case of international cooperations, partner institutions especially for medical students are indicated even though most universities listed are open to students of all programs. Here, students find possible placements in Australia, China, Japan and Russia that do primarily offer medicine programs in English (Malkova 2015).

The following analysis of medicine programs at other German and European universities is concerned with English-taught programs and courses

offered to medical students to improve their English skills. The next chapter lists the findings of this comparison.

3.3 Medicine Programs at Other German and European Universities

On the one hand, it should be ascertained how medicine programs at some of the partner universities and as such in other European member states are structured. On the other hand, the aim was to examine whether other German universities offer more English-taught programs in the medical sector. Just the relevant findings will be outlined in this section, a more detailed description of the analysis can be found in the appendix.

Naturally, the medicine study programs of other European universities cannot be directly compared with the German study order: Some member states have different medical licenses or do provide Bachelor's/Master's programs instead of state examinations. Nevertheless, an analysis can show a tendency on whether other European member states offer medicine study programs in English or at least partly. Therefore, sixteen partner universities of Gießen and Marburg are analyzed. For this assessment the regular human medicine programs are mainly considered, although it is also looked at English courses offered for exchange students.

Table 1: Analysis findings: medicine programs at European partner universities. (Medicine Programs in Other European Member States)

Medicine programs partly or entirely offered in English	Yes	No	English courses for exchange students available
Total amount out of 16 universities	**9**	**7**	**5**
Utrecht	1	0	0
Bergen	1	0	1
Vienna	0	1	0
Ghent	0	1	0
Eastern Finland	1	0	1
Strasbourg	0	1	0
Paris	0	1	0
Bologna	1	0	0
Riga	1	0	1
Lisbon	0	1	0
Lausanne	1	0	0
Granada	0	1	0
Seville	0	1	0
Prague	1	0	1
Izmir	1	0	0
Budapest	1	0	1

The aim of this analysis of some partner universities spread across Europe was to assess if other European states use English as language of instruction or even CLIL settings for their medicine study programs. First, it has to be mentioned that the majority of universities have Bachelor's/Master's degree programs for medicine. Often just the postgraduate programs are in English which is not considered in the scope of this assessment. Only courses offered during the regular study period[29] with the completion of the final degree are

---

[29] i.e.: study programs with the completion of the final degree Master or State Examination.

integrated in this analysis. Out of sixteen universities, nine do offer medicine programs partly or entirely in English, seven do not integrate English as language of instruction. Five universities do offer English taught courses or programs for exchange and international students. However, these universities do already have regular medicine programs in or with English. There can be no clear tendency determined. However, it seems that medicine programs of universities in Eastern Europe are more internationally oriented and are increasingly integrating English in their study programs.

Furthermore, it was examined whether other German universities offer English-taught degree programs in medicine. Just as for the analysis of other European programs only human medicine study programs were considered as regular study. Language courses that are not integrated as obligatory part into the study program but rather provided by external language centers were neither taken into account. Marburg and Gießen were integrated in this general overview. An analysis of in total ten German universities shows similarities.

Table 2: Analysis findings: medicine programs at German universities.
(Analysis of German and European Medicine Programs)

Medicine programs partly or entirely in English offered	Regular study	Medicine related programs[30]	Exchange students
Total amount out of 10 universities	**0**	**7**	**2**
Hanover	0	1	0
Berlin	0	1	0
Heidelberg	0	1	0
Munich	0	1	0
Münster	0	0	0
Lübeck	0	1	1
Leipzig	0	1	0
Würzburg	0	1	1
Marburg	0	0	0
Gießen	0	0	0

The analysis shows that the state examination is still valid at all German universities for regular medicine programs. Human medicine programs at German universities are still solely taught in German even though students are sometimes advised that English skills are needed and helpful. However, most postgraduate/PhD programs are increasingly offered in English. Some universities do offer English language courses for medical students that are either fee-based or free of charge. These are mostly voluntary and not part of the regular study program, no obligatory courses held in English are integrated into the degree program. Moreover, seven out of ten universities offer medicine related programs partially taught in English. Only two universities, that do already have English programs, provide English classes for exchange students. The majority of medicine and health related English

---

[30] As e.g. Biochemistry, Nutrition and Biomedicine, Neurosciences

programs are offered in the research fields of medical science and biomedicine. None of these seven programs is directly comparable with the regular study of human medicine. The study field of dentistry seems by far more English-oriented and provides a variety of programs at least partially taught in English. However, these are not considered in this analysis. Thus, it can be determined that German medicine programs are still exclusively German-focused. Universities in other European member states do at least offer Master's programs in English.

3.4 Possibilities and Restrictions for Enhancing English Skills in Medicine Programs

The legal basis for the education, state-recognized examinations and professional practice of medical practitioners is laid down in the *Federal Medical Practitioners Act*[31] and the *Medical Licensure Act* (ÄAppO). Detailed descriptions on legislations as well as further information on the study regulations of "human medicine" are outlined here. Besides the structure of the study program, educational objectives, content and the corresponding assessments in accordance with the *Medical Licensure Act for Physicians* are determined (JLU-FB11 2015i). Hence, an implementation of CLIL in medicine programs is only possible if it is compatible with the study regulations and professional requirements according to the ÄAppO. The regular study structure and contents cannot be altered since a national state examination will be carried out and students have to learn all obligatory contents outlined. Therefore, it has to be carefully assessed when an implementation would be useful and most effective.

---

[31] Bundesärzteordnung / BÄO (vgl. BMJV 2015a).

Since students will mainly interact with patients speaking the national language, it is obvious that students have to learn the basics in German while getting acquainted with the educational content in English. Since basic knowledge is learnt and essential natural scientific foundations are discussed in the *pre-clinical stage* of the medicine study, it might be of greater benefit to implement CLIL in the *clinical stage*. One reason is the complexity of different topics that already have to be integrated in the first semesters. Likewise, chemistry and biomedical processes might be of great difficulty to understand in a foreign language. Moreover, the first Medical Licensing Examination or *Physikum*, in which knowledge has to be applied in written, oral and practical form, is still solely carried out in German. Students might feel insecure and not well prepared when this fundamental knowledge is learned through English. These foundations are relevant for understanding ongoing processes and clinical pictures but either way, will be revised during later courses concerned with specific clinical patterns and symptoms. Many students and lecturers might therefore consider an implementation of CLIL in the *pre-clinical stage* not as effective and meaningful. Moreover, the first semesters are rather busy and filled with lots of courses, seminars and lectures. Students have to organize themselves and get acquainted with the life as student. Based on these considerations, the *pre-clinical stage* should be held in German to ensure that fundamental concepts that are even difficult to comprehend in one's mother tongue are thoroughly understood. Even though students might want to attend English-taught medicine courses, it would be an overload for many during the first stage of their study. Most probably, they will feel challenged if the whole medicine program is conducted in English. However, the trends of internationalization and an early beginning of learning English in German educational institutions might

have an impact on higher education held in English so that an earlier implementation of CLIL is possible in future.

Hence, it is most effective to integrate English CLIL settings in the *clinical stage* of the medicine program. Being already in the 5th semester, students have gained basic knowledge and heard of the underlying concepts of human body processes. These will be further elaborated during the *clinical stage*. Although many block practical trainings in German-speaking facilities are integrated in the medicine programs, students do also have to attend various seminars. These would serve best to implement CLIL settings in an interactive way. Thus, it is ensured that students learn the content in their national language and also enhance their English language skills in order to participate in the professional community or interact with foreign patients and colleagues.

According to the ÄAppO, students have to attend several compulsory courses during their clinical stage. Among these are courses on thirteen cross-sectional areas and five block practical trainings with one to six weeks duration. Besides hands-on practice during internships or hospital visitations, these block practical trainings can consist of lectures that introduce the topics and corresponding seminars (JLU-FB11 2015c, Weier & Plasger 2015). These trainings serve the purpose of deepening and acquiring additional knowledge in application-oriented teaching settings. Students learn to carry out differential diagnosis, therapies and treatment methods of the most common and important clinical presentations they will be confronted with in day-to-day routine work. Trainings are designed to illustrate the correlations of theory and practice and encourage students to identify interdisciplinary connections between medical basis and clinical application. Seminars have a maximal capacity of twenty participants (BMJV 2015b, JLU-FB11 2015c). However, in most cases and whenever possible several seminars are

conducted simultaneously and the number of students attending does not exceed ten students. In order to pass the course successfully, students have to regularly and actively attend the block practical trainings and have to carry out diverse activities to receive a performance record (BMJV 2015b).

Coordinators and teachers have to accept that the implementation of CLIL in medicine programs carry benefits as well as challenges. In order to realize CLIL programs, a needs analysis should be carried out before actions begin (Ruiz-Garrido & Fortanet-Gómez 2009). Factors central to achieve program's success are e.g. training opportunities and support of teachers as well as the provision of teaching material. The development of CLIL teacher trainings and content materials is significant for quality assurance of educational settings. All challenges related to an implementation of CLIL mentioned in chapter 3.4 and 3.5 should not be seen as obstacles but as opportunities for individual professional development. After all, this can lead to a future-oriented design of the study program (Banegas 2015:1-5).

4   Concept for the Implementation of CLIL in Medicine Programs

After the importance of using English in the medical field has been discussed and the concept of CLIL is elaborated, the implementation in medicine programs will be delineated here. In this section, certain steps will be suggested that could be taken when creating CLIL settings for medicine programs of higher education.

Analyses of current medicine programs illustrate that universities provide none or very few possibilities for German medical students to learn English in medical-related contexts. Thus, in the scope of this paper the integration of CLIL settings in the *clinical stage*, i.e. from the 5th semester onwards will be suggested. This might have more advantages for students since they have more time within the second stage of their study due to less obligatory courses. Consequently, they might show more willingness and motivation. They will most probably see CLIL as a perfect possibility to revise and enhance learned knowledge and content. Within this study stage, students are more often in contact with international releases and broader concepts since specific topics of each subject are discussed in more detail. Besides, the use of BICS and CALP will be of greater relevance because students have to compose written assignments or attend internships, in which they have to conduct the documentation and interact with patients as well as colleagues. In addition, during the clinical stage students may participate in exchange programs or want to do the *Famulatur* in a foreign country by joining an international team. Beyond that, there will probably be international students in their regular courses with whom they can e.g. discuss different possibilities of clinical pictures, culture specific treatments or the differences of health care systems. Thereby, on the basis of interactions, intercultural learning and understanding is promoted as well.

4.1 Design Outline

In the beginning of a CLIL course, a *Needs Analysis* comprising interviews, questionnaires and a written test should be conducted to assess the English language skills and level of linguistic knowledge. Thus, it can be ascertained what kinds of assistance medical students attending the course need the most to feel confident and achieve the course's objectives. In order to determine certain requirements as well as the structure and objectives of a specific course, teachers should consider the findings of this needs analysis to develop lesson plans accordingly. Beyond that, when CLIL courses are integrated in the study program, it is essential to consider what basic knowledge students should already have learnt or what will be part of their curriculum in the following semesters. For instance, fundamental concepts already elaborated in the *pre-clinical stage*, can be enhanced in the *clinical stage*. The CLIL course may simultaneously serve as preparation for the *Famulatur* or the block practical trainings. Henceforth, it is inevitable to have a detailed description of the specific CLIL courses presented here. Suggested courses will be designed corresponding to the extended CLIL matrix while specific topics and content of the medical study program are taken into account. The elaborated courses will be integrated within the clinical stage as part of the block practical trainings. Before these are described in detail, general considerations concerning the implementation of CLIL in the clinical stage are mentioned.

4.2 Needs Analysis: CLIL in the Clinical Stage

Generally, CLIL courses within the clinical stage should have a focus on communication, medical terminology and everyday health terminology but put also an appropriate emphasize on writing and reading. Since the presented CLIL settings take place at academic level, it is important to consider the scientific research community in which some students might want to participate. Thus, the communication focus is quite important for e.g. presentations, conferences or written releases. Despite of this, all medical students become future practitioners and as such should be able to ask for information (e.g. on admission), give instructions (e.g. on medications) or ask for cooperation (e.g. lift your leg). Furthermore, it is essential to take medical histories and ask patients about their feelings or pain level (e.g. location, intensity). Therefore, students need to learn medical terminology and be aware of the need for accuracy in communication for safety reasons and the passing on of information. Thereby it is equally important to be able to use the language appropriately depending on each situation (e.g. physician-patient or physician-physician interaction). CLIL teachers should try to engage students in the learning process and use interactive activities related to the courses' content, their study and future profession. Thus, before designing specific courses and implementing CLIL in medicine programs, it might be effective to conduct a needs analysis. Only then it is possible to determine specific demands. A needs analysis can include many important factors, but just a short possible approach is described here.[32]

---

[32] A description of components of a needs analysis can be found in Dudley-Evans & John (1998:125).

An observation of lectures and seminars that are mandatory in the clinical stage is advantageous to assess the content knowledge and linguistic skills of the students. Subsequently, interviews and questionnaires with teachers and students can be carried out to discuss strengths and weaknesses and demands they see themselves confronted with. Students might have certain needs and goals, linguistic-wise and professional-wise, that should be considered in the CLIL setting as well. Discussing certain concerns of teachers in advance of the implementation and, thus, addressing these in the course design might lead to more self-confidence (e.g. a close collaboration and mutual support). Moreover, possible material and assessment procedures can be selected. A level-evaluation English test including sections on grammatical knowledge, reading and listening comprehension as well as writing and speaking skills is necessary to ensure that students are not failing in CLIL settings due to certain linguistic problems. Additionally, a short section on specific knowledge and terminology can be integrated. All this obtained data can be used to develop a course setting with objectives that meet the medical program requirements and student's needs. It will help teachers to choose appropriate material, topics and provide additional scaffolding media. Furthermore, knowledge on student's cultural background and experiences can be relevant to enhance intercultural learning and communication. Obviously, when developing such CLIL settings, other factors such as administrative, logistic and institutional constraints have to be taken into account as well. If CLIL settings should be more workplace-oriented, it has to be assessed in which kind of specialization areas students want to work.

At first, it might be good to develop CLIL courses for the *clinical stage* and as preparation of the *Famulatur* due to the above mentioned reasons. During the clinical stage (5th through 10th semester) five block practical trainings have to be attended. These concentrate on internal medicine,

surgery, pediatrics, gynecology, and general medicine. All five practical trainings include previously addressed topics of general subjects. These are revised during the clinical stage and serve as preparation for the *Famulatur*. Henceforth, the CLIL courses designed in the scope of this thesis are integrated in the clinical stage of study. More precisely, they will focus on the block practical trainings concerning general medicine and pediatrics. Exemplarily, for the implementation of CLIL in medicine programs these course designs entail a detailed description of possible setting, structure, content, objectives and activities.

4.3 Curriculum Development for the Clinical Stage of Human Medicine

For the curriculum development certain steps have to be followed such as analyzing learner's needs, determine objectives, decide on language activities and tasks, designing and choosing material as well as specifying the content in greater detail. For the curriculum design of these CLIL settings not only general and specific English language needs are considered but also content requirements of the subjects are taken into consideration in order for students to competently operate in their future profession.

Objectives:

The course design should be learner-centered, task-based and interactive. A balance between content and language, all four skills[33] and diverse teaching activities should be found. Hence, courses aim at equipping the medical students with necessary language skills and content knowledge to cope with requirements of daily interactions as physicians. This means medical students

---

[33] i.e. listening, reading, writing and speaking.

have to be able to understand both ongoing actions and underlying medical concepts. They should be trained to gradually use words appropriately and formulate correct statements either in written or oral form on e.g. drug administrations, treatment methods, patient's histories, lab reports or hospital procedures. During these courses, students should therefore be familiarized with the corresponding medical terminology and concepts as well as required English linguistic skills. They should enhance their communicative academic language proficiency to use and interact properly in the professional community. Besides, they should be able to communicate these concepts to non-professionals such as patients and improve their basic interpersonal communication skills. A wide range of sub-topics will be addressed within these interactive CLIL seminars. Correspondingly, students should be able to establish links between different concepts. Thus, the main goal of the CLIL courses is to improve the students' ability to recognize and produce spoken and written language in order to effectively interact with patients, colleagues or hospital staff, and the public. Another objective is to prepare students in such a way that they identify and understand medical concepts, hospital culture and corresponding discourses.

To achieve this goal teachers have to ensure that students:

- practice all skills (listening, speaking, reading, writing and mediating),
- get to know specific features of scientific language,
- enhance their knowledge of English terminology and lexical repertoire,
- improve their general English language skills (e.g. grammar, syntax, etc.),
- enhance their knowledge of medical terminology and scientific discourse,
- learn new concepts and/or extend already existing concepts and knowledge,
- expand general interactional skills with other professionals and patients,

- feel more confident in understanding medical documents and releases, including scripts, reports, patient files, etc. in English,
- are able to comprehend medical cases, reports and hospital related occurrences and to summarize these in their own words in either written or oral form,
- feel confident in developing their own ideas and exchanging these,
- listen to patients and colleagues and understand what they say,
- can discuss topic-related issues, comment on ideas and express their thoughts,
- can give instructions, find solutions or give basic arguments on medical cases as e.g. on drug administration, treatment and procedure,
- feel confident in giving talks and presentations,
- can write short reports, emails and texts related to medical inquiries,
- comprehend academic written language of specific topics.

All these aspects are relevant for potential communication and interactive practice in the professional environment. By the end of the course, students should be able to basically communicate in English, evaluate situations and formulate opinions related to the topics dealt with in the course through the use of diverse media, simulations and role plays. Students should be able to transfer what they learn in class to medical situations and to apply their knowledge in the professional environment by communicating fluently and without major difficulties.

Teaching activities and scaffolding material:

For the practical implementation of these courses, teachers have to assess how effective and meaningful their materials are, if the activities lead to the expected objectives, and how to ensure that language and content is learnt simultaneously. The already existing and obligatory courses of the medicine program are slightly modified in order to adapt these to the CLIL setting.

Thus, within the block practical trainings there are scheduled lectures on each of the sub-topics and seminars in which students have to work on tasks either individually, in pairs or groups. These tasks should be of great diversity, including practical-oriented activities, hands-on exercises and role plays (as e.g. patient-physician, physician-physician, etc.). Moreover, excursions addressing specific topics in English to collaborative clinics, general practitioners and hospitals can be arranged in addition to regular visitations. Activities should be task-oriented and product-oriented which means that the final outcome is of greatest importance. The task-based approach can be used as basis for developing corresponding teaching/learning arrangements. Since especially seminars should be motivating and encouraging, it is best to work with authentic, reliable and meaningful materials and exemplary medical cases. Thereby, students recognize the relation to their future profession and realize the importance of these courses. Obviously, it is necessary to provide scaffolding and supplementary material that students can consult during their learning process such as glossaries, dictionaries, leaflets, handouts, further texts and cases concerned with the topic. Students may use these to process their knowledge in depth or clarify certain issues in self-study periods. This is in particular important due to the limited amount of time that can be spent on certain topics in courses of higher education. Additionally, students of German universities are used to independently process, review or enhance the learned knowledge before and after the tuition time. Supplementary to readers of the seminars and lectures, English medical textbooks that include relevant information and relate to the content of specific topics will be used. These assist students in their learning process and introduce culture-related discussions which could be addressed in class. Further reading material refers to articles of medical journals that entail additional topic-related terminology on clinical concepts. A wide range of research on these topics should help

students to develop critical reading and analytical skills. Audio data as e.g. various dialogues and short medical statements should be integrated in sessions to advance the listening skills. Video material can be used for visual clarification and to enhance listening comprehension. Students have to regularly do homework, i.e. the completion of tasks or small assignments that have to be submitted occasionally. In addition, small groups of students might have to prepare certain topics and give short presentations. Thus, each group is responsible to create a hand-out which helps students to do topic-related assignments.

Course structure:

The content of the block practical training courses correspond with the curriculum of the medicine program. The knowledge of general medicine and pediatrics learnt in the first semesters, the pre-clinical stage, serves as basis and provides useful background information.

According to the study regulations in Gießen the training on pediatrics lasts ten full and two half-days of visitation time in hospitals. For the general medicine training students attend two week full-time visitations. Before these practical trainings start, students have lectures and seminars dealing with corresponding topics; these will take place as CLIL settings. Seminars on general medicine and pediatrics consist of six different modules, each concerned with one topic and several sub-topics. For three weeks students have to attend two seminars and one lecture per week. Syllabuses for the practical training on pediatrics as well as on general medicine are outlined. The subsequent course outlines focus just on the seminars, not on the

lectures. Specific objectives are more precisely defined for each specific block practical training seminar.[34]

---

[34]Dale et al. (2010:1-10) defined practical steps on how a CLIL class can be structured or what should be integrated in such educational settings as Activating for CLIL, Providing lesson input, Guiding understanding, Encouraging speaking and writing, Assessing learning and giving feedback, Using Projects for CLIL. These steps are taken into account for the implementation of CLIL in medicine programs.

5 Course description 1: General Medicine

The designed course is an intermediate course with students at the beginning of their 5th semester attending the block practical training of general medicine. Training in general medicine is especially important since it is one of the broadest fields of occupation and is part of the training of each physician. The course outline is confined to the seminars in which eight medical students participate.

General physicians (GPs) are medical specialists who provide a range of health care to primarily adult patients. They care for medical problems which can be serious, difficult or unusual and continue to see the patients until the problems are resolved. They have a broad range of expertise and can be distinguished from other specialists since their professional practice is not limited to certain body systems or special medical fields. GPs mostly have a medical practice in which consultations, treatments of minor difficulties and the monitoring of diseases is daily business. Their practices are often the first place to go when having troubles. Prospective physicians have to be broadly educated to deal with a wide range of medical problems. Moreover, they are expected to provide expert diagnosis by drawing logical and thorough conclusions. Since it is inevitable to be able to choose certain drug administration or other forms of treatment for the underlying diseases, physicians must be skilled in decision making processes (DEGAM 2002). They are often referred to as specialists in diagnosis and management of chronic or multisystem disorders. Patient's problems and needs are respected while finding the best care. Their broad range of expertise enables them to deal with ambiguous clinical patterns, to diagnose and manage multisystem diseases. The practice of GPs extends from ambulatory consultations to hospital duties and involves the cooperation and interaction with other

specialists. Their approach is mostly scientific and evidence-based which requires great knowledge of diagnostics and therapeutics. It is often said that the "breadth and depth of knowledge and experience make general physicians ideally suited to providing high quality consultant services across a spectrum of health and illness" (RACP 2013, IMSANZ 2015). Patients experiencing a variety of diseases throughout their lifetime may need coordinated health care and someone who supervises single treatments of specialists. Moreover, GPs consult patients after hospital discharge and over longer terms which results in good knowledge of patient's histories. If there are uncertainties or diagnostic issues beyond their abilities, they refer patients to the corresponding specialist. Thus, GPs occupy important roles in the German health system, especially for providing primary care and general medical aid. Other specialists can benefit from their colleagues who possess a broad perspective and expertise. Nevertheless, general medicine specialists must stay up to date with important clinical medicine and research across specific areas. Therefore, students have to show openness and flexibility in order to respond to new challenges and standards. As such, they have to be aware of legislative and technological developments and recognize when assistance in therapy or diagnosis is needed.

In short, the ability of GPs is to deal with challenges when caring for lots of patients with a range of diseases and cooperating with other specialists. Students who want to be a GP should enhance their skills to effectively act in future medical situations. In the end of the training, they should have acquired theoretical knowledge and gain practical experiences. It is expected that they are medical decision makers and enhanced their ability to (DEGAM 2002):

- care for patient at all stages and show empathy,
- draw evidence-based and rational conclusions,

- manage a range of diseases and clinical patterns,

- formulate diagnosis and drug administration plans in cooperation with patients and other specialists,

- show expertise when providing care for patients' complex multi-organ problems, undifferentiated or well defined clinical patterns or chronic diseases,

- perform procedures and treatments according to current research evidence, patient's needs and requirements.

5.1 Syllabus Overview

After a short description of the course's structure, this syllabus outlines the broad concepts, related learning objectives and the associated theoretical knowledge, clinical skills and attitudes required by students of general medicine.

Block practical training on *General Medicine* in summer 2016
Duration: 3 weeks, each week 4h of lecture and 6h of seminars (4 x 90 min.)
Lecture schedule: Monday, 9:00am to 13:00am - Lecture hall 4
Seminar schedule: Tuesday and Thursday, 09:00am to 12:00am- Room A108
First week: Module 1 & 2 plus corresponding lecture.
Second week: Module 3 & 4 plus corresponding lecture.
Third week: Module 5 & 6 plus corresponding lecture.
These three weeks are followed up by 2 weeks full-time hospital visitations.
Medical students do not have other mandatory courses during these three weeks.

5.2 Content and Learning Objectives, Course 1

The contents and learning objectives of the here presented course correspond with the training for GPs. Each module emphasizes other content aspects and objectives that are useful for the practical training and which are needed for the profession. Each topic is divided into content and language learning objectives and goals that aim at enhancing the practical skills in more hands-on learning settings. Within one module, students get to know diverse clinical presentations, symptoms and diagnosis as well as treatment methods. The presented content of the practical block CLIL seminar is similar to the content of the optional courses on general and internal medicine that students can choose (JLU-FB11 2015c). Two hours of lecture (120min.) and three hours of seminars (180min.) are spent on each module.

Table 3: Syllabus: Block practical training on General Medicine

First week: Tuesday Module/Topic 1	Assessment, Diagnosis and Early Management of Acute Undifferentiated Clinical Presentations
Learning objectives	Learn about diverse clinical presentations, possible symptoms and differential diagnosis of abdominal pain, chest pain, dyspnea, and nausea.
	Learn in detail about cardiovascular diseases, acute coronary syndromes, peritonitis, and pulmonary diseases.
	Get to know treatment methods and potential adverse drug effects.
	Reading: understand scientific texts on acute undifferentiated clinical presentations; understand and recognize key aspects in short articles. Listening: listen to academic lectures/presentations; follow a presentation without major difficulties if the topics are familiar; understand key aspects in clearly structured conversations. Speaking: exchange factual information on acute undifferentiated clinical presentations; participate in conversations; pass on information; express one's thoughts; summarize information.

	Writing: write short notes and administration plans; write short coherent dialogues and recommendations; summarize information and express thoughts.
Practical part	Take patient's history and perform physical examinations.
	Identify cause(s) and select examination methods that provide evidence.
	Formulate an inclusive differential diagnosis, taking into account other treatments.
	Create management / drug administration plan for treatment.
First week: Thursday Module/Topic 2	**Assessment, Diagnosis and Early Management of Acute Differentiated Clinical Presentations**
Learning objectives	Learn about diverse clinical presentations, possible symptoms and differential diagnosis of sore throats, rhinitis, headaches, fever, vomiting, fatigue, weight loss, and diarrhea.
	Learn in detail about the causes of the diseases and presentation of pharyngitis, influenza, food intoxication and appendicitis.
	Get to know corresponding physical examinations and management methods.
	Reading: understand scientific texts on acute differentiated clinical presentations; understand and recognize key aspects in short articles dealing with familiar topics; diagrams and figures. Listening: listen to academic lectures/presentations; follow a presentation without major difficulties if the topics are familiar; understand key aspects in clearly structured conversations. Speaking: exchange factual information on acute differentiated clinical presentations; participate in conversations; pass on information; give short and clear presentations on prepared topics; summarize information; describe diagrams and interpret figures; communicate with patient or colleague. Writing: write short notes and administration plans; write short coherent dialogues and recommendations; summarize information and express thoughts.
Practical part	Manage a wide range of common differentiated diseases and symptoms while taking the history into account.
	Recognize/treat seriously ill patients, consult other specialists where appropriate.
	Competent performance of procedures according to indications.
	Ensure multidisciplinary assessment and management.
	Assess severity of illness.

Second week: Tuesday Module/Topic 3	Management of Patients Presenting with Acute Illnesses
Learning objectives	Learn about the underlying causes and treatment of painful urination, nephrolith, eyestrain, difficulty in concentration and sleeping problems, abdominal pain, fatigue, nausea, and headaches.
	Learn in detail about the diverse clinical presentations and management methods of gout, cystitis, conjunctivitis, insomnia, stress and anxiety.
	Reading: understand short scientific texts on acute illnesses; understand and recognize key aspects in texts dealing with familiar topics. Listening: listen to academic lectures/presentations; follow a presentation without major difficulties; understand key aspects in short conversations. Speaking: exchange factual information on acute illnesses; participate in conversations; pass on information; express one's thoughts; give short and clear presentations on prepared topics; summarize information. Writing: Write short notes and administration plans; write short coherent dialogues and recommendations; summarize information and express thoughts.
Practical part	Assess and manage common and important symptoms, diseases, and patterns.
	Identify cause(s), perform physical examinations.
	Acknowledge uncertainty in decision making and consult other specialists.
	Consider adverse effects and drug interactions.
	Formulate diagnosis and treatments.

Second week: Thursday Module/Topic 4	Ongoing Management of Patients with Chronic Disease
Learning objectives	Learn about the ongoing management of patients with kidney diseases, diabetes and thyroid diseases, rheumatism and asthma.
	Learn about epidemiology, symptoms and treatment methods.
	Reading: understand scientific texts on chronic diseases; understand and recognize key aspects in short articles dealing with familiar topics. Listening: listen to academic lectures/presentations; understand key aspects in clearly structured conversations. Speaking: exchange factual information on chronic diseases;

	pass on information; communicate findings and inform about side effects. Writing: write treatment plans and recommendations; summarize information and describe side effects.
Practical part	Describe the epidemiology of common chronic diseases.
	Utilize models of chronic disease management.
	Contribute to chronic disease management in research.
	Inform patient about change of lifestyle/ habits.
	Determine treatment plan, consider alternative methods and side effects.

Third week: Tuesday Module/Topic 5	Family and Cultural Influences on Health and Health Care
Learning objectives	Learn about diverse cultures and develop cultural competence while considering selected material and medical cases.
	Get to know strategies for working with patients in cross-cultural settings.
	Become acquainted with different health care structures in the given culture, beliefs about causes and treatments, importance of family and gender roles.
	Learn to take biomedical or holistic approaches to health care, get to know eastern/western/alternative/traditional medicine methods.
	Reading: understand short texts on medicine and cultural influences as well as on health care systems; understand and recognize key aspects in short articles. Listening: listen to academic lectures/presentations; follow a presentation/conversation without major difficulties and understand key aspects. Speaking: exchange factual information on German health care methods and systems; communicate cultural differences; participate in intercultural conversations; pass on information to patient/colleague; express one's thoughts. Writing: write short dialogues; summarize information; express one's thoughts.
Practical part	Consider different family structures, local cultures, and religion or belief systems.
	Build an environment of trust and try to understand cultural practices.
	Pay attention to body language, lack of response, or expressions of anxiety that may signal that the patient or

	family is in conflict/hesitant to tell you.
	Remain nonjudgmental when values differ from yours.
	Find solutions compatible with patient's beliefs and expectations. If necessary: consult specialists of patient's culture.

Third week: Thursday Module/Topic 6	**First Aid in Medical Emergencies**
Learning objectives	Be familiar with the emergency checklist, first aid standards, necessary ingredients of first aid kits and equipment of ambulance vehicles and how to ensure the quality.
	Learn about emergency situations in hospitals or in ambulance services due to emergency calls.
	Get to know optimal medical care and provide first aid services for patients presenting with anaphylaxis, animal bites, burns, cuts, factures, seizures, electrical shock, swallowing of foreign objects, head trauma, heart attack, fainting, contractions and childbirth.
	Reading: understand medical texts on emergency situations; understand and recognize key aspects in short articles. Listening: listen to academic lectures/presentations; follow a presentation/conversation without major difficulties and understand key aspects. Speaking: exchange factual information on emergency cases; communicate with patients and colleagues; pass on information; give instructions. Writing: write short notes and dialogues; give instructions.
Practical part	Find a way to communicate, take patient's history.
	Calm down the patient/ family members, build an environment of trust.
	Assess severity of emergency.
	Make decision for certain procedures, consider possible side effects.
	Formulate diagnosis and treatments or provide ongoing medical support.
	Decide whether stationary or ambulatory treatment is required.

For the presented modules and when attending these CLIL settings, students need certain knowledge and skills. This means that after their *Physikum* students are expected to have basic knowledge in natural sciences relevant

for medical treatment such as biomedical processes, human anatomy and physiology. Moreover, they should know the basic mechanism of the human body and immune system and be able to identify common diseases and symptoms. While attending these CLIL modules, students should gain specialized knowledge in the use of terminology and enhance their communication competency. The whole course is designed for practicing theory and practical skills in combination since real situations are addressed. Thereby, the communication skills required in real life situations as GPs are trained and students gain confidence in interacting. Apart from the terminology needed to communicate between colleagues or patients, students get to know medical equipments, treatment methods and procedures. As GPs they learn to write patient files, prescriptions, instructions, and fill in clinical trial sheets. Therefore, it is also important to enhance the reading and writing skills in both basic and academic/scientific usage. In order to be as authentic as possible, interactive activities will be carried out as e.g. role-plays, real-life scenarios presented via video or consultations.

In the end of the whole course, students should be able to <u>distinguish and identify</u> the following common <u>clinical features</u>:

abdominal pain, chest pain, dyspnea, nausea, sore throats, rhinitis, headaches, fever, vomiting, fatigue, weight loss, diarrhea, fever, urination problems, arthritis, nephrolith, eyestrain, difficulty in concentration and sleeping problems.

They should be able to <u>assess, diagnose, manage and inform</u> about the following <u>diseases/ clinical pictures</u>:

cardiovascular diseases, acute coronary syndromes, peritonitis, pulmonary diseases, pharyngitis, influenza, food intoxication, appendicitis, gout, cystitis, conjunctivitis, insomnia, stress and anxiety, kidney diseases, diabetes and thyroid diseases, rheumatism and asthma.

The final assessment of the whole seminar concerned with general medicine is divided into two parts. The first part lasts 60 minutes and is more theoretical: Students have to take a multiple-choice exam that mainly focuses on content-knowledge. There are also some short texts and questions that assess the reading and writing comprehension. The second part takes about 40 minutes and is more practice-oriented: Students have to interact in two different situations with patients and/or colleagues. This part is mainly concerned with speaking and listening. Since language and content are essential in either part, both are included in assessment whereas the content is of slightly higher importance. The final grade is calculated as follows: 60% first part, 40% second part.

5.3 Sample Unit: Course 1, Module/ Topic 2

The sample unit deals with Module 2 and the topic of *Acute Differentiated Clinical Presentations*. Diverse possible clinical presentations and symptoms are addressed within the course which encompasses 2 sessions of 90 minutes. The course content is structured according to the lectures dealing with the same topic. Prerequisites and readings are: familiarity with human's anatomy and physiology, biomedical processes and immune system function and recommended literature addressed in the corresponding lectures and scaffolding material. All kind of material referred to in the seminar session as well as scaffolding media will be uploaded beforehand in the course directory. Thus, students have access to all materials and can inform themselves in advance. Articles and excerpts explicitly discussed in the seminar sessions will be handed out.

CLIL lesson plan according to the 4Cs and the CLIL-Matrix:[35]

Topic: Acute Differentiated Clinical Presentations

Content (What will I teach?):

- Basic facts of pharyngitis, influenza, food intoxication, and appendicitis,
- Possible symptoms such as sore throats, rhinitis, headaches, fever, vomiting, fatigue, weight loss, diarrhea, and corresponding clinical presentations,
- Assessment, diagnosis and management of the presented clinical presentations,
- Examples of medical cases, differential diagnosis.

Teaching aims (What will they learn?):

- Enable students to distinguish pharyngitis, influenza, food intoxication, appendicitis and to identify/ recognize the corresponding symptoms,
- Enable students to explain the differential diagnosis, physical examination and management methods,
- Enable students to assess, diagnose and manage the presented diseases.

Learning outcomes:

Learners know:

- The main characteristics/clinical presentations of pharyngitis, influenza, food intoxication, and appendicitis,
- Examples of medical cases,
- How to carry out differential diagnosis and treatment methods for the addressed presentations.

Learners are able:

- To identify and recognize symptoms such as sore throats, rhinitis, headaches, fever, vomiting, fatigue, weight loss, and diarrhea,
- Conduct a differential diagnosis and physical examination,
- Explain diagnosis and management methods,
- Assess the severity of the clinical presentation,

---

[35] In the style of Inglin (2013:20-21).

- Manage a wide range of common differentiated diseases and symptoms while taking the patient's history into account,
- Recognize/ treat seriously ill patients or consult other specialists if necessary.

Learners are aware of:
- necessary procedures for diagnosis and monitoring,
- similarities of diseases and their clinical pictures, treatment methods and possible side effects,
- the necessity to consult other experts if necessary.

Assessment

Can learners:
- Define the above mentioned clinical presentations/ diseases?
- Identify clinical presentations/ symptoms?
- Assess the severity and course of disease?
- Carry out differential diagnosis?
- Draw conclusions and decide on right treatment?
- Recognize/ treat seriously ill patients?
- Consult other specialists and inform them?

Communication

Language of learning (vocabulary)
- Key vocabulary, medical and everyday health terminology related to acute differentiated clinical presentations,
- Key aspects associated with pharyngitis, influenza, food intoxication, and appendicitis.

Language for learning (structures, functions)
- Interaction with patients/ colleagues,
- Carry out consultations/ physical examinations,
- Understand structure of dialogues, instructions, and treatment plans.

Cognition (Which tasks will I develop to encourage higher order thinking?):

- Identify clinical presentations,
- Classify symptoms and define underlying disease,
- Compare diseases/ clinical presentations and find similarities,
- Describe the course of a disease,
- Explain use and process of examination and diagnosis,
- Conclude with which disease the patient presents,
- Explain management methods and possible side effects,
- Report medical process, management and course of consultation.

  Examples of cognition
- Differentiating between clinical symptoms,
- Compare clinical presentations and course of diseases.

Culture

- Compare differences and similarities of treatment methods while reading original releases,
- Be aware of differences and similarities of treatment measures between Germany and other cultures and treatment responsibilities (health care system).

Course content

The course deals with just a few of the acute differentiated clinical presentations such as pharyngitis, influenza, food intoxication, and appendicitis. Similar clinical pictures and symptoms are addressed in the lecture. Since the knowledge about the concepts of acute presentations and possible resulting effects are essential for the course, this is part of the sessions. Besides the underlying causes of these diseases, information on assessment, differential diagnosis and treatment are provided. Students have to compare clinical presentations patient's present with in order to draw

conclusions. The course aims at teaching how differential diagnosis and physical examinations can be carried out. Moreover, students learn how medical consultations should be structured and what information or instructions they have to pass on to the patient. Respectively, participants get to know diverse up-to-date treatment measures and the medical documentation that is necessary. The course implicitly provides information but is more learner-centered which means that hands-on practice and simulations are emphasized. Within each seminar session the focus is slightly different.

Objectives

The following learning objectives apply to the entire Module 2 taking place on Thursday from 9-12 o´clock. The learning objectives are divided into the categories content-wise and language-wise to ensure that both aspects are being focused upon during the two sessions.

Content-wise

Students should learn about few acute differentiated clinical presentations patients may present with in practices of GPs such as pharyngitis, influenza, food intoxication, and appendicitis. Since the seminars are focusing on interaction and coping with such situations just these few presentations are emphasized. Students review and enhance their knowledge and concepts of differentiated clinical presentations and differential diagnosis. Therefore, they need to be able to assess diverse symptoms and draw conclusions. Moreover, course participants get to know possible treatment methods, learn how to carry out examination and take patient's history. Likewise, students should be able to consult patients, explain procedures and diagnosis as well

as to inform about possible side effects of treatment medication. Moreover, participants should practice medical consultations, examinations and the associated documentation. Thereby, underlying causes, clinical presentations and aspects of differential diagnosis are reviewed and retrieved.

Language-wise

Students can use the language of learning, i.e. the medical and everyday health terminology related to acute differentiated clinical presentations and do know central aspects associated with pharyngitis, influenza, food intoxication, and appendicitis. Furthermore, participants get to know the language for learning as e.g. necessary structures for the interaction with patients or colleagues. They should be able to take patient's history and communicate their ideas. Besides, they learn how to carry out consultations and inform patients about further procedures and treatment methods. Therefore, the structure of questions, dialogues, instructions and treatment plans should not cause further difficulties. Skills for understanding and communicating key aspects of short written or oral statements should be enhanced

Table 4: Lesson plan 1: General Medicine   **Session one**: 90 minutes on pharyngitis and influenza.

Stage and approx. Time	Class Organization and Skills	Description of Activity/ Materials[36] (Course 1, Module/ Topic 2: Session one)
Introduction/ Warm-up 15 min.	Teacher Plenum Speaking, Listening	**Transparency:** Present objectives and topic of session. **Brainstorming session:** Revision of acute differentiated clinical presenta-tions (characteristics, symptoms, examples). Material: Projector/ Laptop (Appendix: Course 1.1, Activity 1)
Concept Enhancement: Pharyngitis & influenza 20 min.	Pairs Reading, Writing Plenum Speaking, Listening	**Table of characteristics:** Completion of table with characteristics of pharyngitis and influenza. Linking of features to the corresponding clinical presentation. Recog-nize/identify major differences and symptoms. Comparison and discussion of findings. Material: Handout (Appendix: Course 1.1, Activity 2)
Medical Case 1 "Patient presents with…" 15 min.	Plenum Listening, Speaking Individual/ Pairs Speaking, Listening	**Listen to a short dialogue:** Patient in story presents with clinical features. Summarize: What is happening, what problems does the patient have? etc. **Read the complete text:** Underline all symptoms presented in the story and discuss further possible medical procedure/ consult with your partner. Material: Handout (Appendix: Course 1.1, Activity 3)

Questions and Past-Tense 15 min.	Plenum Speaking, Writing, Listening	**Brainstorming session:** How to ask for symptoms: Revision of simple past and of questions (in simple present and simple past) <u>Material</u>: Projector/ Laptop (Appendix: Course 1.1, Activity 4)
Take Medical History / Anamnesis 20 min	Pairs Reading, Speaking Writing, Listening Plenum Speaking, Listening	**Role play - take patient's history:** Assess all symptoms; decide on further possible medical procedure/examination. Make differential diagnosis, suggest treatment, drug administration and explain possible side effects. Two groups present. **Discussion:** What was good or could be improved? Was it the right medical procedure and decision? Other alternative possibilities? <u>Material</u>: Role cards (Appendix: Course 1.1, Activity 5)
Wrap-up/ Evaluation 5 min.	Plenum Speaking, Listening	**Summary of content/ Reflect on session:** What should students have learnt, what should they be able to do? Discuss further unclear points/ time for questions and additional explanations.

Table 5: Lesson plan 2: General Medicine   **Session two:** 90 minutes on food intoxication and appendicitis

Stage and approx. Time	Class organization and Skills	Description of Activity/ Materials[37] (Course 1, Module/ Topic 2: Session two)
Introduction/ Warm-up 10 min.	Teacher Plenum Listening, Speaking, Writing	**Transparency:** Present objectives and topic of session. **Brainstorming session:** Food intoxication and appendicitis - possible symptoms of food intoxication and appendicitis. Underlying cause and diagnosis. Material: Projector/ Laptop (Appendix: Course 1.2, Activity 1)
Concept Enhancement: Food Intoxication 15 min.	Individual Listening, Writing Plenum Speaking, Listening	**Watch a clip: Food poisoning** Watch a short clip and take notes for each category explained in the video: pathogens, symptoms, diagnosis and treatment. Correction and discussion of findings. Material: Projector/Laptop, Handout (Appendix: Course 1.2, Activity 2)
Concept Enhancement: Appendicitis 20 min.	Individual / Plenum Reading, Speaking Pairs/ Plenum Speaking, Writing, Listening	**Text on Appendicitis:** Read aloud, pay attention to pronunciation. **Pos-reading activity:** Exercises belonging to text in partner work. Correction in Plenum. Material: Handout (Course 1.2, Activity 3)

Consultation 20 min	Pairs/ Plenum Writing, Speaking, Listening	**How to consult patients:** How to inform the patient of the diagnosis described in Activity 3: the patient presents with appendicitis. Provide information on further procedure. <u>Material:</u> Handout (Appendix: Course 1.2, Activity 4)
Medical Case 1&2 "Patient presents with…" 20 min.	Plenum Speaking, Listening Pairs (change of roles) Reading, Speaking Writing, Listening Plenum Speaking, Listening	**Medical history form:** Short discussion of medical history form/ unclear points. **Take patient's history - 2 Role plays:** Assess all symptoms decide on further possible medical procedure /examination. Make differential diagnosis, suggest treatment and drug administration. Explain possible side effects and risks. <u>Material</u>: Handout (Appendix: Course 1.2, Activity 5). **Discussion:** What does the patient have? Diagnosis, treatment possibilities and risks, etc. What was good, difficult?
Wrap-up/ **Evaluation** 5 min.	Plenum Speaking, Listening	**Summary of content/ Reflect on session:** What should students have learnt, what should they be able to do? What kind of difficulties occurred? Discuss further unclear points/ time for questions and additional explanations. Explain homework assignment.
Homework	Individual Reading, Writing, Listening and writing	**Worksheet: Dialogues at the Doctor's**. Possible solutions are provided, written text should to be submitted. <u>Material</u>: Handout (Appendix: Course 1.1, Activity 6) **Video Clip: Food Poisoning** Listen, take notes and complete the sheet. Solutions are provided.

CLIL in Higher Education in Medicine Programs

In the end of Module 2 (these two sessions) participants can:

Content-wise:

- understand the medical concept of acute differentiated clinical presentations,
- identify pharyngitis, influenza, food intoxication, and appendicitis,
- differentiate the addressed presentations from similar clinical pictures,
- assess the underlying causes and severity of the disease,
- make a medical diagnosis and carry out a first physical examination,
- treat and manage presented clinical presentations.

Language-wise:

- name and understand the corresponding medical and everyday health terminology,
- compensate difficulties in communication by using diverse strategies,
- find synonyms or antonyms for certain words,
- formulate questions, ask patient questions and take patient's history,
- form sentences/ questions in the simple present and simple past,
- explain medical procedures and steps of examination,
- consult patients/ relatives about up-to-date treatment methods,
- give instructions for taking drugs and provide further details on possible side effects handle situations with patients with different cultural background,
- listen and comprehend patients and their history,
- write small notes concerning the drug administration,
- read scientific excerpts/releases dealing with the addressed topics.

In general they:

- enhance their confidence in using the English language while performing duties and tasks,
- increase their English language proficiency (e.g. use proper grammatical structures),
- can carry out diverse activities in English,
- master vocabulary concerned with the topic of acute differentiated clinical presentations,
- be able to provide relevant medical instructions and recommendations,
- enhance their communicative and interactional skills with patients,
- have learned the medical concepts of acute differentiated clinical presentations,
- are able to identify, assess, differentiate the clinical pictures and underlying symptoms,
- manage to carry out differential diagnosis, physical examinations and draw logical medical conclusions for further procedure, treatment and drug administration.

6   Course Description 2

The designed course is an intermediate course with students in the beginning of their 6th semester attending the block practical training of pediatrics. It is important to focus on this field of occupation since there are major differences in providing medical care for children and adults.

A pediatrician is a physician who provides medical care or preventive health maintenance for children. They are specialized in the treatment of children from birth up to the age of young adult and manage the well-being of the patients during their stages of development, both in good health or in illness (vaccinations, health examinations or treatment of chronic or acute diseases). Their work ranges from reducing infant/child mortality and controlling infectious diseases to the fostering of healthy lifestyles and treatment of chronic conditions. Henceforth, pediatricians make diagnosis and treat medical conditions such as infections, injuries, genetic defects or organic diseases and dysfunctions. Furthermore, general examinations (check-ups) and vaccinations are part of their daily business. These physicians are also involved in the prevention, detection and management of other problems affecting children or adolescents such as behavioral difficulties, developmental disorders or social stress. When patients present with complex conditions, general pediatricians refer the child to other specialists. Thus, there is often close collaboration among pediatricians and other professionals to provide the best medical care. The training of pediatricians involves the knowledge of the whole body system of babies up to young adults. Since a great part of their occupation is concerned with primary care and preventive measures, they have to be specialists in vaccination and the respective policy. After a rather general training in pediatrics, physicians are expected to specialize in certain professional

domains e.g. infectious diseases, neonatal medicine, cardiology or emergency medicine (UMMC 2013). It is necessary that pediatricians can gain a certain basis of trust with their patients in order to carry out their work as efficiently as possible. Therefore, pediatricians should have a positive attitude, patience and a well balanced and communicative personality (Paradisi 2008).

Students who want to be a pediatrician should feel confident when carrying out the above mentioned activities. Thus, they should gain the necessary theoretical knowledge and practical experiences in order to act accordingly in given situations. In the end of the training students should enhance their ability to:

- Gain a basis of trust with young patients and show empathy,
- Provide preventive care and inform about advantages or side effects,
- Carry out health examinations/ check-ups,
- Formulate drug administration plans in cooperation with parents and/or other specialists,
- Manage treatments and follow-up care,
- Be willing to consult other sub-specialists,
- Carry out consultations with the parents,
- Perform procedures and treatments according to current research and patient's needs.

6.1 Syllabus Overview

After a short description of the course's structure, this syllabus outlines the broad concepts, related learning objectives and the associated theoretical knowledge, clinical skills and attitudes required by students of pediatrics.

Block practical training on *Pediatrics* in autumn 2016.

Duration: 3 weeks, each week 4h lecture and 6h seminars (4 x 90 min)

Lecture schedule: Monday, 9:00am to 13:00am - Lecture hall 6

Seminar schedule: Tuesday and Thursday, 09:30am to 12:00am - Room B 15

First week: Module 1 & 2 plus corresponding lecture.

Second week: Module 3 & 4 plus corresponding lecture.

Third week: Module 5 & 6 plus corresponding lecture.

These three weeks are followed up by 10 full and 2 half-days of hospital visitations. Medical students do not have other mandatory courses during these three weeks.

6.2 Content and Learning Objectives, Course 2

The contents and learning objectives of the here presented course correspond with the training for pediatricians. All six modules are concerned with other content aspects useful for the upcoming visitation and needed for the profession of pediatricians. Each topic is divided into content and language learning objectives and goals that aim at enhancing the practical skills in more hands-on learning settings. Within one module, students get to know diverse clinical presentations, symptoms and diagnosis as well as treatment methods. Content of the practical block seminars is similar to the contents of the optional courses (JLU-FB11 2015j). Students have two hours of interactive lecture (120 min.) introducing the concepts or expending already existing knowledge. Additionally, three hours of seminars (180min.) are spent on each module.

Table 6: Syllabus: Block practical training on Pediatrics

First week Tuesday Module/Topic 1	Preventive Care for Babies and Infants
Learning objectives	Learn about routine tests and check-ups (pre-birth, newborn and infant).
	Get to know the different development stages and the corresponding healthy child's body system.
	Learn about possibilities to ensure health and take preventive actions during all stages.
	Reading: understand scientific texts on preventive care and check-ups; understand and recognize key aspects in short articles or colleague's notes. Listening: listen to academic lectures/presentations; follow a presentation/ conversation on familiar topics without major difficulties; understand key aspects in clearly structured conversations. Speaking: exchange factual information on preventive care; participate in conversations with colleagues; pass on information to parents and patient. Writing: write short notes and documentations; summarize information on vaccinations.
Practical part	Provide information about vaccination, necessity, benefits and possible resulting symptoms.
	Diagnose if vaccination can be carried out.
	Practice vaccination and interact with young patients.
	Documentation of vaccination and consultation.

First week Thursday Module/Topic 2	Infectious and Common Children's Diseases
Learning objectives	Learn about the underlying causes and clinical presentations causing rash, cough, rhinitis, eye irritation, fever, infection, pneumonia, headaches, meningitis, itching, skin infection, scars, and tiredness.
	Learn about the most common children's diseases and the clinical presentation of measles, mumps, rubella and varicella.
	Get to know the presentation, treatment and preventive measures.
	Learn the underlying concepts of viral infections and vaccinations.

	Reading: understand scientific texts on infections and children's diseases; understand and recognize key aspects in short articles or colleague's notes. Listening: listen to academic lectures/presentations; follow conversations on familiar topics without major difficulties; understand key aspects in clearly structured conversations. Speaking: exchange factual information on infectious diseases and preventive care; pass on information to parents and patient; give recommendations. Writing: write documentations; describe symptoms of infectious diseases.
Practical part	Provide information about vaccination, necessity, benefits and possible resulting symptoms.
	Diagnose if vaccinations can be carried out.
	Practice vaccination and interact with young patients.
	Documentation of vaccination and consultation.

Second week Tuesday Module/Topic 3	Check-ups and School Entry Health Examinations
Learning objectives	Learn about the underlying causes for weight loss or gain, mobility disorders, distress and anxiety, learning problems, difficulties in concentration and listening.
	Learn about pediatric exams, their content and focus depending on age.
	Get to know basic tests, procedures and how to proceed if medical problems are detected.
	Reading: understand medical texts on pediatric health examinations; understand and recognize key aspects in short articles. Listening: listen to academic lectures/presentations; follow a presentation/ conversation and understand key aspects in clearly structured conversations. Speaking: exchange factual information on preventive care, children's diseases and health examinations; participate in conversations with colleagues; pass on information to parents and patient; describe diagrams and interpret findings. Writing: write prescriptions and documentations; summarize information of examinations and diagrams.
Practical part	Run routine tests, interact with child and gain confidence.
	Assess physical and mental condition as well as weight and mobility.
	Assessment of vaccination coverage, overweight and obesity, child's mobility.
	Evaluate social and emotional status, assess necessity for support or aid.
	Diagnose developmental and behavioral disorders.

	Documentation of results for research and diagnosis.
	Refer child to specialist or prescribe certain actions to be taken.

Second week Thursday Module/Topic 4	**Chronic Coughs and Ambiguous Abdominal Pain**
Learning objectives	Learn about the different diseases, clinical patterns and disorders that can cause chronic cough or abdominal pain in children.
	Get to know the differential diagnosis and treatment methods for respiratory distress, bronchitis and asthma attacks in children.
	Get to know the differential diagnosis, symptoms and causes for abdominal pain and possible treatment methods for appendicitis, infections, intolerances, poisoning and inflammation of the abdomen.
	Reading: understand short texts on patients presenting with chronic coughs and abdominal pain; understand and recognize key aspects in short articles. Listening: listen to academic lectures/presentations; follow a presentation/ conversation of colleagues or parents and understand key aspects. Speaking: exchange factual information on differential diagnosis and clinical patterns; pass on information to adults and patient; communicate treatment methods; describe underlying diseases, symptoms and management. Writing: write documentations and treatment plans; give instructions.
Practical part	Assess symptoms, pain and accompanying symptoms.
	Run tests, make and confirm diagnosis.
	Decide on treatment and inform about drug administration.
	Give instructions that have to be followed.
	Have a follow-up check, documentation of medical procedure.

Third week Tuesday Module/Topic 5	**Youth Medicine**
Learning objectives	Learn about the underlying disorders and diseases that can cause learning problems and concentration difficulties, constrained and reduced mobility, malpositions, anxiety and distress.
	Learn about children's learning and achievement disorders, their description, explanation, diagnosis and treatment.
	Learn about growth disturbances and pediatric orthopedics.

	Reading: understand medical texts on pediatrics and youth medicine; recognize and understand key aspects in short articles. Listening: listen to academic lectures/presentations; follow conversations of colleagues, parents or teenagers and understand key aspects. Speaking: exchange factual information on medical-related youth problems; pass on information to adults and patient; communicate treatment methods and procedures; give instructions and recommendations. Writing: write documentations and treatment plans; give instructions.
Practical part	Take patient's history; assess mental and emotional health of patient.
	Be a confidential person and identify underlying problems.
	Consult other specialists if necessary; find solutions in cooperation with the patient and parents.
	Diagnose behavioral disorders, run tests.
	Diagnose disturbances in development, malpositions and misalignments.
	Inform about possible procedures or treatments.

Third week Thursday Module/Topic 6	**Allergy Diagnostics**
Learning objectives	Learn about the clinical patterns causing abdominal pain, rhinitis, diarrhea, vomiting, weight loss and gain, itching, swelling, nausea, sneezing, coughs, fainting, chest pain, shortness of breath.
	Learn about allergies and food allergies, anaphylaxis and intolerances, side effects and first aid methods in situations of allergic shocks.
	Reading: understand general and scientific texts on allergies; understand and recognize key aspects in short articles; read laboratory findings. Listening: listen to academic lectures/presentations; follow general and professional conversations on allergies and understand key aspects. Speaking: exchange factual information on allergy diagnostics; pass on information to patient; communicate management possibilities; differential diagnosis and clinical patterns; interpret laboratory findings. Writing: write treatment plans and laboratory documentations.
Practical part	Learn about common seasonal allergies and food allergy.
	Ask about symptoms and habits, take patient's history and assess severity.

Run allergy specific laboratory tests seasonal allergies.
Diagnose seasonal allergies and order preventive measures.
Diagnose food allergy and inform patient to keep a food diary to determine allergen.
Suggest treatment in cooperation with patient.

For the presented modules and when attending these CLIL settings, students need the same knowledge and skills as mentioned above, i.e. after accomplishing the pre-clinical stage, students are expected to have basic knowledge biomedical processes, human anatomy and physiology. They should be familiar with the mechanism of human bodies, the immune system as well as the presentation and symptoms of common diseases. Since preventive health care is playing a major role in the profession of pediatricians and it is especially important for their future patients, students gain further knowledge on vaccinations, viral infections, and the developmental stages of children and adolescents. While attending these CLIL modules, students should gain specialized knowledge in the use of terminology and enhance their communicative competence. The whole course is designed for practicing theory and practical skills in combination since real medical cases are addressed. Thereby, the communication skills required in the interaction with young patients and their relatives are trained and students gain confidence in simulated situations. Likewise, they learn the terminology needed to communicate among specialists, and how to explain something to the general public. The acquisition of medical equipments, treatment methods and procedures is also part of the course. Just as in all other courses and specialists training, pediatricians learn to write patient files, prescriptions, give instructions and explain diagnosis and treatment. It is therefore also important to enhance the reading and writing skills in both basic and academic/scientific usage. In order to be as authentic as possible,

interactive activities will be carried out as e.g. role-plays of real-life scenarios.

In the end of the whole module, students should be able to <u>distinguish and identify</u> the following common <u>clinical features</u>:
rash, cough, rhinitis, eye irritation, fever, infection, pneumonia, headaches, meningitis, itching, skin infection, scars, tiredness, weight loss or gain, mobility disorders, distress and anxiety, learning problems, difficulties in concentration, abdominal pain, constrained and reduced mobility, malpositions, rhinitis, diarrhea, vomiting, swelling, nausea, sneezing, fainting, chest pain, shortness of breath, headaches.

They should be able to <u>assess, diagnose, manage and inform</u> about the following <u>diseases/ clinical pictures</u>:
measles, mumps, rubella, varicella, overweight, obesity or underweight, chronic cough, growth and development disturbances, behavioral disorders, respiratory distress, bronchitis, asthma, allergies, food intolerances, appendicitis, infections, learning and achievement disorders, malpositions and misalignments, anaphylaxis and allergic shocks.

The final assessment of the whole seminar concerned with pediatrics is divided into two parts. The first part lasts 60 minutes and is more theoretical: Students have to take a multiple-choice exam that mainly focuses on content-knowledge. There are also some short texts and questions that assess the reading and writing comprehension. The second part takes about 40 minutes and is more practice-oriented: Students have to interact in two different situations with patients and parents and/or colleagues. This part is concerned mainly with speaking and listening. Since language and content are in both parts essential, both are included in assessment whereas the content is of

slightly higher importance. The final grade is calculated as follows: 60% first part, 40% second part.

6.3 Sample Unit: Module/ Topic 2

The sample unit deals with the Module number 2 and the topic of *Infectious and Common Children's Diseases*. Diverse possible clinical presentations and symptoms are addressed within the course which encompasses 2 sessions of 90 minutes. The course content is structured according to the lectures dealing with the same topic. Prerequisites and readings are familiarity with human's anatomy and physiology, children's development stages, biomedical processes and immune system function. Literature will be addressed within the corresponding lectures or is included in the scaffolding material in the course directory. Articles and excerpts discussed in the seminar sessions as well as scaffolding material will be uploaded beforehand. Thus, students have access to all materials and can inform themselves in advance.

CLIL lesson plan according to the 4Cs and the CLIL-Matrix:[38]
Topic: Infectious diseases and common children's diseases

Content (What will I teach?):
- Basic facts and revision of viral infections and the process of vaccinations,
- Preventive care measures,
- Assessment, diagnosis and management of measles, mumps, rubella and varicella,
- Examples of medical cases, differential diagnosis and clinical presentations.
  Teaching aims (What will they learn?):

---

[38] Adapted from Inglin (2013:20-21).

- To enable learners to distinguish measles, mumps, rubella and varicella and the corresponding clinical presentations,
- To explain the process of vaccinations and the course of these infectious diseases,
- To assess, diagnose and manage the presented diseases.

Learning outcomes:

Learners know:

- The main characteristics/clinical presentations of measles, mumps, rubella and varicella,
- Examples of medical cases,
- How to carry out preventive care and treatment methods.

Learners are able:

- To define viral infections and vaccinations,
- Mention benefits and resulting symptoms of vaccinations,
- Assess the gravity of infection,
- Make diagnoses due to the underlying causes.

Learners are aware:

- Of similarities between diseases and their clinical pictures,
- Of the necessity to consult other experts if necessary.

Assessment

Can the learners:

- Define viral infections and vaccinations?
- Identify clinical presentations?
- Assess the gravity and course of disease?
- Carry out differential diagnosis?
- Draw conclusions and decide on right treatment?

Communication

Language of learning (vocabulary)

- Key vocabulary, medical and everyday health terminology related to infectious diseases and children's diseases,

- Key aspects associated with measles, mumps, rubella and varicella.

   Learning for learning (structures, function)

- Interaction with patients/ colleagues, carry out consultations

- Understand diagrams/schemata of viral infections and vaccinations (e.g. rates, course of diseases).

Cognition (Which tasks will I develop to encourage higher order thinking?):

- Identify clinical presentations,

- Classify and define infectious diseases,

- Compare diseases/ clinical presentations and find similarities,

- Describe course of disease and infectious disease,

- Explain use and process of preventive care/ vaccinations,

- Conclude with which disease the patient presents,

- Report medical process, management and course of consultation.

   Examples of cognition

- Differentiating between clinical symptoms,

- Compare course of disease, diagrams presenting vaccination rates and preventive care measures.

Culture

- Compare differences and similarities of preventive care measures/ vaccination rates and prevalence rat of infectious diseases and common children's diseases,

- Be aware of differences and similarities of treatment measures between Germany and other cultures.

Course content

On the one hand, the course deals with viral infections, vaccinations and preventive measures by taking measles, mumps, rubella and varicella as example. On the other hand, other common children's diseases that do present similar clinical pictures are addressed. Since the knowledge about the

concepts of viral infections and their resulting effects are essential for the course, this is part of the sessions. Besides the underlying causes of these diseases, information on assessment, differential diagnosis and treatment are provided. Therefore, infectious diseases are compared and opposed to each other in order to draw correct conclusions. The course aims at teaching how preventive measures can be taken and how medical consultations should be structured and what they should contain. Respectively, participants get to know diverse up-to-date treatment measures and the medical documentation that is necessary. The course does provide information but is more learner-centered which means that practice and simulations are emphasized. Content emphasis the topics and sub-topics of the corresponding module.

Objectives

Within each session, the emphasis is slightly different since a vast amount of topics is dealt with. The following learning objectives apply to the entire module number 2. The learning objectives are divided into the categories content-wise and language-wise to ensure that both aspects are being focused upon during these two sessions.

Content-wise

Students should learn about the most common children's diseases and the clinical presentation of measles, mumps, rubella and varicella. Therefore, they review and enhance their knowledge and concepts of viral infections and vaccinations. They need to be able to assess diverse symptoms such as cough, fever, tiredness, rhinitis, etc. and make corresponding diagnosis. Moreover, course participants learn about possible treatment methods and how to take preventive measures. Likewise, students should be able to provide further information about infectious diseases and the corresponding vaccination in

order to consult parents/ patients. Thus, they should be able to give details about vaccination policy, the necessity, benefits and potential resulting symptoms of preventive measures. Last but not least, participants should practice vaccinations, medical consultations and the associated documentation. Thereby, underlying causes and clinical presentations are reviewed and retrieved.

Language-wise

Students can use the language of learning, i.e. the medical and everyday health terminology related to common infectious diseases of children and know central aspects associated with varicella, rubella, measles and mumps. Furthermore, participants get to know the language for learning as e.g. basic structures for the interaction with patients their relatives or colleagues. They should be able to take patient's history and communicate their opinions. Besides, they learn how to carry out consultations and inform patients and parents about further procedures and treatment methods. It should not cause further difficulties to ask questions, give instructions and advice as well as express one's opinion. Skills for understanding and communicating key aspects of short written or oral statements should be enhanced.

Table 7: Lesson plan 1: Pediatrics   **Session one:** Virology, Vaccination and Preventive Care

Stage and approx. Time	Class organization and Skills	Description of Activity/ Materials[39] (Course 2, Module/ Topic 2: Session one)
Introduction/ Warm-up 20 min.	Teacher Small groups (3-4 students) Listening, Speaking, Writing, Reading Plenum Speaking, Listening	**Transparency:** Present objectives and topic of session. **Concept visualization of virology and vaccination:** Revision of the vaccination process, viral infections and virology. Divide class in two groups. Group(s)A: Develop a poster visualizing the process of vaccinations considering the immune system and immune reactions. Group(s) B: Visualize the process of viral infections and fundamental aspects of virology. Presentation of posters. Material: Posters & craft materials
Infections and Presentations 15 min.	Individual Reading, Speaking Pairs Listening, Speaking	**Symptoms of infections:** Four students are chosen to read out a short informational text on one of these diseases to their fellow students. The others should listen to their peer mentioning possible symptoms of the infectious diseases measles, varicella, mumps and rubella. Take notes and complete the list. Comparison with a partner. Material: Handout (Appendix: Course 2.1, Activity 1)

Concept Enhancement: Viral Infections Medical case Part 1 Medical case Part 2 20 min.	Individual Reading Pairs Speaking, Listening Individual Reading	**Clinical features:** Training of reading comprehension and strategies: Patient in story presents with clinical features. Assess all symptoms mentioned in the story and decide on further possible medical procedure. Discuss with your partner which infectious disease the child might have, make suggestions for further treatment, and decide on differential diagnosis. <u>Material:</u>Handout (Appendix: Course 2.1, Activity 2)
Giving Advice 15 min.	Individual Reading Plenum Speaking, Writing, Listening	**Advice and Instructions:** Read the text again: How does the physician give instructions and advice? Underline specific features. **Brainstorming Session:** Review in class, collect further examples and discuss differences and use. <u>Material:</u>Handout (Appendix: Course 2.1, Activity 4)
Consolidation 15 min	Individual Writing and reading Plenum Speaking, Listening	**Instructions and advice:** Complete the worksheet on "need, have to, must, and should". Discuss your results, correct if necessary. <u>Material:</u>Handout (Appendix: Course 2.1, Activity 5)
Wrap-up/ Evaluation 5 min.	Plenum Speaking, Listening	**Summary of content/ Reflect on session:** What should students have learnt, what should they be able to do? What kind of difficulties occurred? Discuss further unclear points/ time for questions and additional explanations.

Table 8: Lesson plan 2: Pediatrics   **Session 2:** MMR Vaccination, Prevalence/ Incidence Rates

Stage and approx. Time	Class organization and Skills	Description of Activity/ Materials[40] (Course 2, Module/ Topic 2: Session two)
Introduction/ Warm-up 10 min.	Teacher Plenum Listening, speaking	**Transparency:** Present objectives and topic of session. **Discussion:** Why is it important to vaccine children? Discuss the risks of the infectious diseases, the benefits and possible side effects of vaccinations. Material: Projector/Laptop (Appendix: Course 2.2, Activity 1)
Prevalence/ Incidence Rates 20 min.	Plenum Speaking, Listening, Writing, Reading	**Describing diagrams:** Status of the measles-mumps-rubella vaccination in Germany (is it obligatory/recommend? How high is the prevalence and incidence rate?). Look at the diagrams and collect ideas how to describe diagrams/statistics. **Making comparisons:** What kind of preventive care/measures do other countries take? Collect ideas how comparison can be made, describe the statistics and discuss the data. Material: Handout (Appendix: Course 2.2, Activity 2)

Revision of Tenses 15 min.	Plenum Speaking, Listening Pairs (Question-Answer-Play) Speaking, Listening, Writing, Reading	**Describing diagrams:** Status of the measles-mumps-rubella vaccination in Germany (is it obligatory/recommend? How high is the prevalence and incidence rate?). Look at the diagrams and collect ideas how to describe diagrams/statistics. **Making comparisons:** What kind of preventive care/measures do other countries take? Collect ideas how comparison can be made, describe the statistics and discuss the data. Material: Handout (Appendix: Course 2.2, Activity 2)
Consult with Colleagues 15 min.	Individual – Plenum Reading, Writing Speaking, Listening Pairs Reading, Writing, Speaking, Listening	**Express one's opinion:** How to express personal views, agreement or disagreement. Interaction with colleagues. Read the text and answer the questions. **Rephrasing statements:** Notice differences of exchanging information with colleagues or patients. Material: Handout (Appendix: Course 2.2, Activity 4)

Medical Case 1& 2 25 min.	Plenum Listening, Speaking Small groups (3 students) Listening, speaking, Writing, Reading Plenum Speaking, Listening	**Revision:** Taking patient's history and giving parents advice (what questions can be asked to take patient's anamnesis?) **Role cards - 2 plays:** Each student gets a role card: one is the patient, one the father/mother, one the physician. Physician has to take the anamnesis, diagnose and consult with a colleague. Explain further procedure to patient and give advice. Take notes. Patient and Mother inform the physician, ask questions and want to get more information about treatment and risks. **Presentation and Evaluation**: Two groups present their play. Exchange experiences: What was good or could be improved? Have there been difficulties? <u>Material</u>: Handout (Appendix: Course 2.2, Activity 5)
Wrap-up/ Evaluation 5 min.	Summarizing Plenum Speaking, Listening	**Summary of content/ Reflect on session:** What should students have learnt, what should they be able to do? What kind of difficulties occurred? Discuss further unclear points/ time for questions and additional explanations. Inform about homework.

| Homework | Writing a medical report | Students have to write a short medical report on both cases. This should include giving the patient advice on how to behave / what to do (using need, have to, must and should, will-future). Text has to be submitted.
Material: Handout
(Appendix: Course 2.2, Activity 6) |

Reflection: In the end of Module 2 (these two sessions) participants can:

Content-wise
- differentiate between the described viral infections of measles, mumps, rubella and varicella,
- assess the underlying causes and clinical presentations of each addressed infectious disease,
- treat and manage presented clinical pictures and patients with infectious diseases,
- take preventive care and consult patients/relatives about viral infections,
- provide further details on vaccination policies in other countries, benefits and resulting symptoms,
- give instructions for taking drugs or how to behave when being ill.

Language-wise
- use strategies in all four skills to compensate missing information,
- use should, need, have to and must correctly,
- formulate questions and sentences in the will-future and simple past,
- learn the corresponding medical and everyday health terminology,
- find synonyms or antonyms for certain words,
- reformulate statements of written releases and summarize content,
- give small talks about these topics with confidence and provide information on viral infections, vaccinations and preventive care,
- interact and communicate with patients, talk about procedures,
- consult patients/relatives in case of doubt,
- ask colleagues for assistance or pass on information,
- write small notes about medical cases by using scientific language,
- write drug administration plan and instructions for patients/relatives,

- read scientific excerpts/releases dealing with the addressed topics,

- comprehend drug information sheets,

- understand their patients/relatives when listening to them,

- understand other professionals talking about common infectious children's diseases,

- watch a video or listen to a conversation without much difficulties,

- understand the underlying idea that is mentioned in the conversation.

In general they:

- enhance their confidence in using the English language while performing duties and tasks,

- increase their English language proficiency (e.g. use proper grammatical structures),

- can carry out diverse activities in English,

- master vocabulary concerned with the topic of common infectious diseases,

- are able to ask for medical histories and can pass on information to colleagues and patients,

- provide relevant medical instructions and recommendations,

- enhance their communicative and interactional skills with patients/ parents,

- have learned the medical concepts of infections and vaccinations, especially of varicella, rubella, measles and mumps,

- are able to identify, assess, differentiate the clinical pictures and underlying symptoms,

- manage to carry out differential diagnosis, physical examinations and draw logical medical conclusions for further procedure, treatment and drug administration.

Exam preparation

For both courses it has to be considered that all participants have an intermediate language level due to their former education. The books of Schiller (2011), Glendinning & Howard (2007) and Hrdina (2009) are recommended as preparation and will be taken as basis for the CLIL modules. These are also recommended readings for optional pre-clinical courses.

As mentioned in the course syllabus, each of these CLIL modules has a final assessment which will take place one week after the last session. The modules are successfully completed by passing both parts of the examination, the theoretical and practical one. As exam preparation students could use the following materials:

Books:

Schiller, Sandra (2011): *Fachenglisch für Gesundheitsberufe: Physiotherapie, Ergotherapie, Logopädie.* 3. Auflage. Berlin, Heidelberg: Springer.

Glendinning, Eric H., Howard, Ron (2007): *Professional English in use Medicine.* Cambridge: University Press.

Hrdina, Christian (2009): *Scientific English für Mediziner und Naturwissenschaftler: Formulierungshilfen für wissenschaftliche Arbeiten, Publikationen und Vorträge.* 2. Aufl. Berlin: Langenscheidt.

Muntau, Ania (Hrsg.) (2012): *Die 50 wichtigsten Fälle Pädiatrie.*1. Aufl. München: Elsevier, Urban & Fischer.

Gesenhues, Stefan (Hrsg.) (2010): *Praxisleitfaden Allgemeinmedizin.* 6. Aufl. München: Elsevier, Urban & Fischer.

Sample Activities:

Interactive medical cases:

The New England Medical Journal: Interactive medical courses. Online:
  http://www.nejm.org/multimedia/interactive-medical-case.

Dialogues and diagnosis:

Englishmed: medical   English   multimedia   course.   Online:
  http://www.englishmed.com/dialogues/.

About.com-About Education: English for Medical Purpose: Troubling
  Symptoms.
  Online: *http://esl.about.com/od/intermediatereading/a/d_msymptom.htm.*

EnglishClub   –   Doctor's   Diagnosis.   Online*:*
  https://www.englishclub.com/english-for-work/medical-diagnosis.htm.

Terminology:

English Language Centres: How to talk about health problems. Online:
  http://www.ecenglish.com/learnenglish/lessons/how-talk-about-health-
  problems#comment-1160.

This additional material should prepare students to successfully pass the
examinations in the end of the outlined courses. Following these seminars,
students will gain further experience when attending the respective practical
training.

7   Summary and Outlook

The aim of this study was to assess the implementation of CLIL in medicine programs in higher education with a focus on Germany. The main findings to emerge from this analysis are summarized and discussed in this chapter. Further suggestions for additional CLIL activities that may be implemented in medicine programs are given.

First, the necessity for English in medicine was illustrated. Before the medicine program was analyzed, the concept of CLIL was described and distinguished from other teaching approaches. Subsequently, premises as well as a discussion of possibilities and restrictions for the implementation of CLIL in higher education programs were discussed. Thus, two exemplary course descriptions for both modules on general medicine and pediatrics were elaborated.

The analysis pointed out that being a medical practitioner encompasses dealing with English releases, documentations and non-German interactions. Thus, it can be determined that English for the profession of a physician is becoming increasingly important. Students of human medicine should be aware of the significance of English proficiency for their professional career and receive the possibility to enhance their English skills in the course of their medical study program. Consequently, enhancing medical students' English skills needs to be a central part of their study. However, analyses of current medicine programs in Germany illustrated that universities provide insufficient possibilities for German medical students to learn English in medical-related contexts.

In the course of their medicine studies, students should develop fluency and confidence when operating in a foreign language context. On the one

hand, general linguistic knowledge of English is required in day-to-day interactions with patients, colleagues and documentations or alerts. On the other hand, knowledge of specific medical discourse is necessary in order to communicate, participate and transfer information in the professional community. The aim is to increase the student's familiarity with medical related content knowledge and scientific language discourses in English. Thus, higher education should aim at enhancing *basic interpersonal communicative skills* (BICS) and *communicative academic language proficiency* (CALP). An integrated interdisciplinary approach between language and the academic subject can serve as a basis for the preparation of highly-qualified specialists.

CLIL is considered to be a good teaching approach to achieve these objectives and is multifaceted: Students do not only learn content and language simultaneously, but also enhance their intercultural knowledge and awareness. Besides all these advantages, there are several factors that have to be kept in mind when integrating CLIL in higher education. The incorporation of CLIL courses in standardized national study programs has proven to be especially challenging. Furthermore, for an implementation of English-taught courses in medicine programs, it is essential to identify specific language needs and professional requirements faced by medical students. These have to be carefully considered in order to ensure a successful educational setting. Since fundamental concepts are learnt in the pre-clinical stage which should be thoroughly understood, it might be of greater benefit to implement CLIL in the clinical stage because, in the 5th semester of their medicine studies, students have already gained basic knowledge. Previously addressed concepts are revised and enhanced in various seminars and practical training which students have to attend in this

stage of their study program. Henceforth, the CLIL courses designed in the scope of this thesis are integrated in the clinical stage of the medicine program and focus on the block practical training for general medicine and pediatrics. Even though an implementation of CLIL in the clinical stage is suggested in this thesis, there are further possibilities to integrate English and diverse CLIL courses in German medicine programs.[41]

Medical faculties could, for instance, offer extra-curricular activities or provide additional optional seminars during the pre-clinical stage, i.e. practical training sessions held at least partly in English. Thus, medical topics addressed in regular seminars and lectures can be revised in interactive sessions in the form of tutorials lead by students of higher semesters. A key strength of this is the fact that previously acquired content knowledge is processed in more depth. Students become aware of the concepts in English and gain the ability to enhance their knowledge e.g. by reading international publications, discussing ongoing medical research or interacting with fellow students in English. These courses might be accredited as optional courses or students could receive an attendance certificate which could benefit their future career. These additional courses could also be attended by international students since courses during the *pre-clinical stage* which are exclusively held in German, would render a participation of foreign students more difficult.

Moreover, CLIL courses which focus on the basics of medicine should be offered before specific systems, diseases and symptoms are addressed. These can be optional in the pre-clinical stage or in the beginning of the clinical stage and would focus on topics such as: *Body Parts, Body Functions, Health*

---

[41] All possibilities mentioned here are outlined in more detail in the appendix (Outlook: Example activites and courses).

and Illness, Medical Personnel and Places. Students can enhance their basic content and language knowledge in English, which would be beneficial for their future course of study. These courses can also be required for attending other CLIL courses during the clinical stage which emphasize in-depth medical concepts and diverse situations.

Courses on terminology can also be implemented in this stage of study. Terminology knowledge is one of the most fundamental aspects in medicine programs as it is necessary for the understanding of medical concepts. Since research, medical releases or documentations are increasingly published in English, students must possess an understanding of specific English terms. As optional courses these can also be attended by students of the clinical stage.

Other possible CLIL courses may deal with *Health Care Systems*, *Medicine and Culture* or *Medical Series*. To enhance intercultural awareness, medical faculties can provide extra courses on culture and treatments in which different medical approaches are discussed and reflected. Besides this, teachers can address various medical educational and health care systems. Additionally, diverse aspects such as terminology, listening comprehension, differential diagnosis and culture-specific treatments can be elaborated by using sequences of medical series.

Universities could offer tandem exchange projects with medical students of other universities or further exchange programs as e.g. the opportunity to carry out a block of practical training abroad. Projects of this kind can be very beneficial since students enhance their language skills, gain more practical experience and insight into different cultures and their way of handling medical treatments. In between semesters, students might want to participate in international aid projects and join associations such as *Doctors*

Without Borders. To enable students to take this opportunity, the examination period would have to be revised.

In addition, teachers of medicine programs should provide general reading recommendations that serve simultaneously as a basis for CLIL settings. Proposals should include literature focusing on daily health-related interactions as well as on scientific releases.

University language centers might also offer language courses on medical English, primarily concerned with daily interactions with patients or in hospitals, in close cooperation with subject-teachers. Beyond that, courses on scientific writing and oral presentations in the medical context can be provided.

Taking the University of Gießen as example, CLIL settings can also be integrated in the *Skillslabs*. These are more practice-oriented courses for students to gain more hands-on experience offered by the "Zentrum für Praktisches Lernen und Simulation" in Gießen. On the one hand, there are *GRIPS*[42] courses provided throughout the medicine program that aim at enhancing the basic skills each physician needs e.g. by doing simulations. On the other hand, *GiSim*[43] courses focus on anesthesia and emergency medicine (JLU-FB 2015k). Some of these Skillslabs are integrated in the medicine program and are obligatory. However, others can be attended as extracurricular, voluntary sessions. Additionally, students in Gießen can participate in a volunteer group of students called "Sprechende Medizin". In their meetings participants simulate medical situations and consultations.

---

[42] „Kurse zum Anfassen", angeboten von dem Zentrum für praktisches Lernen und Simulation in der Medizin Gießen.
[43] Gießener Simulationszentrum für Anästhesie und Notfallmedizin.

Among others things, these courses address the role of language in medicine and interactions between physician and patient. Thus, besides emphasizing the importance of communication, students learn how to improve their interactive skills (JLU-FB 2015o). To carry out some of these settings in English can be very beneficial.

This short outlook demonstrates that CLIL is not limited to the courses presented in this thesis. All these suggestions[44] represent further possibilities for the integration of CLIL with English in medicine programs. Thus, the standardized study program does not necessarily have to be modified significantly. Rather, CLIL settings can take place simultaneously while offering additional interactive educational settings using English as a medium of communication and instruction.

---

[44]Appendix (Outlook: Example activites and courses).

8   References

Antic, Zorica (2007): "Forward in Teaching English for Medical Purposes." In: *Medicine and Biology* (14/3), 141–147. Online available at: http://facta.junis.ni.ac.rs/mab/mab200703/mab200703-08.pdf [Last accessed on 05.03.2015].

Anderson, Lorin W., Krathwohl, David (Eds.) (2001): *A Taxonomy for Learning, Teaching and Assessing: a Revision of Bloom's Educational Objectives*. New York: Longman.

Armstrong, Patricia (2009): *Bloom's Taxonomy*. Issued by: Center for Teaching - Vanderbilt University, Nashville. Online available at: http://cft.vanderbilt.edu/guides-sub-pages/blooms-taxonomy/ [Last accessed on 09.05.2015].

Ärzte ohne Grenzen e.V. (2015): *Mitarbeit, Voraussetzungen*. Online available at: http://www.entwicklungsdienst.de/aerzte/ [Last accessed on 05.03.2015].

Banegas, Darío Luis (2012): "The challenges of CLIL implementation in EFL contexts." In: *BETA-IATEFL Annual International Conference*, Ruse/Bulgarien. Online available at: http://www.academia.edu/7632388/The_challenges_of_CLIL_implementation_in_EFL_contexts [Last accessed on 08.05.2015].

Baranova, Sanita, Koke, Tatjana (2011): „Fachübergreifende hochschuldidaktische Weiterbildung für Lehrende der universitären Lehrerbildung: im Kontext Europas und aus der Perspektive Lettlands" In: Jahnke, Isa, Wildt, Johannes (2011): *Fachbezogene und fachübergreifende Hochschuldidaktik.* Bielefeld: Bertelsmann Verlag, 55-68.

Björkman, Beyza (2013): *English as an academic Lingua Franca. An investigation of form and communicative effectiveness.* Boston: de Gruyter Mouton. (Series: Developments in English as a Lingua Franca, 3). Online available at: http://dx.doi.org/10.1515/9783110279542 [Last accessed on 07.05.2015].

Bonnet, Andreas (2010): *Was CLIL für Lernende leichter macht.* 2. Landesfachtag Bilingualer Unterricht des IQSH. Kiel, 30.10.2010. Online available at: http://www.faecher.lernnetz.de/faecherportal/index.php?DownloadID=4506 [Last accessed on 20.07.2015].

Bonnet, Andreas, Breidbach, Stephan, Hallet, Wolfgang (2003): „Fremdsprachliches Handeln im Sachfach: Bilinguale Lernkontexte." In:

Bach, Gerhard, Johannes-Peter, Timm (Hrsg.). *Englischunterricht*. 3.Aufl. Tübingen, Basel: A. Franke Verlag, 176-196.

Bostwick, Mike (2011): *Immersion Education & Bilingualism. What is immersion*? Online available at: http://bi-lingual.com/about_us_0151.php [Last accessed on 08.05.2015].

Bracaj, Morena: "Teaching English For Specific Purposes and Teacher Training." In: *European Scientific Journal* 2014 (10/2), 40–49. Online available at: http://www.eujournal.org/index.php/esj/article/viewFile/ 2578/2439 [Last accessed on 08.05.2015].

British Council (2014): *British Council Regional Policy Dialogues 2013-14 - Bucharest/Segovia.* Online available at: http://www.britishcouncil.org/sites/britishcouncil.uk2/files/bc_regional policydialogues_baja.pdf [Last accessed on 10.03.2015].

Bruns, Dirk, Christ, Miachel (2014): *Ebola-Einsatz: Mehr als 1.300 Freiwillige melden sich beim DRK.* Online available at: http://www.univadis.de/gesundheitspolitik/174/Ebola-Einsatz-Mehr-als-1.300-Freiwillige-melden-sich-beim-DRK [Last accessed on 05.03.2015].

Bundesamt für Migration und Flüchtlinge (BAMF) (2015): *EU Blue Card.* Online available at: http://www.bamf.de/EN/Infothek/ FragenAntworten/ BlaueKarteEU/blaue-karte-eu-node.html [Last updated on 07.05.2015, last accessed on 20.05.2015].

Bundesinstitut für Arzneimittel und Medizinprodukte (BfArM) (2013): *Periodic Safety Update Reports (PSURs).* Online available at: http://www.bfarm.de/DE/Arzneimittel/Pharmakovigilanz/PSURs/_node.ht ml [Last accessed on 07.05.2015].

Bundesinstitut für Arzneimittel und Medizinprodukte (BfArM) (2010): *Risiken melden.* Online available at: http://www.bfarm.de/ DE/Arzneimittel/Pharmakovigilanz/RisikenMelden/_node.html [Last accessed on 07.05.2015].

Bundesministerium für Bildung und Forschung (BMBF) (2014): *Recognition of Foreign Professional Qualifications*. Issued by: Referat LS 4 – Öffentlichkeitsarbeit, Internet. Online available at: http://www.bmbf.de/en/15644.php [Last accessed on 10.07.2015].

Bundesministerium für Wirtschaft und Energie (2015): *Welcome to Germany" Portal -Make it in Germany. Sought after: good doctors.* Online available at: http://www.make-it-in-germany.com/en/for-qualified-

professionals/working/demanded-professions/doctors [Last updated on 27.03.2015, last accessed on 07.05.2015].

Bundesvertretung der Medizinstudierenden in Deutschland (bvmd) (2012): *Medizin - Mehr als nur Studium*. Online available at: http://bvmd.de/verein/ [Last accessed on 10.05.2015].

Busch, Sylvia (2014): *Famulatur.* Issued by: Philipps Universität Marburg, Marburg. Online available at: https://www.uni-marburg.de/fb20/ studium/studiengaenge/humanmedizin/ famulatur/index_ html [Last updated on 08.05.2015, last accessed on 09.05.2015].

Charité International Academy (ChIA) (2015): *Medical English*. Issued by: Charité – Universitätsmedizin, Berlin. Online available at: http://chia.charite.de/programm/ medical_english/ [Last accessed on 08.07.2015].

Charité, Studienkoordination (Ch-St.Koord.) (2011): *Weiterführende Studiengänge*. Issued by: Referat für Studienangelegenheiten. Charité – Universitätsmedizin, Berlin. Online available at: http://www.charite.de/ studium_lehre/studieren_an_der_charite/ weiterfuehrende_studiengaenge/ [Last accessed on 08.07.2015].

Charles University, Information and Advisory Centre (CU-IAC) (2015b): *Information system of Charles University - Subjects.* Issued by: Charles University, Prag. Online available at: http://is.cuni.cz/ studium/eng/predmety/index.php [Last accessed on 08.07.2015].

Charles University, Information and Advisory Centre (CU-IAC) (2015a): *Study Degree Programmes in Foreign Languages*. Issued by: Charles University, Prag. Online available at: http://www.cuni.cz/UKEN-14.html [Last accessed on 08.07.2015].

Coyle, Do, Hood, Philip, Marsh, David (2010): *CLIL: Content and language integrated learning*. Cambridge: Cambridge University Press.

Dafouz Milne, Emma, Llinares García, Ana: "The Role of Repetition in CLIL Teacher Discourse: A Comparative Study at Secondary and Tertiary Levels." In: *International CLIL Research Journal*, 50–59. Online available at: http://www.icrj.eu/11/article4.html [Last accessed on 09.05.2015].

Dafouz Milne, Emma, Núñez Perucha, Begoña: "CLIL in Tertiary Education: Devising a new Learning Landscape." In: Dafouz Milne, Emma, Guerrini, Michele (eds.).: *CLIL across Educational Levels: Experiences from*

Primary, Secondary and Tertiary Contexts. Madrid/London: Richmond Santillana., 101–112.

Dafouz Milne, Emma, Núñez Perucha, Begoña, Sancho Guinda, Carmen (2007): "Analysing Stance in a CLIL university context: Non-native speaker use of personal pronouns and modal verbs and Bilingual Education." In: *International Journal of Bilingualism* (10/5), 647–662.

Dale, Liz, van der Es, Wibo, Tanner, Rosie (2010): *CLIL Skills*. Online available at: http://externalaffairs.ucoz.com/_ld/0/2_CLIL_Skills-def.pdf [Last accessed 04.03.2015].

Dale, Liz, Tanner, Rosie (2012): *CLIL Activities with CD-ROM: A Resource for Subject and Language Teachers.* Cambridge Handbooks for Language Teachers. Cambridge: Cambridge University Press.

Dalton-Puffer, Christiane, Nikula, Tarja, Smit, Ute (eds.) (2010): *Language Use and Language Learning in CLIL Classrooms.* Amsterdam, Philadelphia: John Benjamins. (Applied Linguistics Series 7.).

Danz, Burkhard (2015): *Studying at Charité.* Issued by: Student Affairs Office. Charité – Universitätsmedizin, Berlin. Online available at: http://www.charite.de/en/studies/ [Last accessed on 08.07.2015].

Degener, Janna (2011): Deutsch *in den Wissenschaften - Deutsch als Wissenschaftssprache. Wissenschaftliche Mehrsprachigkeit ist innovationsfördernd.* Issued by: Goethe-Institut. Online available at: http://www.goethe.de/lhr/prj/diw/dos/de8201485.htm [Last updated on 02.05.2015, last accessed on 07.05.2015].

Depauw, Christophe (2015a): *Faculteit Geneeskunde en Gezondheidswetenschappen.* Issued by: Medicine and Health Sciences, University of Gent. Online available at: http://www.ugent.be/ge/nl [Last accessed on 08.07.2015].

Depauw, Christophe (2015b): *Incoming students.* Issued by: Faculteit Geneeskunde en Gezondheidswetenschappen, University of Gent. Online available at: http://www.ugent.be/ge/nl/voor-studenten/uitwisseling/incoming-students.htm [Last accessed on 08.07.2015].

Drubin, David G., Kellogg, Doug R. (2012): "English as the universal language of science: opportunities and challenges." In: *Molecular Biology of the Cell* 23 (8), 1399.

Ege University - Office of Student Affairs (EU-OSA) (2015a): *General Admission Requirements.* Issued by: Ege University, İzmir. Online

available at: http://ebys.ege.edu.tr/ogrenci/ebp/general-admission.htm [Last updated on 09.02.2015, last accessed on 08.07.2015].

Ege University - Office of Student Affairs (EU-OSA) (2015b): *Ege Üniversitesi Bilgi Paketi / Ders Kataloğu.* Issued by: Ege University, İzmir. Online available at: http://ebys.ege.edu.tr/ogrenci/ebp/index.html [Last updated on 09.02.2015, last accessed on 08.07.2015].

Ehlers, Rolf (2014): *Arztbesuch: Deutsche Patienten ohne Englischkenntnisse im Aus.* Issued by: Buergerstimme - Zeit für Veränderungen, Valverde. Online available at: https://buergerstimme.com/Design2/2014/01/arztbesuch-deutsche-patienten-ohne-englischkenntnisse-im-aus/ [Last accessed on 05.03.2015].

Ekouyu English Schools (2010): *At-the-Doctor's.* Online available at: http://www.ekouyu.com/material/At%20the%20Doctor%27s.pdf [Last updated on 04.12.2010, last accessed on 08.07.2015].

Erwin, Gierlinger, Carré-Karlinger, Catherine, Fuchs, Evelin, Lechner, Christine (2010): „Innovative Impulse aus dem Europäischen Fremdsprachenzentrum des Europarates: Die CLIL-Matrix in der Unterrichtspraxis." In: *Praxisreihe* (13), 1–92. Online available at: http://www.oesz.at/download/diss/Praxisreihe_13.pdf [Last accessed on 08.05.2015].

European Centre for Modern Languages (ECML) (2011): *CLIL-CD > Curriculum-Entwicklung für den bilingualen Sachfachunterricht mittelfristiges Projekt. Themengebiet: Content and Language Education.* Online available at: http://clil-cd.ecml.at/CLILCD/RelatedPublications/tabid/2571/language/de-DE/Default.aspx [Last accessed on 08.05.2015].

European Commission (EC) (1995): *White Paper on Education and Training. and Learning – Towards the Learning Society.* Online available at: http://europa.eu/documents/comm/white_papers/pdf/com95_590_en.pdf [Last updated on 05.10.2006, last accessed on 08.05.2015].

European Commission (EC) (2003): "Promoting Language Learning and Linguistic Diversity: An Action Plan 2004 – 2006. Communication from the Commission to the Council, the European Parliament, the Economic and Social Committee of the Regions." In: *COM(2003) 449 final.*

Online available at: http://europa.eu.int/comm/ education/doc/ official/keydoc/actlang/act_lang_en.pdf [Last accessed on 08.07.2015].

European Commission (EC) (2012): "Content and Language Integrated Learning." In: *European Commission for Languages*. Online available at: http://ec.europa.eu/languages/language-teaching/content-and-language-integrated-learning_en.htm [Last accessed on 08.05.2015].

European Union (EU) (1995): "Council Resolution of 31 March 1995 on improving and diversifying language learning and teaching within the education systems of the European Union." In: *Official Journal of the European Communities* (C207), 1–5.

Eurydice (2006): *Content and Language Integrated Learning (CLIL) at School in Europe.* Issued by: European Commission, Brussels, Belgium. Online available at: http://www.indire.it/lucabas/lkmw_file/eurydice/ CLIL_EN.pdf [Last updated on 27.08.2010, last accessed on 07.05.2015].

Eurydice (2010): *Content and Language Integrated Learning (CLIL) at School in Europe*. Issued by: European Commission, Brussels, Belgium. Online available at: http://www.indire.it/lucabas/lkmw_file/eurydice/ CLIL_EN.pdf [Last updated on 27.08.2010, last accessed on 07.05.2015].

Fachbereich 11 - Medizin (JLU-FB11) (2015a): *Vorklinischer Studienabschnitt*. Issued by: Justus-Liebig Universität Giessen, Studiendekanat. Online available at: https://www.uni-giessen.de/ cms/fbz/fb11/studium/medizin/vorklinik [Last accessed on 07.07.2015].

Fachbereich 11 - Medizin (JLU-FB11) (2015b): *Sommersemester 2015 Wahlfachangebot für das 3. vorklinische Semester im 1. Studienabschnitt*. Issued by: Justus-Liebig Universität Giessen, Studiendekanat. Online available at: https://www.uni-giessen.de/cms/fbz/fb11/studium/medizin/ vorklinik/ wahlfachbroschure-vorklinik [Last accessed on 07.07.2015].

Fachbereich 11 - Medizin (JLU-FB11) (2015c): *Klinischer Studienabschnitt - Wahlfächer*. Issued by: Justus-Liebig Universität Giessen, Studiendekanat. Online available at: https://www.uni-giessen.de/cms/fbz/fb11/studium/ medizin/klinik/wahlfaecher [Last accessed on 07.07.2015].

Fachbereich 11 - Medizin (JLU-FB11) (2015d): *Studienordnung Humanmedizin: Anlage 2: Studienplan zum Zweiten Studienabschnitt*. Issued by: Justus-Liebig Universität Giessen, Studiendekanat. Online available at: http://www.uni-giessen.de/cms/fbz/fb11/studium/ rechtundverordn/anlage-2-studienplan-zum-zweiten-studienabschnitt [Last updated on 27.10.2006, last accessed on 07.07.2015].

Fachbereich 11 - Medizin (JLU-FB11) (2015e): *Schwerpunktcurriculum "Global Health"*. Issued by: Justus-Liebig Universität Giessen,

Studiendekanat. Online available at: http://www.uni-giessen.de/cms/ fbz/fb11/studium/medizin/klinik/spc/spc-global [Last updated on 11.03.2015, last accessed on 09.05.2015].

Fachbereich 11 - Medizin (JLU-FB11) (2015f): *Internationale Studierende*. Issued by: Justus-Liebig Universität Giessen, Studiendekanat. Online available at: http://www.uni-giessen.de/cms/fbz/fb11/studium/foerder/ auslandtut [Last updated on 14.04.2015, last accessed on 09.05.2015].

Fachbereich 11 - Medizin (JLU-FB11) (2015g): *Kongresse und Veranstaltungen*. Issued by: Justus-Liebig Universität Giessen, Studiendekanat. Online available at: https://www.uni-giessen.de/cms/fbz/fb11/forschung/kong [Last updated on 07.05.2015, last accessed on 09.05.2015].

Fachbereich 11 - Medizin (JLU-FB11) (2015h): *Auslandsstudium.* Issued by: Justus-Liebig Universität Giessen, Studiendekanat. Online available at: https://www.uni-giessen.de/cms/fbz/fb11/studium/medizin/ausland [Last updated on 13.10.2014, last accessed on 09.05.2015].

Fachbereich 11 - Medizin (JLU-FB11) (2015i): *Recht und Verordnungen*. Issued by: Justus-Liebig Universität Giessen, Studiendekanat. Online available at: https://www.uni-giessen.de/cms/fbz/fb11/ studium/rechtundverordn [Last accessed on 01.08.2015].

Fachbereich 11 - Medizin (JLU-FB11) (2015j): W*ahlfächer zum 2. Studienabschnitt Kinderheilkunde.* Issued by: Justus-Liebig Universität Giessen, Studiendekanat. Online available at: http://www.uni-giessen.de/cms/fbz/fb11/studium/medizin/klinik/wahlfaecher_ dat/wf_kinder [Last accessed on 07.07.2015].

Fachbereich 11 - Medizin (JLU-FB11) (2015k): *Skillslabs (GRIPS & GiSim).* Issued by: Justus-Liebig Universität Giessen, Studiendekanat. Online available at: http://www.uni-giessen.de/cms/fbz/fb11/studium/medizin/sl/ [Last accessed on 07.07.2015].

Fachbereich 11 - Medizin (JLU-FB11) (2015l): *GRIPS - Curriculare Kurse Vorklinik*. Issued by: Justus-Liebig Universität Giessen, Studiendekanat. Online available at: http://www.uni-giessen.de/cms/fbz/fb11/studium /medizin/sl/grips/kursangebote/ currkursvk [Last accessed on 07.07.2015].

Fachbereich 11 - Medizin (JLU-FB11) (2015m): *GRIPS - Curriculare Kurse Klinik*. Issued by: Justus-Liebig Universität Giessen, Studiendekanat. Online available at: http://www.uni-giessen.de/cms/fbz/fb11/studium/ medizin/sl/grips/kursangebote/c-kurse [Last accessed on 07.07.2015].

Fachbereich 11 - Medizin (JLU-FB11) (2015n): *GiSim - Kursangebote*. Issued by: Justus-Liebig Universität Giessen, Studiendekanat. Online available at: http://www.uni-giessen.de/cms/fbz/fb11/studium/ medizin/sl/gisim/kurse [Last accessed on 07.07.2015].

Fachbereich 11 - Medizin (JLU-FB11) (2015o): *Sprechende Medizin*. Issued by: Justus-Liebig Universität Giessen, Studiendekanat. Online available at: http://www.uni-giessen.de/cms/fbz/fb11/studium/medizin/kommtrain [Last accessed on 07.07.2015].

Fachbereich 20 - Medizin (PUM-FB20) (2013): *Humanmedizin.* Issued by: Philipps-Universität Marburg, Studiendekanat. Online available at: https://www.uni-marburg.de/fb20/studium/studiengaenge/humanmedizin/ %20vorklinik/scheinvergabekriterienvorklinik.pdf [Last accessed on 09.05.2015].

Fachbereich 20 - Medizin (PUM-FB20) (2014): *2. Studienabschnitt.* Issued by: Philipps-Universität Marburg, Studiendekanat. Online available at: https://www.uni-marburg.de/fb20/studium/studiengaenge/humanmedizin/ klinik/index_html [Last updated on 08.05.2015, last accessed on 09.05.2015].

Fachbereich 20 - Medizin (PUM-FB20) (2015): *Humanmedizin - Praktisches Jahr.* Issued by: Philipps-Universität Marburg, Studiendekanat. Online available at: https://www.uni-marburg.de/fb20/studium/studiengaenge/ humanmedizin/pj/index_html [Last updated on 10.05.2015, last accessed on 10.05.2015].

Fachschaft Medizin Gießen (Fsmed) (2015): *Famulaturen. Famulatur von „Famulus", lat. für „Diener"/„Knecht".* Online available at: http://fsmed.net/studium/famulaturen/ [Last accessed on 09.05.2015].

Fiebach, Constanze (2010): *Deutsch in den Wissenschaften - Deutsch als Wissenschaftssprache – Dossier.* Issued by: Goethe-Institut. Online available at: http://www.goethe.de/lhr/prj/diw/dos/de6992833.htm [Last updated on 02.05.2015, last accessed on 07.05.2015].

Fiorito, Lorenzo (2005): *Teaching English for Specific Purposes (ESP). How is English for Specific Purposes (ESP) different from English as a Second Language (ESL), also known as general English?* Issued by: UsingEnglish.com (UE). Online available at: http://www.usingenglish.com/articles/teaching-english-for-specific-purposes-esp.html [Last accessed on 08.05.2015].

Gavrilova, Elena, Trostina, Kira (2014): "Teaching English For Professional Purposes (EPP) vs Content And Langauge Integrated Learning (CLIL): The Case of Plekhanov Russian University of Economics (PRUE)." In: *European Scientific Journal* (2), 7–17. Online available at: http://eujournal.org/index.php/esj/article/viewFile/3686/3485 [Last accessed on 09.05.2015].

Gesundheitsministerkonferenz (Gmk) (2014): *87. Gesundheitsministerkonferenz 2014. Hamburg*. Online available at: https://www.gmkonline.de/documents/TOP73BerichtP_Oeffentl _Bereich.pdf last updated on 30.06.2014 [Last accessed on 07.05.2015].

Gillett, Andy (2011): *Using English for Academic Purposes A Guide for Students in Higher Education What is EAP?* Issued by: Using English for Academic Purposes. Online available at: http://www.uefap.com/ bgnd/eap.htm [Last updated on 19.03.2015, last accessed on 08.05.2015].

Glendinning, Eric H., Howard, Ron (eds.) (2010): *Professional English in use. Medicine*. 4th edition. Cambridge, Stuttgart: Cambridge Univ. Press, Klett.

González Ardeo, Joseba (2013) "(In)compatability of CLIL and ESP courses at university." In: *Language Value* (5/1), 24–47. Online available at: http://www.unifg.it/sites/default/files/allegatiparagrafo/17-12-2014/gonzalez_ardeo_incompatibility_of_clil_and_esp.pdf [Last accessed on 09.03.2015].

Gotti, Maurizio, Giannoni, Davide S. (2006): *New trends in specialized discourse analysis*. Bern, New York: Peter Lang. (Series: Linguistic insights, Vol. 44).

Grätzel von Grätz, Philipp (2014): *Ebola-Hilfseinsatz: Gröhe appelliert an Ärzte*. Issued by: ÄrzteZeitung. Online availabe at: http://www.aerztezeitung.de/medizin/ krankheiten/infektionskrankheiten/haemorrhagische-fieber/article/869683/ebola-hilfseinsatz-groehe-appelliert-aerzte.html [Last accessed on 05.03.2015].

Gustafsson, Magnus, Eriksson, Andreas (2011): "Collaborating for Content and Language Integrated Learning Collaborating for Content and Language Integrated Learning: The Situated Character of Faculty Collaboration and Student Learning." In: *Across the Discipline* (8/3). Online availabe at: http://wac.colostate.edu/atd/clil/gustafssonetal.cfm [Last accessed on 05.03.2015].

Györffi, Miklós (2008): *Language policy.* Issued by: European Union. Online available at: http://www.europarl.europa.eu/aboutparliament/en/display Ftu.html?ftuId=FTU_5.13.6.htm [Last accessed on 08.05.2015].

Hallet, Prof. Dr. Wolfgang (2010): *Content and Language Integrated Learning (CLIL).* Issued by: Justus-Liebig Universität Giessen, Department of English. Online available at: http://www.uni-giessen.de/ cms/faculties/f05/engl/tefl/teflstaff/prof/hallet/research-interests/content-and-language-integrated-learning-clil [Last updated on 22.07.2010, last accessed on 10.05.2015].

Hallet, Prof. Dr. Wolfgang (2001): „Interplay der Kulturen: Fremdsprachenunterricht als 'hybrider Raum'. Überlegungen zu einer kulturwissenschaftlich orientierten Textdidaktik." In: *Zeitschrift für Fremdsprachenforschung* (12/2), S. 103–130.

Haße, Wolfgang, Fischer, Rudolf (2001): „Englisch in der Medizin: Der Aus- und Weiterbildung hinderlich." In: *Deutsches Ärzteblatt* (98/47), 25–76. Online available at: http://www.aerzteblatt.de/archiv/29547/Englisch-in-der-Medizin-Der-Aus-und-Weiterbildung-hinderlich [Last accessed on 05.03.2015].

Hellekjaer, Glenn Ole (2010): "Language matters - Assessing lecture comprehension in Norwegian English-medium higher education". In: Dalton-Puffer, Christiane, Nikula, Tarja, Smit, Ute (Hg.) (2010): *Language Use and Language Learning in CLIL Classrooms.* Amsterdam, Philadelphia: John Benjamins.

Hessisches Ministerium für Wissenschaft und Kunst (HMWK) (2015): *Programs in English.* Issued by: Hesse State Ministry of Higher Education, Research and the Arts, Wiesbaden. Online available at: http://www.study-in-hessen.de/front_content.php?idcat=27 [Last accessed on 08.07.2015].

Hogan, Dan (ed.): *ScienceDaily.* Online available at: http://www.sciencedaily.com/ [Last accessed on 05.03.2015].

Hornung, Antonie, Carobbio, Garobbio, Sorrentino, Daniela (2014): *Diskursive und textuelle Strukturen in der Hochschuldidaktik: Deutsch und Italienisch im Vergleich.* Münster, New York: Waxmann.

Hrdina, Christian, Hrdina, Robert (2009): *Langenscheidt Scientific English für Mediziner und Naturwissenschaftler.* Berlin: Langenscheidt.

Huss, Norma, Schiller, Sandra, Schmidt, Matthias (2013): *Fachenglisch für Pflege und Pflegewissenschaft. English for professional nursing.* Berlin, Heidelberg: Springer.

Hwang, Yanling, Lin, Siouzih (2010): "A Study of Medical Students' Linguistic Needs in Taiwan." In: *The Asian ESP Journal* (6/1), 1–149. Online available at: http://asian-esp-journal.com/images/ pdf/May_2010_Ebook.pdf [Last accessed on 10.05.2015].

Ikeda, Makoto, Pinner, Richard, Mehisto, Peeter, Marsh, David (2013): "Editorial" In: *International CLIL Research Journal* (2/1). Online available at: http://www.icrj.eu/21/contents.html [Last accessed on 09.05.2015].

Inglin, Oswald (2013): *CLIL's little helpers: Tipps and Materialien für den immersiven Geschichtsunterricht.* Bern: Hep Verlag.

International Medical College (IMC) (2015): *Joint Degree Master Program.* Issued by: MIB GmbH, Münster. Online available at: http://www.med-college.de/de/master_ program/index.php [Last accessed on 08.07.2015].

International Teacher Training Organization (ITTO) (2005): *EFL teaching terminology and glossary*. Online available at: http://www.teflcertificatecourses.com/tefl-articles/eflteaching-terminology.php [Last accessed on 08.05.2015].

Jahnke, Isa, Wildt, Johannes (2011): *Fachbezogene und fachübergreifende Hochschuldidaktik.* Bielefeld: Bertelsmann Verlag.

Jensen, Maurice (2015): *English-language Master's programmes*. Issued by: Medizinische Fakultät Heidelberg, Studiendekanat. Online available at: http://www.uni-heidelberg.de/courses/prospective/academicprograms/ master_en.html [Last accessed on 08.07.2015].

Johnson, Robert Keith, Swain, Merrill (1997): *Immersion education: International perspectives*. Cambridge: Cambridge University Press.

Juan-Garau, Maria, Salazar-Noguera, Joana (2015): *Content-based Language Learning in Multilingual Educational Environments*. Cham: Springer International Publishing (Series: Educational Linguistics, Vol.23).

Julius-Maximilians-Universität Würzburg - International Office (JMUW-IO) (2015): *International: Courses in English.* Issued by: Service Center International Affairs. Universität Würzburg. Online available at: http://www.international.uni-wuerzburg.de/studieren_in_wuerzburg/

austauschstudium/vor_der_abreise/courses_in_english/ [Last accessed on 08.07.2015].

Jung, Udo O.H., Kolesnikova, Angelina (Hrsg.) (2003): *Fachsprachen und Hochschule. Forschung - Didaktik - Methodik*. Frankfurt a.M., Bern: Peter Lang (Series:Bayreuther Beiträge zur Glottodidaktik, Vol. 9).

Justus-Liebig Universität Giessen, International Office (JLU-IO) (2015a): *English-Language/International Degree Courses, Graduate Programs, and Graduate Schools*. Issued by: Justus-Liebig Universität Giessen. Online available at: https://www.uni-giessen.de/cms/international-pages/international-study/courses [Last accessed on 08.07.2015].

Kennedy, Chris, Bolitho, Rod (1984): *English for specific purposes*. London: Macmillan.

Knapp, Karlfried, Seidlhofer, Barbara (eds.) (2009): *Handbook of Foreign Language Communication and Learning*. Berlin: Walter de Gruyter.

Krümmbein, Reitz (2014): „Praxisorientierung in der sozialwissenschaftlichen Hochschulbildung." In: Rodrian-Pfennig, Margit: *Reflexive Lehrforschung an der Hochschule: Partizipations-, Forschungs- und Praxisorientierung in sozialwissenschaftlichen Lehr-/Lernverhältnissen*. Opladen: Budrich.

Kruse, Susanne, Müller, Birgit (2014): *Hannover Biomedical Research School (HBRS)*. Issued by: Clinic for Immunology and Rheumatology - Coordination office, Hanover. Online available at: https://www.mh-hannover.de/hbrs.html [Last accessed on 08.07.2015].

Krux, Miguel et al. (2015): *Medizinische Hochschule Hannover (MHH) (Hannover Medical School) Info for Students*. Issued by: moveonnet - Higher Education Worldwide, Stuttgart. Online available at: http://www.moveonnet.eu/directory/institution/infos_for_students?id= DEHANNOVE02 [Last accessed on 08.07.2015].

Lemke (2001): "Foreword". In: Wellington, Jerry, Osborne, Jonathan (2001): *Language and Literacy in Science Education*. Buckingham, Philadelphia: Open University Press.

London English Academy (LEA) (2015): *English for Medical Purposes*. London. Online available at: http://lea.edu.my/english-for-medical-purposes [Last accessed on 05.03.2015].

Lippert-Burmester, Wunna, Lippert, Herbert (2008): *Medizinische Fachsprache leicht gemacht. Lehr- und Arbeitsbuch*. 5. Aufl. Stuttgart: Schattauer.

Llinares, Ana, Morton, Tom, Whittaker, Rachel (2012): *The roles of language in CLIL*. Cambridge, New York: Cambridge University Press.

Loughran, John J. (2002): "Effective Reflective Practice: In Search of Meaning in Learning about Teaching." In: *Journal of Teacher Education* (53/1), 33–43. Online available at: http://oneteacher.global2.vic.edu.au/ files/2014/09/Loughlan-242761j.pdf [Last accessed on 09.05.2015].

Ludwig-Maximilians-Universität, International Office (LMU-IO) (2015b): *International Course (I-Course)*. Issued by: Ludwig-Maximilians-Universität - Auslandsreferat Medizin, München. Online available at: http://www.med.uni-muenchen.de/studium_international/mecum-international/icourse/index.html [Last accessed on 08.07.2015].

Ludwig-Maximilians-Universität, International Office (LMU-IO) (2015a): *Requirements, Language Skills, German Courses - Medizinische Fakultät - LMU München*. Issued by: Ludwig-Maximilians-Universität - Auslandsreferat Medizin, München. Online available at:http://www.med.uni-muenchen.de/studium_international/ incoming_en/voraussetzungen/ index.html [Last accessed on 08.07.2015].

Ludwig-Maximilians-Universität, Studiendekanat (LMU-FB07) (2015a): *Master Programs - LMU Munich*. Issued by: Ludwig-Maximilians-Universität München, München. Online available at: http://www.en.uni-muenchen.de/students/degree/master_programs/index.html [Last accessed on 08.07.2015].

Ludwig-Maximilians-Universität, Studiendekanat (LMU-FB07) (2015b): *Master of Science Epidemiologie (MSc) - Programm - Masterstudiengänge Public Health und Epidemiologie - LMU München*. Issued by: Ludwig-Maximilians-Universität München. Online available at: http://www.m-publichealth.med.uni-muenchen.de/msc/index.html [Last updated on 04.07.2015, last accessed on 08.07.2015].

Luke, Allen, Luke, Carmen, Graham, Philip W. (2007): "Globalization, corporatism, and critical language education." In: *International Multilingual Research Journal* (1), 1–13.

Maher, John (1986, online 2008): "Language Teaching: English for Medical Purposes." In: *Cambridge Journals* (19/2), 112–145. Online available at:

http://journals.cambridge.org/action/displayAbstract?fromPage=online&aid=2761700 [Last accessed on 05.03.2015].

Maillat, Didier (2010): "The pragmatics of L2 in CLIL". In: Dalton-Puffer, Christiane, Nikula, Tarja, Smit, Ute (Hg.) (2010): *Language Use and Language Learning in CLIL Classrooms.* Amsterdam, Philadelphia: John Benjamins.

Malkova, Mariana (2015): *Bilaterale Austauschprogramme - Hochschulkooperationen weltweit..* Issued by: International Office, Philipps-Universität Marburg. Online available at: https://www.uni-marburg.de/international/partner/partnerinfo [Last updated on 09.05.2015, last accessed on 09.05.2015].

Manitoba Education, Citizenship and Youth (2008): *Curriculum policy for the French Immersion Program. (3rd ed.).* Online available at: http://www.edu.gov.mb.ca/k12/docs/policy/frenchimm/document.pdf [Last updated on 16.01.2015, last accessed on 08.05.2015].

Männikkö, Annika (2014): *Courses offered in English.* Issued by: Faculty of Health Sciences, University of Eastern Finland, Kuopio. Online available at: https://www2.uef.fi/documents/1054973/1102122/english_courses_2014-15(2).pdf/08e4 e053 -a833-47ca-a8af-b6f4e17b6200 [Last accessed on 08.07.2015].

Marsh, David, Langé, Gisella (2000): *Using Languages to Learn and Learning to Use Languages.* Jyväskylä/ Milan: TIE-CLIL.

Marsh, David (eds.) (2002): *CLIL/EMILE – The European dimension: Actions, trends and foresight potential. Strasbourg: European Commission.* Online available at: http://clil-cd.ecml.at/LinkClick.aspx?fileticket=ekwp4udVLfQ%3D&tabid=947&language=en-GB [Last accessed on 10.07.2014].

Marsh, David (2008): *Using languages to learn and learning to use languages.* Online available at: http://archive.ecml.at/mtp2/clilmatrix/pdf/1UK.pdf [Last updated on 23.05.2008, last accessed on 08.05.2015].

Marsh, David (2012): *Quality interfaces. Examining evidence & exploring solutions in CLIL.* Eichstätt: Eichstaett Acad. Press (Series: Eichstätter Schriftenreihe Kontinuum des Lernens, Vol. 4).

McKendry, Eugene (2006): *Immersion Education: A Short Guide for Teachers.* Belfast. Online available at: http://www.comhairle.org/english/PDFs/publications/Immersion%20

Education-%20A%20Guide%20for%20Teachers.pdf [Last updated on 23.06.2011, last accessed on 08.05.2015].

Medical Sciences Office (2015): *Study Medicine at Oxford.* Issued by: University of Oxford. Online available at: http://www.medsci.ox.ac.uk/study/medicine/pre-clinical/structure/home#first-bm [Last accessed on 10.05.2015].

Medizinische Hochschule Hannover (MHH) (2005): *Biomedizin Master - English Information.* Issued by: Institut für Molekularbiologie, OE 5250, Hannover. Online available at: http://www.mh-hannover.de/4538.html, last updated on 2015 [Last accessed on 08.07.2015].

Medizinische Hochschule Hannover (MHH) (2015a): *European Master of Science in Midwifery.* Issued by: Frauenklinik – Studiengangskoordinatorin, Hannover. Online available at: http://www.mh-hannover.de/masterstudienganghebammen.html [Last accessed on 08.07.2015].

Medizinische Universität Wien, International Office (MU-W, IO) (2015): *Language Requirement & Courses.* Issued by: Medizinische Universität Wien. Online available at: http://www.meduniwien.ac.at/ homepage/content/studium-lehre/international/language-requirement-courses/ [Last accessed on 08.07.2015].

Medizinische Universität Wien, Studienabteilung (MU-W, St.Ab.) (2015): *Diplomstudium Humanmedizin / Human Medicine (N202).* Issued by: Studien- und Prüfungsabteilung, Medizinische Universität Wien. Online available at: http://www.meduniwien.ac.at /homepage/content/studium-lehre/studienangebot/n202/?Fsize=0 [Last accessed on 08.07.2015].

Mehisto, Peeter, Marsh, David, Frigols Maria Jesús (2008): *Uncovering CLIL: Content and Language Integrated Learning in Bilingual and Multilingual Education.* Oxford: Macmillan.

Miguel F. Ruiz-Garrido, Fortanet-Gómez, Inmaculada (2009): *Needs Analysis in a CLIL Context: A Transfer from ESP.* Online available at: http://www.icpj.eu/?id=23 [Last accessed on 08.05.2015].

Müllauer, Sabine, Hohenester, Sabine, Haag, Christina (2007): *Englisch im klinischen Alltag. Kitteltaschenbuch für den Auslandsaufenthalt.*Berlin: Lehmanns.

Müller, Jens (2015): *Erfolgreich Medizin studieren in Lübeck.* Issued by: Bereich Studium und Lehre der Sektion Medizin. Universität zu Lübeck. Online available at: https://www.uni-luebeck.de/studium/studiengaenge/

humanmedizin.html [Last updated on 19.06.2015, last accessed on 08.07.2015].

Mungra, Philippa (2010): "Teaching writing of scientific abstracts in English: CLIL methodology in an integrated English and Medicine course." In: *Ibérica* (2), 151–166. Online available at: http://www.aelfe.org/documents/07_20_Mungra.pdf [Last accessed on 10.05.2015].

Niebel, Daniel (2015): *Medizin (Studienort Heidelberg).* Issued by: Medizinische Fakultät Heidelberg Studiendekanat. Online available at: http://www.uni-heidelberg.de/studium/interesse/faecher/medizin_hd.html [Last accessed on 08.08.2015].

Nnaji, Michael, Meyer, Gerd Jürgen (2009): *Englisch für Mediziner. Case presentations*. 1. Aufl. Bern: Huber Hans.

Nova Southeastern University - Health Care Center (NSU-CARE) (2008): *Patient history form*. Issued by: Nova Southeastern University, Florida. Online available at: http://www.nova.edu/healthcare/ forms/patient_medical_history.pdf [Last accessed on 08.07.2015].

Papaja, Katarzyna (2012): "The impact of students' attitude on CLIL: A study conducted in higher education." In: *Latin American Journal of Content and Language Integrated* (5/2), 28–56. Online available at: http://www.unifg.it/sites/default/files/allegatiparagrafo/21-01-2014/ papaja_the_impact_of_students_attitudes_on_clil.pdf [Last accessed on 10.03.2015].

Päßler, Birgit (2015): *HTWK Leipzig: Frequently asked questions*. Issued by: Department of Student Affairs, Leipzig University of Applied Sciences. Online available at: https://www.htwk-leipzig.de/en/study-here/frequently-asked-questions/ [Last accessed on 08.07.2015].

Peachey, Nik (2003): *Content-based instruction*. Issued by: BBC. Online available at: https://www.teachingenglish.org.uk/article/content-based-instruction [Last updated on 07.05.2015, last accessed on 08.05.2015].

Philipps-Universität Marburg International Office (PUM-IO) (2014): *mobility online – Austauschmöglichkeiten*. Issued by: Philipps-Universität Marburg - International Office. Online available at: https://www.uni-marburg.de/international/partner/portal [Last updated on 10.05.2015, last accessed on 10.05.2015].

Pinner, Richard (2013): "Authenticity of Purpose: CLIL as a way to bring meaning and motivation into EFL contexts." In: *Asian EFL Journal*

(15/4). Online available at: http://www.academia.edu/ 6315342/Authenticity_of_Purpose_CLIL_as_a_way_to_bring_meaning_a nd_motivation_into_EFL_contexts [Last accessed on 08.05.2015].

Pohl, Dr. Reinfried et al. (2013): Medizindidaktik − Willkommen auf den Seiten des Medizindidaktik Programms. Issued by: Philipps-Universität Marburg, Marburger Interdisziplinäres Skills Lab. Online available at: https://www.uni-marburg.de/fb20/rpz/medizindidaktik [Last accessed on 09.05.2015].

Pohl, Dr. Reinfried et al. (2015): Ärzte mit Sprachbarrieren. Issued by: Zentrum für Medizinische Lehre, Fachbereich Medizin. Philipps-Universität Marburg. Online available at: https://www.uni-marburg.de/fb20/rpz/aerzte_mit_sprachbarrieren+&cd=1&hl=de&ct =clnk&gl=de [Last accessed on 09.05.2015].

Porzucki, Nina (2014): *Nobel Prize: How English beat German as language of science*. Issued by: BBC News. Online available at: http://www.bbc.com/news/magazine-29543708 [Last accessed on 07.05.2015].

Quennet, Fabienne (2010): *English for Students of Medicine (Wahlpflichtfach Vorklinikum) (B2-C1)*. Issued by: Philipps-Universität Marburg. Online available at: http://kursbuchung.online.uni-marburg.de/spz/sprachen/011/ sprache0_.html [Last accessed on 08.07.2015].

Rasch, Uwe (2015): *Medical English 2*. Issued by: Westfälische Wilhelms-Universität Münster − Sprachenzentrum. Online available at: http://spz.uni-muenster.de/de/courses/14033 [Last accessed on 08.07.2015].

Reeves, Carol (2005): *The language of science*. London/ New York: Routledge.

Regierungspräsidium Giessen (Reg.-Pr. Gi) (2015a): *Humanmedizin*. Gießen. Online available at: http://www.rp-giessen.hessen.de/irj/RPGIE_Internet? cid=18a71aebe 75fd57b12f18a0b0f6e3bc9 [Last updated on 10.05.2015, last accessed on 10.05.2015].

Regierungspräsidium Giessen (Reg.-Pr. Gi) (2015b): *Humanmedizin-Prüfungen*. Online available at: http://www.rp-giessen.hessen.de/irj/RPGIE_Internet?cid=0c29204bf0e9eafb41be0c 1444908be0 [Last accessed on 09.05.2015].

Ribes, Ramón, García Gimeno, Isabel, Jones, Roger (2008): *Primary Care and Internal Medicine English*. Dordrecht: Springer.

Ribes, Ramón, Mejía, Sergio (2008): *Cardiovascular English*. Berlin, Heidelberg: Springer.

Ribes, Ramón, Ros, Pablo R. (2008): *Medical English*. 2. ed. Berlin, Heidelberg: Springer.

Richards, Jack. C., Rodgers, Theodore, S. (2001): *Approaches and Methods in Language Teaching*. (2. ed.). Cambridge: Cambridge University Press.

Rigas Stradina University - Faculty of Medicine (RSU-FM) (2015a): *Faculty of Medicine*. Issued by: Rigas Stradina University, Riga. Online available at: http://www.rsu.lv/eng/faculties/medicine-and-healthcare/faculty-of-medicine [Last accessed on 08.07.2015].

Rigas Stradina University - Faculty of Medicine (RSU-FM) (2015b): *ECTS Guide "Medicine"*. Issued by: Rigas Stradina University, Riga. Online available at: http://www.rsu.lv/eng/index.php/current-students/ects-guide/medicine [Last accessed on 08.07.2015].

Riou, Bruno (2015): *La Faculté*. Issued by: Faculté de médicine. Université Pierre et Marie Curie, Paris. Online available at: http://www.medecine.upmc.fr/fr/la_faculte.html [Last updated on 08.07.2015, last accessed on 08.07.2015].

Robinson, Pauline (1991): *ESP today: A practitioner's guide*. London: Prentice Hall.

Rodrian-Pfennig, Margit (Hrsg.) (2014): *Reflexive Lehrforschung an der Hochschule. Partizipations-, Forschungs- und Praxisorientierung in sozialwissenschaftlichen Lehr-/Lernverhältnissen*. Opladen: Budrich UniPress.

Sasajima, Shigeru (2013): "How CLIL Can Impact on EFL Teachers' Mindsets about Teaching and Learning: An Exploratory Study on Teacher Cognition." In: *International CLIL Research Journal* 2013 (2/1), 55–66. Online available at: http://www.icrj.eu/21/article5.html [Last accessed on 09.03.2015].

Schiller, Sandra (2011): *Fachenglisch für Gesundheitsberufe. Physiotherapie, Ergotherapie, Logopädie*. 3. ed. Berlin, Heidelberg: Springer.

Seewald, Berthold (2014): *Deutsche Patienten sollen Englisch lernen*. Issued by: Die Welt. Online available at: http://www.welt.de/politik/deutschland/article123697984/Deutsche-Patienten-sollen-Englisch-lernen.html [Last accessed on 05.03.2015].

Semmelweis University - Faculty of Medicine (SU-FM) (2015a): *Faculty of Medicine*. Issued by: Semmelweis University, Budapest. Online available at: http://semmelweis.hu/english/faculties/medicine/ [Last accessed on 08.07.2015].

Semmelweis University - Faculty of Medicine (SU-FM) (2015b): *Academic Programmes*. Issued by: Semmelweis University, Budapest. Online available at: http://semmelweis.hu/ english/faculties/medicine/academic-programmes/ [Last accessed on 08.07.2015].

Snipes (1998): *Planning a "Famulatur".* Issued by: Justus-Liebig Universität Gießen, Fachbereich Medizin. Online available at: http://www.uni-giessen.de/cms/fbz/fb11/studium/medizin/ausland/planning%20a%20famulatur [Last updated on 15.07.2011, last accessed on 09.05.2015].

Stoller, Fredricka L. (2002): *Content-Based Instruction: A Shell for Language Teaching or a Framework for Strategic Language and Content Learning?* Keynote speech presented at the annual meeting of Teachers of English to Speakers of Other Languages. Salt Lake City, Utah. Online available at: http://www.carla.umn.edu/cobaltt/modules/strategies/ Stoller2002/READING1/stoller2002.htm [Last accessed on 08.05.2015].

Strevens, Peter (1988): "ESP after twenty years: A re-appraisal." In: Tickoo, Makhan (ed.): *ESP: State of the art*. Singapore: SEAMEO Regional Language Centre, 1-13.

Strong, Helen (2012): "Business English, CLIL and ESP." In: *BusinessSpotlight -Englisch für den Beruf*. Online available at: http://www.business-spotlight.de/blogs/helen-strong/business-english-clil-and-esp [Last accessed on 10.03.2015].

Tardy, Christine (2004): "The role of English in scientific communication: lingua franca or Tyrannousaurus rex?" In: *Journal of English for Academic Purposes* (3/3), 247–269. Online available at: http://www.researchtrends.com/issue6-july-2008/english-as-the-international-language-of-science/ [Last accessed on 10.06.2015].

Tickoo, Makhan L. (1988): *ESP. State of the art. Singapore*. SEAMEO Regional Language Centre (Anthology series, 21), 1-13.

Univadis (2014): *Deutsch-Check: GMK einigt sich auf Eckpunkte für Medizinberufe*. Issued by: MSD Sharp & Dohme. Online available at: http://www.univadis.de/gesundheitspolitik/ 174/Deutsch-Check-GMK-einigt-sich-auf-Eckpunkte-fuer-Medizinberufe#? [Last accessed on 07.05.2015].

Université de Lausanne, Faculté de biologie et de médecine (UNIL-Fbm) (2014): *Médecine - Baccalauréat universitaire en Médecine.* Issued by: University of Lausanne. Online available at: http://www.unil.ch/Benseignement/home/menuinst/bachelors/medecine.html [Last accessed on 08.07.2015].

Université de Lausanne, Faculté de biologie et de médecine (UNIL-Fbm) (2015): *Les Masters/Maîtrises universitaires de l'Université de Lausanne.* Issued by: University of Lausanne, Lausanne. Online available at: http://www.unil.ch/enseignement/ home/menuinst/masters.html [Last accessed on 08.07.2015].

Universität Leipzig – Medizinische Fakultät (UL-MF) (2015): Clinical Research & Translational Medicine. Issued by: Universität Leipzig, Studienkoordination. Online available at: http://www.zv.uni-leipzig.de/ studium/angebot/studiengaenge/ studiendetail.html?ifab_id=329 [Last accessed on 10.07.2015].

University of Bergen, Faculty of Medicine (UiB-FM) (2009): *Courses and Programmes.* Issued by: Student Affairs Office. University of Bergen. Online available at: http://www.uib.no/en/education/48759/courses-and-programmes [Last updated on 13.10.2014, last accessed 08.07.2015].

University of Bergen, Faculty of Medicine (UiB-FM) (2013): *Master's Programmes - Quota.* Issued by: Division of Student Affairs. University of Bergen. Online available at: http://www.uib.no/ en/education/50056/masters-programmes-quota# [Last updated on 23.03.2015, last accessed on 08.07.2015].

University of Bergen, International Office (UiB-IO) (2015): *Courses for exchange students.* Issued by: University of Bergen. Online available at: http://www.uib.no/en/education/exchange [Last accessed on 08.07.2015].

University of Eastern Finland, International Office (UEF-IO) (2015): *Courses offered in English for Exchange Students.* Issued by: University of Eastern Finland, Faculty of Health Sciences/ School of Medicine, Kuopio. Online available at: http://www2.uef.fi/documents/1054973/2671492/english_courses_2015-16.pdf/0e9a934f-ef54-44e5-bf29-e9180ca41a6c [Last updated on 08.05.2015, last accessed on 08.07.2015].

University of Granada, Faculty of Medicine - Mobility Office (UG-FM, MO) (2014): Faculty *of Medicine – University of Granada.* Issued by: University of Granada, Granada. Online available at:

http://medicina.ugr.es/movilidad/infosheetsubjects1415.pdf [Last updated on 21.03.2014, last accessed on 08.07.2015].

University of Lisbon, Faculty of Medicine (UL-FM) (2015): *Faculdade de Medicina da Universidade de Lisboa - Organização*. Issued by: University of Lisbon. Online available at: http://www.medicina.ulisboa.pt/ organizacao/a-organizacao-da-fmul/ [Last accessed on 08.07.2015].

University of Seville, Faculty of Medicine - International Office (US-FM, IO) (2015): *Studying at the University of Seville.* Issued by: University of Seville. Online available at: https://www.internacional.us.es/en/estudiar-us [Last updated 02.07.2015, last accessed on 08.07.2015].

University of Seville, Faculty of Medicine (US-FM) (2015a): *Grado en Medicina*. Issued by: University of Seville. Online available at: http://www.us.es/estudios/grados/plan_172 [Last updated on 07.07.2015, last accessed on 08.07.2015].

University of Seville, Faculty of Medicine (US-FM) (2015b): *Faculty of Medicine*. Issued by: University of Seville. Online available at: http://www.us.es/eng/centres/ uscentres/centro_13 [Last updated on 07.07.2015, last accessed on 08.07.2015].

University of Strasbourg, Studienkoordination (USt-St.Koord.) (2015): *Courses taught in English*. Issued by: Direction des Etudes et de la Scolarité. Université de Strasburg. Online available at: http://medecine.unistra.fr/fre [Last accessed on 08.07.2015].

University of Bologna - Public Relations Office (URP) (2015a): *First and Second cycle degree programmes*. Issued by: University of Bologna. Online available at: http://www.unibo.it/en/teaching/degree-programmes?corsiper=exchange [Last accessed on 08.07.2015].

University of Bologna - Public Relations Office (URP) (2015b): *International and Erasmus Mundus Professional Master's Programmes.* Issued by: University of Bologna. Online available at: http://www.unibo.it/en/teaching/professional-master/information-on-professional-master/international-and-erasmus-mundus-professional-master [Last accessed on 08.07.2015].

Utrecht University, Faculty of Medicine (UU-FM) (2015a): *Education*. Issued by: Utrecht University, Studiendekanat. Online available at: http://www.uu.nl/en/education/exchange-and-visiting-students/course-information/faculty-of-medicine [Last accessed on 08.07.2015].

Utrecht University, Faculty of Medicine (UU-FM) (2015b): Master's *Programmes - Masters - Universiteit Utrecht. Utrecht* Issued by: University of Utrecht, Studiendekanat. Online available at: http://www.uu.nl/masters/en/masterprogrammas/voertaal/engels-46/interessegebied/gezondheid-van-mens-en-dier-54/faculteit/geneeskunde-21#main-content [Last accessed on 08.07.2015].

Utrecht University - International Office (UU-IO) (2015): *Exchange and visiting students*. Issued by: Utrecht University, Faculty of Medicine. Online available at: http://www.uu.nl/en/education/exchange-and-visiting-students/course-information/faculty-of-medicine [Last accessed on 08.07.2015].

Verein Für soziales Leben e.V. (2015): *Blaue Karte EU*. Online available at: http://www.bluecard-eu.de/blaue-karte-eu-deutschland/ [Last accessed on 07.05.2015].

Verein für Sprachpflege (2014): *Welttag der Muttersprache: Zugewanderte Ärzte müssen gutes Deutsch können*. Pressemitteilung 2014-02-20. Erlangen. Online available at: http://deutschesprachwelt.de/berichte/pm-2014-02-20.shtml [Last accessed on 05.03.2015].

Veselá, Katerina (2014): *Teaching ESP in New Environments CA-CLIL*. Braga: ASPA. Online available at: http://www.academia.edu/6245524/Teaching_ESP_ in_New_Environments_CA-CLIL [Last accessed on 10.03.2015].

Voogt, Gerhard (2014): *Mehr Ärzte aus dem Ausland: NRW-Minister: Patienten sollten Englisch lernen*. Online available at: http://www.rp-online.de/nrw/landespolitik/nrw-minister-patienten-sollten-englisch-lernen-aid-1.3930552 [Last accessed on 05.03.2015].

Walter, Claudia, Waldherr Franz (2011): "Conceptual Change als Grundkonzept des Basisseminar Hochschuldidaktik: Veränderung im Lehrverhatlen erzielen." In: Janke, Isa, Wildt, Johannes: *Fachbezogene und fachübergreifende Hochschuldidaktik*. Bielefeld, Bertelsmann Verlag.

Wildt, Beatrix (2011): "Beratung Fachbezogene und Fächer-übergreifende hochschuldidaktische Strategie." In: Janke, Isa, Wildt, Johannes: *Fachbezogene und fachübergreifende Hochschuldidaktik*. Bielefeld, Bertelsmann Verlag.

Wellington, Jerry, Osborne, Jonathan (2001): *Language and Literacy in Science Education*. Buckingham, Philadelphia: Open University Press.

Wolff, Dieter (2009): "Content and language integrated learning." In: Knapp, Karlfried, Seidlhofer, Barbara (eds.): *Handbook of Foreign Language Communication and Learning*. Berlin: Walter de Gruyter,, 545–572.

Wolff, Dieter, Marsh, David (2007): *Diverse contexts, converging goals. CLIL in Europe*. Frankfurt: Peter Lang (Series: Mehrsprachigkeit in Schule und Unterricht, Vol. 6).

ZSB -Zentrale Studienberatung der JLU (2015): *Medizin. Abschluss: Staatsexamen*. Issued by: Justus-Liebig Universität Gießen. Online available at: http://www.uni-giessen.de/cms/studium/ dateien/staatsexamen/ sfmedizin [Last updated on 16.03.2015, last accessed on 09.05.2015].

9 Appendix

i. The Extended CLIL-Matrix:

The 4 Cs

- Content
- Communication
- Cognition
- Culture

Scaffoling - Media

- Vocabulary toolkits
- Templates
- Visuals/Graphic organizers
- Charts
- Questionnaires

Content and Language Integerated Learning (CLIL)

Language Skills (CEFR)

- Listening
- Reading
- Spoken interaciton
- Spoken production
- Writing

Thinking Skills (Bloom´s Taxonomy)

[identify, classify/define, describe, explain, conclude/argue, evaluate, report/narrate]

- Knowledge (remembering)
- Comprehension (understanding)
- Application (applying)
- Analysis (anaylsing)
- Evaualtion (evaluting)
- Synthesis (creating)

[Illustration based on Inglin 2013:14]

ii. Analysis of German and European Medicine Programs

1. Hannover Medical School, Hanover

In general, the language of instruction for the medicine study program is German. This does also apply for exchange students. No extra courses held in English are offered (Krux 2015).

The only program related to the broad field of medicine held in English is the "European Master of Science in Midwifery", which is a collaborative

project of European medical faculties. Even though English is the language of instruction, individual assignments can be submitted in German (MHH 2015a). A master's program in biomedicine is also integrating English but not as language of instruction: "The program's main aim is to train the students' ability to develop research concepts, to obtain and treat experimental data and to communicate them in both German and English" (MHH 2005). Furthermore, there are international English PhD programs – these are, however, very common at all German universities. And the Hannover Biomedical Research School (HBRS) offering graduate programs and, thus, promoting international careers (Kruse & Müller 2014).

2. Charité University, Berlin

Likewise, all courses of the regular medicine study program in Berlin are held in German. Exchange students do also need German language skills to attend courses (Danz 2015). However, the language center offers courses on Medical English for fees that are certified by the Medical Chamber (ChIA 2015). There are three graduate programs for specializations related to human medicine programs that are conducted in English. These are Health & Society, Cerebrovascular Medicine and International Health (Ch-St.Koord. 2011).

3. Ruprecht-Karls-University, Heidelberg

Even though Heidelberg states that good English skills are indispensable for students interested in medicine, English is not integrated and necessary for the regular study program. German is the only language of instruction. Respectively, exchange students need a language certification (Niebel 2015). There are English-language master's programs related to the medical and health sector. These are Health Economics, Health and Society in South Asia,

International Health, Medical Physics with Distinction in Radiotherapy and Biomedical Optics, Molecular Biosciences (Jensen 2015). The two master programs in Medical Informatics and Medical Education are conducted both in English and German.

4. Ludwig-Maximilian-University, Munich

All courses within the regular medicine study program are held in German: Students of law, medicine, pharmaceutical sciences, and teacher education must take a State Examination (Staatsexamen). […]They are only offered in German. For further information, please visit the respective German websites" (LMU-FB07 2015a). Therefore, exchange students need good knowledge of German (LMU-IO 2015a). Though, voluntary courses held in English are offered to all medical students. Within these courses students get the opportunity to acquire the knowledge needed in an international and English-speaking environment (LMU-IO 2015b). The only health-related master's program held in English is in Epidemiology (LMU-FB07 2015b).

5. Westfälische Wilhelms-University, Münster

The University of Münster does not offer any English programs in the health sector. However, the university does have an International Medical College which only focuses dentistry and is as such not considered in the medicine related programs since it was not taken into account in all the other universities (IMC 2015). Furthermore, the language centre does provide medical English courses for students (Rasch 2015).

6. University of Lübeck, Lübeck

The regular medicine study program is solely conducted in German. There are some courses held in English which are part of Bachelor's and Master's programs related to medical research: Medical Engineering Science and

Molecular Life Science. These are open to regular and for exchange students. Probably these courses can also be chosen by regular medicine students since biomedical topics on e.g. infections and neuroscience, immunology or virology are covered (Müller 2015).

7. University of Leipzig, Leipzig

The University does not offer any programs taught in English except for international programs which are partially conducted in English (Päßler 2015). In the sector of medicine the only one offered is Clinical Research & Translational Medicine (UL-MF 2015). Medical exchange students need to have good German knowledge.

8. Julius-Maximilian-University, Würzburg

The regular medicine study is only held in German. Besides, courses taught in English and courses taught partly in English and partly in German are offered. These are normally part of international degree programs and are also available in the programs of Medical Science. Medical Science is among others focusing on neuroscience, neurobiology, biomedicine, biophysics and molecular biotechnology. These programs encompass e.g. courses concerned with e.g. genetics, immunology and infection that are probably also available for exchange students (JMUW-IO 2015).

9. Justus-Liebig-University, Gießen

The University of Gießen mainly offers classes in English at the Master's level. However, there are no English courses integrated in the regular medicine study, even though a study abroad period is compulsory for Gießen's focus area "Global Health" (JLU-IO 2015a).

10. Philipp University of Marburg, Marburg

Marburg does not have any international degrees or English-taught programs in the medicine and health sector. In Hesse, the only English-taught program related to the medical research area is a PhD program in Gießen called Molecular Biology and Medicine of the Lung (HMWK 2015). Both universities offer courses on English for Students of Medicine. In Marburg these can even be taken as voluntary course during the pre-clinical stage, however, a level of B2 to C1 is already required (Quennet 2010).

For this analysis and the findings only human medicine study programs were considered, either Bachelor's and Master's programs or State Examination degrees. Language courses not integrated as obligatory part into the study program but rather provided by external language centers were neither taken into account the development of the diagram. Seven out of ten universities offer medicine related programs partially taught in English. Only two universities, that do already have English programs, provide English classes for exchange students. The majority of medicine and health related English programs are offered in the research fields of medical science and biomedicine. None of these seven programs is directly comparable with the regular study of human medicine. The study field of dentistry seems by far more English-oriented and provides a variety of programs at least partially taught in English. These are not considered in this analysis since this would be beyond the scope of this thesis.

iii. Medicine Programs in Other European Member States

Naturally, the medicine study programs of other European universities cannot be directly compared with the German one. That some member states have

different licenses or do provide Bachelor-Master's programs instead of state examinations should not be forgotten. Nevertheless, an analysis can show a tendency on whether other European member states offer medicine study programs in English or at least partly. Therefore, 16 partner universities of Gießen and Marburg are analyzed. For this assessment the regular programs are mainly considered, although it is also looked at English courses offered for exchange students.

1. Utrecht University, Utrecht

The Utrecht University provides all information on different programs also in English. The university itself says that "Academic degree programmes taught in Dutch and/or English in most academic disciplines" (UU-FM 2015a). Since there is no program called just "medicine", rather programs related to medicine and the content of the German study program are summarized under the term Health and Life Sciences which encompasses biomedicine, medicine, clinical health and public health. Taking this into consideration the faculty of medicine of the Utrecht University provides 9 Master's programs with English as language of instruction as e.g. Cancer, Stem Cells and Developmental Biology, Epidemiology, Infection and Immunity, Neuroscience and Cognition or Toxicology and Environmental Health (UU-FM 2015b). For exchange students, the university indicates that students should have a certain language level: "Medicine courses are limited and are all in Dutch; only students who are fluent in Dutch language are accepted" (UU-IO 2015).

2. University of Bergen, Bergen

The University of Bergen offers a single medicine study program. However, it is clearly said that no Bachelor's degree programs are taught in English.

Thus, the admission for undergraduates requires knowledge of Norwegian. Apart from that, 30 regular master's degree programs are offered in English in the areas of Health and welfare, Humanities and aesthetic studies, Natural sciences and technical subjects, Social sciences, and Law and Psychology. There are just two medicine and health related programs focusing either on International Health or on Oral Sciences which does more apply to dentistry (UiB-FM 2015). Proficiency in English is required from students attending these programs. Besides, the University of Bergen offers a great variety of courses taught in English for exchange students, at undergraduate and postgraduate level (UiB-FM 2014). For instance, Human Immunobiology, Human Molecular Genetics, Basic Human Pathology, Vaccinology, pediatrics.[45]

3. University of Vienna, Vienna

The faculty of medicine of the University of Wien does not offer any courses or medical programs in English. Even though, it is indicated that students have the possibility to do the Famulatur abroad, considering the formalities. The faculty does offer help and has many partner universities listed that can be contacted (MU-W, St.Ab.2015). For incoming exchange students, course descriptions and curricula are available in English. However, the language of instruction in medicine programs is German. A language skill level of B1 in German according to the CEFR is recommended for exchange students. The international office does explicitly indicate that the "Language of instruction and of the exams is GERMAN" and correspondingly courses are held in German as well (MU-W, IO 2015).

---

[45] A complete overview can be found in (UiB-IO 2015).

4. University of Ghent, Ghent

The university in Ghent does not offer any regular courses taught in English. Neither incoming exchange students can choose English courses (Depauw, 2015a). Their statement is: "At the faculty of medicine and health sciences the language of instruction is Dutch. It is important to note that we do not offer an English curriculum." Even though some departments offer some courses in English for which a good knowledge of English (B2) is required, the Faculty of Medicine and Health Sciences does not (Depauw, 2015b).

5. University of Eastern Finland, Kuopio

Undergraduate programs are offered in Finnish, however, the Faculty of Health Sciences has international Master's Degree programs that are completely taught in English. Students interested in these can choose between the following four programs: General Toxicology and Environmental Risk Assessment, Health Promotion in Nursing Science, Public Health, Public Health Nutrition.[46] Besides, the University of Eastern Finland offers a great amount of medicine-related courses in English for exchange students, among others Evidence Based Health Care, Infectious Diseases or Clinical Neurology for Exchange Students.[47]

6. University of Strasbourg, Strasbourg

There is a range of courses partly but not only taught in English. Thus, a certain proficiency in French is needed. Moreover, there is only the possibility to attend these courses in the pharmaceutical sector, not in medicine (USt-St.Koord.). There seem to be no special courses in English for exchange students; rather a B1 level in French is required.

---

[46] A complete overview of the courses can be found in (Männikkö 2014).
[47] A complete overview of the courses can be found in (UEF-IO 2015).

7. Pierre and Marie Curie University, Paris

This University does have a faculty of medicine but does only provide French taught programs and all information on courses and content just in French (Riou 2015).

8. University of Bologna, Bologna

This university does have three departments that focus on health and medical related issues; these are the faculty of Biomedical and Neuromotor Sciences, Experimental, Diagnostic and Specialty Medicine and Medical and Surgical Sciences. Most of the programs are in Italian; even the courses for exchange students have Italian as language of instruction (URP 2015a). Besides, the University of Bologna offers international Master's Programs that are partly or completely taught in English. Two of these are medicine study programs: Chirurgia mini invasiva pediatrica (English, Italian) and Pulmonary Vascular Diseases (English) (URP 2015b).

9. Rigas Stradina University, Riga

The RSU provides full-time studies in English for the majority of their programs. The whole medicine program and all courses within the sector of Medicine and Healthcare are also entirely taught in English (RSU-FM 2015a). Thus, exchange students can attend nearly the whole program, already taking place in English (RSU-FM 2015b).

10. University of Lisbon, Lisbon

The ULisboa supports the initiatives of its Schools to provide an educational offer in the English language, still in general the language of instruction at Portuguese universities is Portuguese. It seems that the medicine faculty does not offer courses in English, the courses for exchange students cannot be seen (UL-FM 2015).

11. University of Lausanne, Lausanne

The language of instruction at the University of Lausanne is mainly French. However, some English is used for some Master's programs and a few undergraduate courses. All Bachelor courses provided by the Faculty of biology and medicine are entirely in French (UNIL-Fbm 2014). Four out of five Master's programs related to medicine are taught in English or French and English and focus either on Behavior, Evolution and Conservation, Medical Biology, Molecular Life Sciences (Bioinformatics, Microbiology or Integrative Biology), or Nursing Sciences (UNIL-Fbm 2015). Exchange students have the possibilities to take English master courses, for the undergraduate programs French is required.

12. University of Granada, Granada

Information from the Faculty of Medicine of the University of Granada state that there are no courses in English available; rather Spanish is the only language of instruction (UG-FM, MO). Students from abroad attending courses at the Faculty of medicine in Granada do need Spanish language knowledge.

13. University of Seville, Seville

Neither the undergraduates nor the postgraduates programs use English for instruction. However, for obtaining the degree, students need to have linguistic skills in another foreign language (level B1) (US-FM 2015a). Nevertheless, there are not courses taught in English in the medical sector, neither for exchange students (US-FM, IO 2015, US-FM 2015b).

14. Charles University, Prague

With a wide range of courses taught in English, Charles University provides stimulating opportunities for students from abroad. The Charles University offers a range of study programs in Czech and in English, thus providing a more international-oriented atmosphere. Furthermore, the University states that "most of the faculties provide study programs and courses in English, French and German language for international students" (CU-IAC 2015a). In medicine, students have a great choice between subjects taught in English that are part of the regular study or for exchange students (CU-IAC 2015b).

15. Ege University, Izmir

In the general requirements for admission, the university suggests that students are proficient in English or German. Only with these language qualifications, they are able to enroll. This is especially prerequisite for specific departments and programs offered partly in foreign languages (EU-OSA 2015a). The regular programs of the faculty of medicine are held in Turkish. However, students have courses of English language integrated in their study (EU-OSA 2015b). Courses for exchange students cannot be viewed.

16. Semmelweis University, Budapest

The Faculty of Medicine of Semmelweis' University offers its medicine study program in three languages: Hungarian, English and German (SU-FM 2015a, 2015b). These are open to regular and exchange students.

   The aim of this analysis of just a few partner universities spread across Europe was to assess if other European states use English as language of instruction or even CLIL-settings for their medicine study programs. First, it has to be mentioned that many universities do have Bachelor's and Master's

degree programs for medicine. Often just the postgraduate programs are in English. For the assessment this is not separately considered. Out of 16 universities, 9 do offer medicine programs partly or entirely in English, 7 do not integrate English as language of instruction. 5 universities do offer English taught courses or programs for exchange and international students. These 5 universities do already have regular medicine programs in or with English. There can be no clear tendency determined. However, it seems that the Eastern countries are more internationally oriented and have their study programs already modified by integrating English.

a. Course Activities

iv. Course 1, Module/ Topic 2: Session one

<u>Activity 1)</u> Introduction: Acute Differentiated Clinical Presentations

Brainstorming session and revision
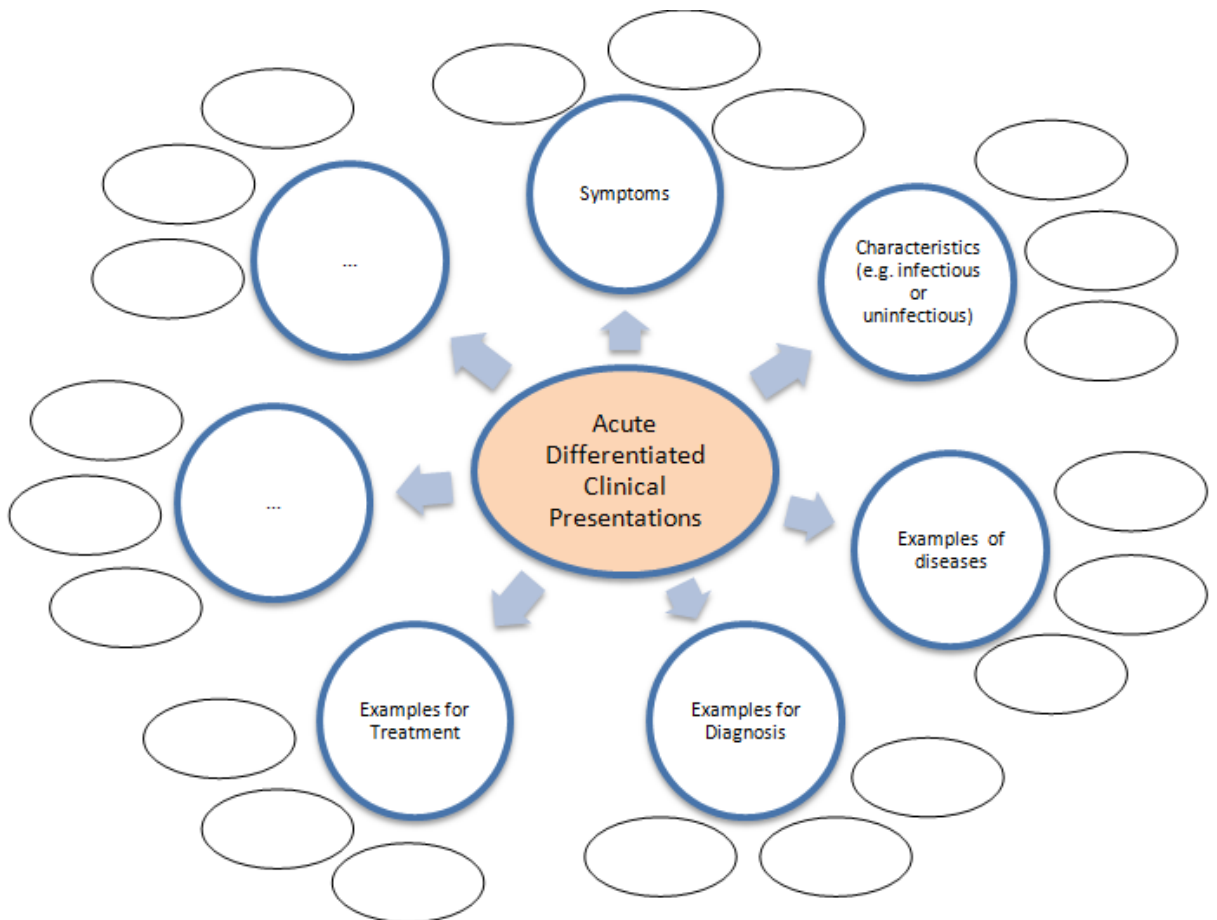
Activity 2) Concept enhancement: Pharyngitis & Influenza

Characteristics of these clinical presentations: Match the statements to the corresponding clinical presentation (symptoms, diagnosis, treatment, possible complications).Some may match to both clinical pictures. Add further points you can think of.

Pharyngitis	Influenza

- ear infection   - inflammation of the pharynx   - contagious   - require antibiotics
- pneumonia   - sneezing   - white patches   - take a throat culture   - Type A , B ,C
- check for swollen lymph nodes   - drinking plenty of fluids   -antiviral   - sinusitis
- runny nose   - physical exam   - sneezing   - loss of appetite - nausea   - droplet infection
- fatigue   - headache   -cough   - body/muscles aches   - vaccine
- chills and fever   - difficulty swallowing   - bacterial infections   - viral infection
- no response to antibiotics   -sore throat - soft palate   -hoarseness   -enlarged tonsils

Activity 3) Medical case 1: "Patient presents with…" (Handout)

Listen to the dialogue before you read it. Underline all symptoms presented while reading.

Mr.Cooper: Good morning, Dr. Smit!

Dr. Smit: Good morning! How may I help you?

Mr.Cooper: I have been suffering from severe difficulties when swallowing since yesterday.

Dr. Smit: Have you any other problem?

Mr.Cooper: I also feel very exhausted and weak. I need to cough sometimes and my ears hurt slightly.

Dr. Smit: Let me check if you have swollen lymph nodes and let's see if you have enlarged tonsils.

Mr.Cooper: OK.

Dr. Smit: Well, the lymph nodes are slightly swollen and you have white patches on your tonsils. Do you have fever as well?

Mr.Cooper: I don't know for sure but I feel really tired and exhausted, especially in the evening. Yesterday I tended to shiver as well.

Dr. Smit: Yes, that is typical. Don't worry, there is nothing serious. You are having a pharyngitis. I prescribe you some medicine, and you will be all right in a few days.

Mr.Cooper: Could you prepare a medical certificate for me to submit it in my office?

Dr. Smit: Yes, of course. You can take it with you when you leave. I shall recommend at least two days rest for you, no sports and exhausting exercises.

Mr.Cooper: Thank you very much. Please tell me how shall I take this medicine?

Dr. Smit: This medicine is an antibiotic. You have to take it for at least 7 days even though the symptoms may alleviate after two days. It is important to take the entire course as prescribed and not to stop taking the antibiotic as soon as you start feeling better. This prevents the infection from coming back. Take one in the morning and one in the evening with lots of water. You should also drink a lot and take throat lozenges. I will add these to your prescription.

Mr.Cooper: Alright, thank you very much.

Dr. Smit: Have a nice day and get well soon!

Question 1: What symptom does the patient have?

Question 2: What health problem does the patient have?

Question 3: What does the patient need to do?

Activity 4) Questions and Past Tense

A) Revision of Simple Past:

Complete the diagram with the following infinitives in the correct tense:

to have, to take, to do, to be, to feel, to like, to need, to want, to make

```
         ⌒⌒⌒⟶
    ┌──────────────┐        ┌──────────────────────┐
    │ • ...        │        │      ┌────────────────┤
    │ • ...        │        │      │ Simple Present │
    │ • ...        │        │      └────────────────┘
    │ • ...        │        │  • ...                 │
    │   ┌──────────┤        │  • ...                 │
    │   │Simple Past│       │                        │
    └───┴──────────┘        └──────────────────────┘
```
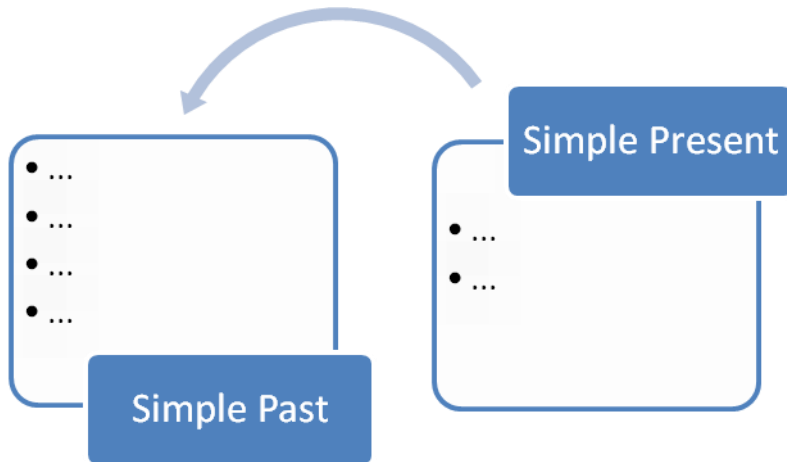
B) Simple questions and Wh-Questions: Complete the diagram with exemplary questions.

```
┌────────────────┐    ┌────────────────┐
│  Simple Past   │    │ Simple Present │
└────────────────┘    └────────────────┘
        ↓                     ↓
┌────────────────┐    ┌────────────────┐
│                │    │                │
└────────────────┘    └────────────────┘
        ↓                     ↓
┌────────────────┐    ┌────────────────┐
│                │    │                │
└────────────────┘    └────────────────┘
        ↓                     ↓
┌────────────────┐    ┌────────────────┐
│                │    │                │
└────────────────┘    └────────────────┘
```
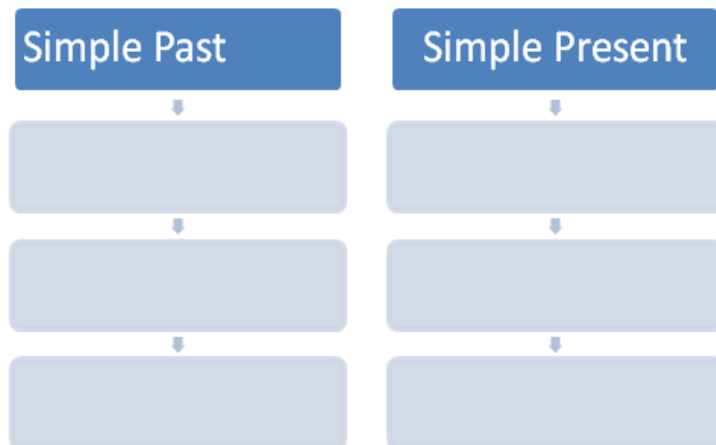
Activity 5) Take patient's medical history: Role play

Choose one role card and read it carefully, interact with your partner.

Person A - Mrs. McOath	Person B - Dr. Jones
Scene: Mrs. McOath has not been feeling well for the past few days. She has an appointment with her general physician. The physician Dr. Jones has to take the medical history and carry out a physical examination to make a diagnosis. (It is February; the weather is rather cold and wet.)	Scene: Mrs. McOath has not been feeling well for the past few days. She has an appointment with her general physician. The physician Dr. Jones has to take the medical history and carry out a physical examination to make a diagnosis. (It is February; the weather is rather cold and wet.)
You present with the following symptoms: • You have a runny nose and poor appetite (for already nearly a week, not very uncommon). • You have a very sore throat, feel weak and tired (started yesterday morning). • Yesterday evening you suddenly got chills and high fever as well. • Explain that you don't feel well enough to go to work (you need a medical certificate). • Ask about medication and side effects.	Ask questions to take McOath's history: • You may use your list with the characteristics/ questions as aid, take notes of the consultation for the necessary documentation. • Assess all symptoms and decide on further possible medical procedure • Carry out a physical examination if needed. • Explain your procedure and diagnosis to McOath. • Suggest treatment and drug administration. • Explain possible side effects.

[Own illustration]

Homework: At the Doctor's

(Solution provided, written text to be submitted)
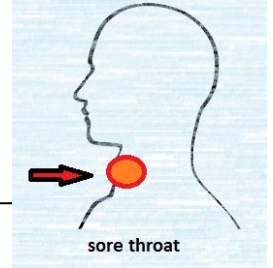
1. <u>Read the dialogue with a partner and take turns.</u>
   Practice your intonation and pronunciation.

Dr. House: Good morning, Mr. Praque. **How are you feeling today?**
Mr. Praque: I have **a bad sore throat**.
Dr. House: Okay. **When did it start?**
Mr. Praque: Five days ago.
Dr. House: **And do you have any other symptoms?Like coughing?**
Mr. Praque: I have a slight fever.
Dr. House: Okay. **I'll have a look at your throat**.
              Well, you have swollen tonsils and white coating on your tonsils.
              You have a tonsillitis.
              I'm going to give you a prescription for an antibiotic.
Mr. Praque: How often should I take it?
Dr. House :   **Take a pill three times a day for seven** days**. Take your
              antibiotic every 8 hours. It is important to complete the full
              course of treatment to prevent the infection from coming
              back.** You'll probably start to feel better **in a couple of   days.**
Mr. Praque: Thank you, Doctor House.

2. Try to find substitutes for the expressions in bold.

Write down new, helpful expressions and/or words.

For example: How are you feeling today? / What seems to be the problem?

What's bothering you? / What's the matter? / How can I help you?

Practice continued, examples:

What	When
I have a bad sore throat.	How long have you had it?
I have a terrible cough.	How long has it been bothering you?
I have a headache.	When did it start?
I have a stomach-ache.	
I have a rash on my arm.	Three days ago.
I have a slight fever/ chills.	It started last week
I have a bad cold.	Since Monday.
I feel nauseous.	About three days.

Procedure	Details
I'll have a look at your throat.	Do you have any other symptoms?
Let me look at your arm.	Does anything else hurt?
I'll examine your ears.	Is anything else bothering you?

Diagnosis

I'm going to give you a prescription for an antibiotic.

I'll write you a prescription for some cough syrup.

Here's a prescription for a pain killer/ an ointment.

Instructions

Use these drops twice a day for ten days.

Take a pill three times a day for seven days.

Take the cough syrup before bedtime every night for a week.

Apply the cream to your rash twice a day until it disappears.

You'll probably start to feel better by the end of the week.

You'll probably start to feel better by three or four days.

It will probably clear up in a few days.

3. Health problems.   Match the symptoms.

___1. flu   a. sore chest
___2.cut finger   b. bleeding
___3. nauseated   c. can't walk
___4. back-ache   d. sneezing
___5. sore throat e. can't bend
___6. rash   f. fever and chills
___7. sprained ankle   g. purple skin
___8. big bruise   h. vomiting
___9. cough   i. red, itchy skin
___10. cold   j. can't swallow

4. Complete the dialogue with the following words and answer the questions:

fever – tooth – help – toothache – drops – brush – feel – cavity – symptoms

teeth – prescription – ear – mouth – ear infection

Doctor: Good afternoon. How can I _____ you today?
Patient: My son doesn't _____ very well.
Doctor: That's too bad. What _____ does he have?
Patient: He has an earache and a _____.
Doctor: Sit on the table please, young man, so I can look in your _____.
        He has an _____ _____.
Patient: What do I need to do?
Doctor: You need to put _____ in his ear twice a day.
Here is a _____ to take to the pharmacy.
Patient: Now maybe we can get some sleep again! Thank you, doctor.
Doctor: You're welcome.

Question 1: What symptom does the patient have?

Question 2: What health problem does the patient have?

Question 3: What does the patient need to do?

5. Write your own dialogue.

………………………………………………………………………………………
………………………………………………………………………………………
………………………………………………………………………………………
………………………………………………………………………………………
………………………………………………………………………………………
………………………………………………………………………………………
………………………………………………………………………………………
………………………………………………………………………………………
………………………………………………………………………………………
………………………………………………………………………………………
………………………………………………………………………………………
………………………………………………………………………………………
………………………………………………………………………………………
………………………………………………………………………………………
………………………………………………………………………………………
………………………………………………………………………………………
………………………………………………………………………………………
………………………………………………………………………………………
………………………………………………………………………………………
………………………………………………………………………………………

Material adapted from:

Conklin, Lia, Minnesota's ESC Curriculum Content Development Team (2008): *Listening Lesson Plan – Level A: Health - At the Doctor's Office.* Online:http://escurriculum.spps.org/sites/0986df53-fb39-4fa2-816b-03b698926774/uploads/listeninga_health_j.pdf.

ESL Library, Red River Press Inc. (2008): *Everyday Dialogues - At the Doctor's.* Online: http://www.cubictalk.com/cubicboard/matrials/Everyday-Dialogues/At-the-Doctor%27s.pdf.

Scaffolding material:

Grammar Revision: Questions in the simple present and simple past
(consult a grammar book for a detailed revision of the simple past tense!).

Example:	Positive	Negative	Question
To speak	I spoke.	I did not speak.	Did I speak?
To be	He is ill.	He is not ill.	Is he ill?

Signal words for simple past are among others:

- Yesterday
- last week/ month…
- a month / week ago

- in 2010 / 1994
- this morning

Questions

-	**When?**	-	Time
-	**Where?**	-	Place
-	**Who?**	-	Person
-	**Why?**	-	Reason
-	**How?**	-	Manner
-	**What?**	-	Object/Idea/Action
-	**Which (one)?**	-	Choice of alternatives
-	**Whose?**	-	Possession
-	**Whom?**	-	Person (objective formal)
-	**How much?**	-	Price, amount (uncountable)
-	**How many?**	-	Quantity (countable)
-	**How long?**	-	Duration
-	**How often?**	-	Frequency
-	**How far?**	-	Distance
-	**What kind (of)?**	-	Description

1) Possible questions:

- *Where is the pain?*

- *When did the pain first start?*

- *How long does it last?*

- *Does the pain radiate, if so where?*

- *How often do you have the pain?*

- *How would you describe the pain - burning, pressing, aching, sharp?*

- *Does the pain occur at rest, with stress, when moving, when or after eating?*
- *Do you have any other symptoms such as nausea, vomiting, coughing, fever?*

2) Sample dialogue: The Flu[48]

Doctor: How can I help you?

Patient: I don't feel well.

Doctor: In what way? What is wrong?

Patient: I have a constant headache and I'm always feeling tired.

Doctor: Do you have to vomit or do you feel nauseated?

Patient: No, but I have no appetite.

Doctor: Do you have a temperature?

Patient: Yes, sometimes I feel hot and sometimes I feel cold. Especially in the evening.

Doctor: Do you have a runny nose?

Patient: Yes.

Doctor: It sounds like you have the flu.

Patient: Okay, what medication can you give me?

Doctor: Here, take this for 5 days and get lots of rest.

---

[48] Source: English (ESL) Role Play (2015): *Seeing the Doctor.* Online: http://simpleesl.com/wp-content/uploads/2012/04/CQRPDOC.docx. Last accessed on 30.07.2015.

Additional example:

Cardinal Health Foundation (2013): *New Prescription - Role Play Activity. Directions for Facilitators.* Online: http://www.pharmacy.ohio-state.edu/sites/default/files/forms/outreach/genrx-toolkits/seniors/GenRx-Seniors-RolePlayActivity.pdf.

3) Further examples and reading material: Taking a medical history

- Schiller, Sandra (2009): *Fachenglisch für Gesundheitsberufe: Physiotherapie, Ergotherapie, Logopädie.* 2. Auflage. Berlin, Heidelberg : Springer Berlin Heidelberg, 90-103.

- Glendinning, Eric H., Howard, Ron (2007): Professional English in use Medicine. Reprinted. Cambridge: University Press, 102-106.

Online available – Anamnesis

- Srivastava, Sneha Baxi (2013): The Patient Interview. Online: http://samples.jbpub.com/9781449652722/9781449645106_CH01_001_036.pdf.

- Helling, Manfred, Klasen, Ralf (2013): *Anleitung Anamnese*. Online: http://p26251.typo3server.info/fileadmin/user_upload/Wissenschaft/Scripte/Anleitung_Anamnese.pdf.

4) Taking A Medical History: 7 Steps[49]

Someone complains of a medical problem (e.g., "my throat hurts", "I have chest pain ", etc.). You want to find out more about this problem to help. These steps can be very helpful to take a detailed medical history.

---

[49] Excerpt from: WikiHow/ Hadley, Chris et al. (2015): *How to take a medical history*. Online: http://www.wikihow.com/Take-a-Medical-History. Last accessed on 30.07.2015.

1. **Introduce yourself** in a friendly manner if you do not know the person. For example, say "Hi! I'm Joe Smith. I would like to ask you a few questions about your illness. Is that OK? You seem to be in pain; how are you feeling?"

2. **Get the chief complaint.** "What is bothering you right now? How can I help you?" Clarify if needed: "What are you feeling right now?" Survey for other problems. "What else?" Focus on the most important problem first.

3. **Explore the main problem in more detail.**
   This can be summarized by the mnemonic **O.P.Q.R.S.T.:**
   - Onset: "how long has it been going on?"
   - Palliation/Provocation: "what makes it better or worse?"
   - Quality: "what does it feel like?"
   - Region/Radiation: "where is the pain? does the pain travel anywhere?
   - Symptoms/Severity: "what other feelings or sensations do you get? how bad is the headache?"
   - Timing: maintain the narrative thread. "What happened first? ...then what?..." Find out the context of the medical problem. " "Is the pain continuous, repeating, or sporadic?"

4. **Gather the past medical history:**
   - Tell me about the past hospitalizations and surgeries.
   - What medical problems or illnesses have you had in the past? any injuries?
   - What medications are you taking? Any allergies?

5. **Gather a family history:**
   "Please tell me about any illnesses that may run in your family. Has anyone else in your family ever had problems like yours?"

6. **Gather a social history:**

   - Do you drink, smoke, or use other drugs?
   - Are you having sex with anyone? Men, women, or both? Do you use protection?

- With whom do you live? Whom can you turn to for support?
- What do you do for work?

7. **Review of Systems:**
   Screen for symptoms in each body system that have not already been discussed.

- Skin: any skin problems? rash? itch? sores? moles?
- Eyes: eye problems? vision loss? itchy eyes? blurry vision? double vision?
- Ears, nose, mouth, sinuses, and throat: any trouble with your hearing, ears, mouth, sinuses, or throat?
- Lungs: any lung or breathing problems? coughs? chest pain?
- Heart: heart problems? racing heart? skipping beats?
- Digestive: stomach problems? stomach pain? nausea? vomiting? diarrhea? constipation? blood in stool?
- Genitourinary: trouble with urinating? unusual color or smell? sexual problems?
- Hematologic: easy bruising or bleeding?
- Endocrine: feeling too cold or too hot compared to others? excessive thirst, hunger, or urination?
- Musculoskeletal: problem with your joints or muscles, such as pain, swelling, weakness?
- Neurological: weakness, numbness, or tingling in arms or legs? problem with walking or balance?
  memory problems? headaches? seizures?
- Psychiatric: anxiety? depression? suicidal or homicidal urges? repetitive thoughts or acts?

Reading material: Information on

Pharyngitis	Influenza
University of Maryland School of Medicine: Pharyngitis *http://umm.edu/health/medical/altmed/condition/pharyngitis*	Centers for Disease Control and Prevention: The Flu *http://www.cdc.gov/flu/takingcare.htm*
U.S. National Library of Medicine: Pharyngitis - sore throat *http://www.nlm.nih.gov/medlineplus/ency/article/000655.htm*	U.S. National Library of Medicine: Flu *http://www.nlm.nih.gov/medlineplus/ency/article/000080.htm*
RKI-Ratgeber für Ärzte: Streptococcus pyogenes *http://www.rki.de/DE/Content/Infekt/EpidBull/Merkblaetter/Ratgeber_Streptococcus_pyogenes.html*	European Medicines Agency: Vaccines for pandemic influenza *http://www.ema.europa.eu/ema/index.jsp?curl=pages/special_topics/general/general_content_000462.jsp&mid=WC0b01ac058004b9ac*
RKI: Arbeitsgemeinschaft Influenza-Fachausdrücke erklärt: *https://influenza.rki.de/Glossar.aspx*	U.S. Department of Health & Human Services: Flu *http://www.flu.gov/symptoms-treatment/treatment/*
Nagel, Patrick (2009): *Basics Hals-Nasen-Ohren-Heilkunde.* 2. Aufl. München: Elsevier, Urban & Fischer.	The Ministry of Health and Long-Term Care – Ontario: Communication tool for Health Care Providers - influenza 2014–2015 seasons. Flu Consult: talking to Your Patients about influenza. *http://www.health.gov.on.ca/en/pro/programs/publichealth/flu/docs/flu_consult_hcp_evidence.pdf*
Pechère, Jean-Claude (2004): *Streptococcal pharyngitis: optimal management.* Basel: Karger.	Ullrich, Martina (2004): „Influenza : jedes Jahr eine neue Grippe" in: *Milzbrand, Pest, Pocken: Bedrohung durch alte und neue Krankheits-erreger.* 1. Aufl. Wettenberg : VVB Laufersweiler, S. 145-171.
	Lange, Werner (1999): *Influenza : Virologie, Epidemiologie, Klinik, Therapie und Prophylaxe.* Berlin: Blackwell-Wiss.-Verlag.

<u>Video material:</u>

Check out some documentaries that provide detailed information in more animated form:

- Nucleus Medical Media (2013): *Influenza (Flu).*
  Online: https://www.youtube.com/watch?v=7Omi0IPkNpY.
- DNews (2014): *Cold vs. Flu: What's The Difference?*
  Online: https://www.youtube.com/watch?v=AaeUX5lFx-s.
- Focus Medica (2011): *Pharyngitis.*
  Online: https://www.youtube.com/watch?v=xryqgSXe3Ik.
- Nurseledclinics (2012): *Clinical history taking (with patient example).* Online:
  https://www.youtube.com/watch?v=gsjKcQUsQY8.

v. Course 1, Module/ Topic 2: Session two

<u>Activity 1</u>) Introduction: Food Intoxication and Appendicitis (Whiteboard)

Brainstorming session: Revision of Food Intoxication and Appendicitis
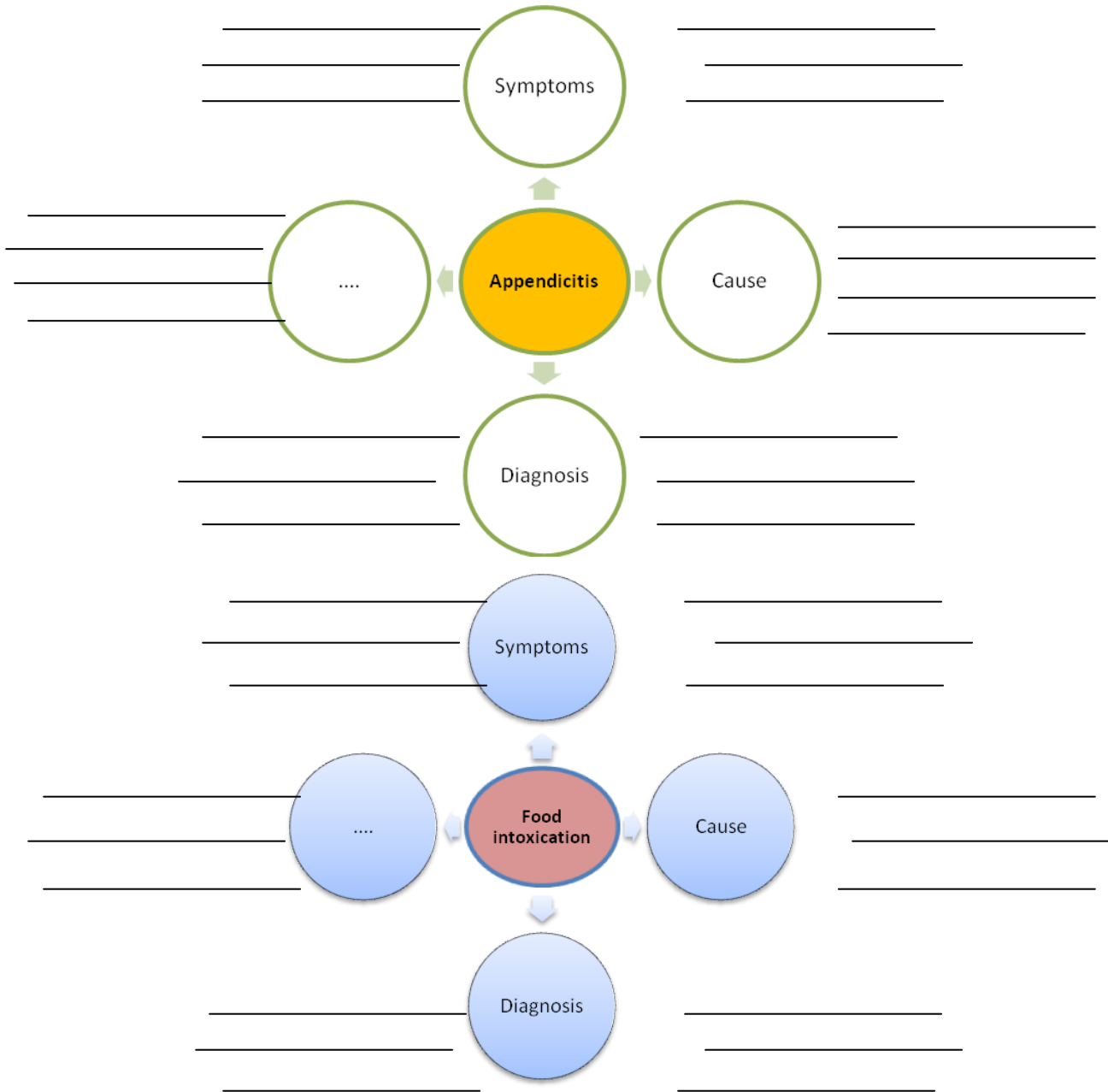
Activity 2) Warm-up and concept enhancement: Food intoxication.

ToHealth (2011): *How To Alleviate Food Poisoning.*

Online: *https://www.youtube.com/watch?v=lyt6A5TNrds.*

You will watch the short video clip twice. Write down as many examples as you can. If needed, certain sequences are replayed to ensure comprehension.

Most common pathogens:	Incubation Periods:	Symptoms:
1.		
2.		
3.		
4.		

Causes for Contamination are e.g.:

_____

_____

_____

Diagnosing Questions are e.g.:

1.

2.

3.

4.

5.

6.

7.

8.

9.

Treatment methods:

_____

_____

_____

_____

_____

_____

Activity 3) Concept enhancement: Appendicitis (Handout)

Read the following text on appendicitis.

Appendicitis - What Is It?[50]

Appendicitis is an inflammation of the appendix, a small, fingerlike tube that hangs from the lower right side of the large intestine. The purpose of the appendix is not known. It usually becomes inflamed because of an infection or an obstruction in the digestive tract.

If untreated, an infected appendix can *burst* and spread the infection throughout the *abdominal cavity* and into the bloodstream.The risk of appendicitis increases with age, *peaking* between ages 15 and 30. Appendicitis is the main reason for abdominal surgery in children.

Symptoms of appendicitis include:
Abdominal pain (usually starting just above the belly button and then moving to the right lower side of the abdomen). Typically the pain becomes worse and worse over 6-24 hours. Other symptoms that my occur:

[Own illustration]

- Nausea
- Abdominal swelling
- Vomiting
- Low-grade fever
- Pain when the right side of the abdomen is touched
- Inability to pass gas
- Change in normal bowel pattern

If you have symptoms of appendicitis, do not take *enemas or laxatives* to relieve *constipation*: These medicines increase the chance that the appendix will burst.

---
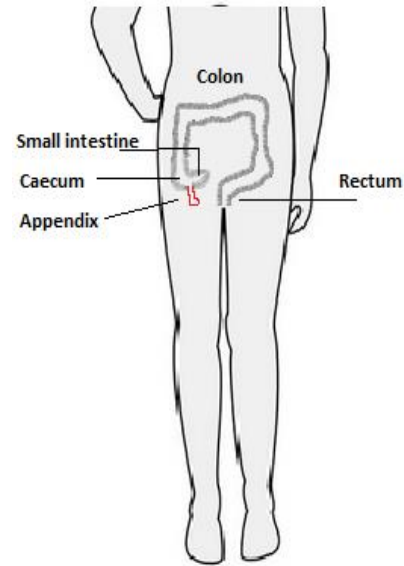
[50] Source: Health Publications (of the Harvard Medical School of Harvard University) (2015): *Drugs.com - Appendicitis*. Online available at: http://www.drugs.com/health guide/Appendicitis.html, and Kenny, Dr Tim (2014): *Patient – trusted medical information and support. Appendicitis.* Online available at: http://patient.info/health/ appendicitis-leaflet.

Also, avoid taking pain-relief medicines before seeing your doctor, because these medications can mask appendicitis symptoms and make diagnosis difficult.

Diagnosis

A doctor may diagnose appendicitis quite easily if you have the typical symptoms. However, as described above, not everyone has typical symptoms. Sometimes it is difficult for doctors to be sure that appendicitis is the cause of the symptoms. Pain may also be caused by other conditions such as:

- Pelvic inflammatory disease.
- Cystitis
- Inflammation of the large bowel (large intestine)/ colitis
- Inflammation of the first part of the large bowel/ Cohn's disease
- Pain from gallstones or from inflammation of the gall bladder

Your doctor will:

-review the medical history (especially about digestive illnesses; current digestive symptoms),
-carry out a physical examination and check for pain in the lower right abdomen (a child might hold his or her hands over the navel when asked where it hurts),
-order blood tests to check for signs of infection and a urinalysis to rule out a urinary tract problem.
-eventually order an ultrasound or computed tomography (CT) scan to help confirm the diagnosis.

Additional help:

enemas (Klistier/ Einlauf)
laxatives (Laxative-Abführmittel)

Post-reading activity:

Answer the following questions with your partner.

What is the cause for appendicitis?

How can you diagnose the clinical presentation?

Explain the following words:

burst

----

abdominal cavity

----

peaking

----

constipation

----

tender

Activity 4) Consultation (Handout)

After assessing the symptoms and examinations, you have to inform your patient about the diagnosis and the consequences, treatment and options.

Your patient presents with appendicitis. What do you say to him, how do you inform him about further procedures? Use the information of the text in *Activity 3* as basis. Consider the following steps:

1. Diagnosis
2. Treatment Options
3. Risks and Possible Complications
4. Recovery and Expectations
5. Pain Control

Take notes of useful expressions and possible explanations.

……………………………………………………………………………

……………………………………………………………………………

……………………………………………………………………………

……………………………………………………………………………

……………………………………………………………………………

……………………………………………………………………………

……………………………………………………………………………

……………………………………………………………………………

……………………………………………………………………………

Activity 5) Medical Case 1 & 2: Role play and consultation (Handout)

Have a look at the medical history form first.

Are there any questions or things that should be discussed?[51]

Patient: Xiu Ngok 21 years	*Doctor: Dr. Maria Hills*
You are new in town. Originally you are from Asia but you moved here to study at a German university as regular student. Everything is still very new to you. Since yesterday evening you are feeling really sick. - You have not eaten anything since then. - You have abdominal pain. - You have to vomit and feel nauseous. - You tried new regional food (shellfish) that you are not used to. - You tried to sleep in hope that it would get better, however this morning you had diarrhea. - Ask about medication and side effects.	Situation: A new patient is coming to your consultation hour. Have a look at the medical history form and take this as basis for your role play. First, you have to take the patient's history! - Ask questions to complete the medical history form. - Assess and diagnose what might cause the pain/ health problems. - Practice physical examination and inform the patient about treatment, risk and recovery.

---

51 Source: Highland Clinic (2012): Internal Medicine – Patient History Form. Online available   at: http://webcache.googleuserconytent.com/search?q=cache:XXLCJSz3NMAJ: www.highlandclinic.com/_literature_172028/Internal_Medicine_New_Patient_Form+&c d=1&hl=de&ct=clnk&gl=de: Last accessed on 1.08.2015.

Change of roles: Doctor: Dr. Maria Hills	Change of roles: Patient: Sue Sarath
Situation: A new patient is coming to your consultation hour. Have a look at the medical history form and take this as basis for your role play. First, you have to take the patient's history!	Your family doctor is on holidays. You go to Dr. Hills because she is the holiday replacement of your GPs. This morning you went to your office but you already had a queasy feeling (faules Gefühl). At 10am you begin to feel really sick:
- Ask questions to complete the medical history form. - Assess, diagnose what might cause the pain/ health problems. - Practice physical examination and inform the patient about treatment, risk and recovery.	- You have severe abdominal pain, cramps. - You felt the need to lie down. - You spend half an hour on the toilet. - You decided to go the doctor. - You cannot eat and feel very nauseous. - Ask about treatment/ risks.

<u>Activity 6</u>) Homework

MedicalAdviceVideos (2010): *Food Poisoning Signs.*

Online: https://www.youtube.com/watch?v=gcQE3mi0UFI.

Watch the short clip and listen. Take notes of what the doctor mentions.

Symptoms:

1.

2.

3.

Treatment:

1.

2.

Advice:

………………………………………………………………………………

………………………………………………………………………………

………………………………………………………………………………

………………………………………………………………………………

………………………………………………………………………………

………………………………………………………………………………

………………………………………………………………………………

………………………………………………………………………………

………………………………………………………………………………

………………………………………………………………………………

………………………………………………………………………………

………………………………………………………………………………

Scaffolding material

Further information on:

Food Intoxication	Appendicitis
Hoorfar, Jeffrey (2012): *Case studies in food safety and authenticity: lessons from real-life situations*. Oxford: Woodhead Publ.	Mandell, Gerald L. (2005): *Mandell, Douglas and Bennett's principles and practice of infectious diseases*. 6. ed. New York: Churchill Livingstone.
Krämer, Johannes (2011): *Lebensmittel-Mikrobiologie*. 6. Aufl. Stuttgart : Ulmer.	Kreckmann, Michaela (2008): Fallbuch Pädiatrie: [85 Fälle aktiv bearbeiten]. 2. Aufl. Stuttgart: Thieme.
Stein, Jürgen (2011): *Erkrankungen durch Nahrungs- und Genussmittel: [Ursachen - Diagnostik - Therapie - Prävention]*. Stuttgart: Wiss. Verl.-Ges.	American College of Surgeon (2014): *Appendectomy*. Online: https://www.facs.org/~/media/files/education/patient%20ed/app.ashx.
World Health Organization (2008): *Foodborne disease outbreaks: guidelines for investigation and control*. WHO Library Cataloguing-in-Publication Data. Online: http://www.who.int/foodsafety/publications/foodborne_disease/outbreak_guidelines.pdf.	Ishikawa, Hiroshi (2003): "Diagnosis and Treatment of Acute Appendicitis." In *Journal of the Japan Medical Association* 46(5): 217–221. Online: http://www.med.or.jp/english/pdf/2003_05/217_221.pdf.
University of Maryland Medical Center - Eric Perez, MD, St. Luke's, Roosevelt Hospital Center, NY (2014): *Food poisoning*. Online: http://umm.edu/health/medical/ency/articles/food-poisoning.	Surgical Safety Checklist (World Health Organization–First Edition) (2010):*Appendix-Appendectomy (Laparoscopic), Appendectomy(Laparoscopic))*. Online:http://www.dialogmedical.com/wp-content/uploads/2010/04/Appendectomy-Note%20with%20Pre%20 and%20Post%20Instru.pdf

Further reading: Consultations and Informing the Patient

- Glendinning, Eric H., Howard, Ron (2007): *Professional English in use Medicine.* Reprinted. Cambridge: University Press, 112-116.

- Fischer, Martin, Ereaut, Gill (2012): "When doctors and patients talk: making sense of the consultation." In: *Health Foundation Report*. London, 10-18. Online: http://www.aquanw.nhs.uk/Downloads/SDM/When_doctors_and _patients_talk.pdf

Another useful medical history form:

- New Jersey's Total Healthcare Resource (2014): *Medical history form.* Online: http://advancedpmr.com/wp-content/uploads/2013/03/Medical-History-Form.pdf.

Video material:

- DNews (2014): *What Exactly Is Food Poisoning?* Online: https://www.youtube.com/watch?v=nyplH6fUBDQ

- Abagtha Abana (2013): *Appendicitis Explained Medical Course*. Online: https://www.youtube.com/watch?v=r2zsbdPBhGY

- Abagtha Abana (2013): *Abdominal Exam Medical Course*. Online: https://www.youtube.com/watch?v=P9v0Rsc-s94

vi. Course 2, Module/ Topic 2: Session one

Virology, Vaccination and Preventive Care

<u>**Activity1)**</u> Infections and their presentations (Handout)

Four students are randomly chosen and get one of these short informational texts. They have to read the text aloud for their fellow students.

a) <u>Measles</u> is an acute illness caused by ***morbillivirus***. The disease is transmitted via airborne respiratory droplets, or by direct contact with nasal and throat secretions of infected individuals.
The main symptoms are fever, rash, cough, running nose and eye infection, appearing after an incubation period of 10 to 12 days. Complications are possible, including pulmonary infection, brain infection and secondary bacterial infections. Only the latter require treatment, by the use of antibiotics. The disease is preventable by a vaccine providing lifelong immunity to most recipients.
[Source: European Centre for Disease Prevention (2015): *Measles*. Online: http://ecdc.europa.eu/en/healthtopics/measles/pages/index.aspx.]

b) <u>Varicella</u> (chickenpox) is…caused by the varicella-zoster virus (VZV), which also causes shingles. The virus spreads through the body into the skin causing rashes to appear.
Symptoms: Varicella may begin with cold-like symptoms, followed by a high temperature and a very itchy, blister-like rash. Clusters of spots appear over 3–5 days, mostly on the trunk of the body with some on the limbs. Symptoms vary in severity from person to person. It is possible to have chickenpox and have no symptoms. You can only get shingles if you have previously had varicella and the virus is reactivated in your body. Shingles symptoms in older people usually start with a pain in the area of the nerve which is affected - often the chest. A rash of blisters then appears in the affected area, usually only on one side of the body. The rash usually lasts around seven days but the pain can last for longer. Someone with shingles can give the virus to someone who hasn't had chickenpox and is not immune,

but not the other way around: a child with varicella cannot give shingles to another person.

[Source: European Centre for Disease Prevention (2015): Varicella. Online: http://ecdc.europa.eu/en/healthtopics/varicella_infection/pages/index.aspx.]

c) <u>Mumps</u> is an acute illness caused by the mumps virus. It is characterised by fever and swelling of one or more salivary glands (mumps is the only cause of epidemic infectious parotitis).

Humans are the only reservoirs of the virus, which is transmitted from person to person via droplets and/or saliva. Following infection, the incubation period lasts on average 16–18 days. Salivary glands apart, other organs may be involved and symptoms might include infection in the testicles (in post-pubertal males), prostate gland, thyroid gland, and pancreas. Brain involvement is frequent, but mostly without symptoms. Brain infection is believed to occur in only one in 10 000 cases, but it often leads to death. Mumps is preventable by a vaccine, which is most often administered in association with anti-rubella and anti-measles vaccines (MMR).

[Source: European Centre for Disease Prevention (2015): Mumps. Online: http://ecdc.europa.eu/en/healthtopics/mumps/pages/index.aspx.]

d) <u>Rubella</u> is a mild febrile rash illness caused by rubella virus. It is transmitted from person to person via droplets (the virus is present in throat secretions). It affects mainly, but not only, children and when pregnant women are infected, it may result in malformation of the fetus. Humans are the only reservoir of infection.

About 20–50% of rubella infections remain without symptoms. In symptomatic cases, after an incubation period of 2–3 weeks, patients develop swollen lymph glands, malaise, rash, and upper respiratory tract symptoms. Fever is not always present. Adult and adolescent females often manifest joint pain and joint inflammation. Rare complications include skin bleedings, brain infection, neuritis, and inflammation of the testicles. The most serious consequences of rubella infection occur when it is acquired during the first 3 months of pregnancy. In this situation the virus can affect all the organs of the developing foetus, causing foetal death, miscarriage, or congenital

malformation. An infant infected with rubella during pregnancy can continue to shed the virus for about one year, sometimes longer.

[Source: European Centre for Disease Prevention (2015): Rubella. Online: http://ecdc.europa.eu/en/healthtopics/rubella/pages/index.aspx.]

Listen to your fellow students reading short informational texts in which possible symptoms of the infectious diseases measles, varicella, mumps and rubella are mentioned. Complete the list and compare your notes with your partner.

Symptoms of Measles	Symptoms of Varicella
-	-
-	-
-	-
-	-
-	-

Symptoms of Mumps	Symptoms of Rubella
-	-
-	-
-	-
-	-
-	-

Activity 2) Concept enhancement of viral infections

Medical Case Part 1 (Handout)

Read the beginning of the story: the patient, now a grown-up, presents with clinical features. Assess all symptoms mentioned and decide on further possible medical procedure. Discuss with your partner which infectious disease the narrator as a child might have had and make suggestions for her treatment.[52]

Part 1

April, 1961 in Baltimore, I went to play with my younger cousin Leon while my mother shopped for birthday party since I would turn seven. Leon had been ill the week before the shopping trip. However, we played until Mother finished shopping. Some days later, I awoke feeling poorly, with a fever and cough. My mother called the pediatrician. He came, looked me over, and showed my mother small spots. The pediatrician told my mother:

"The spots will turn into a rash. Besides, the fever will rise and peak but then your little girl should recover. You need to keep the fever down. The body of a child cannot handle this high temperature on its own. You have to use ice packs and alcohol sponge baths. This should reduce the fever. You must make sure that your child gets plenty of fluids. To prevent dehydration she should consume more fluids than she loses, for example, due to sweating. She will also loose lots of weight. Thus, you need to give her nutritious beverages and substantial meals whenever possible. You have to ease the pain with baby aspirin, especially when the rash presents and itching starts. We should give her little brother a vaccine for medical prevention. Nevertheless, you have to ensure that he keeps his distance since his sister is contagious."

---

[52] Adapted from Barton, Beverly (2013): "Beverly's Story" In: *Shot by Shot: Stories of Vaccine-Preventable Diseases project*. In cooperation with the California Immunization Coalition. Online: http://shotbyshot.org/measles/beverlys-story/.

This meant: Party cancelled. My little brother was given a shot for passive immunity. All my parents could do was waiting and treating my fever. Days passed, and the expected rash didn't appear. Instead, my fever climbed and climbed. I was delirious most of the time.

Some days later I awoke feeling almost normal; my fever had broken and the rash still had not appeared. Later that day, however, I was back to misery when the rash came out. The itch! I was well enough to lie on the living room sofa, with cotton wrapped around my hands so I wouldn't scratch. Soon the itch stopped and I started eating again.

Tips:

* had been/ had broken: [had + past participle] = Past Perfect (indicates that an action was completed at some point in the past before something else happened. Look it up again, if you are not sure.)

* rash: (skin condition) – a lot of small red spots on the skin.

* itch: an uncomfortable feeling on the skin that makes you want to rub it with your nails.

* peak: the highest, strongest, best point, value or level.

What symptoms does the patient have?

…………………………………………………………………………………

…………………………………………………………………………………

What possible infectious disease does she have?

…………………………………………………………………………………

…………………………………………………………………………………

What is the medical procedure/ treatment:

…………………………………………………………………………………

…………………………………………………………………………………

<u>Activity 3)</u> Concept enhancement of viral infections,

Medical Case Part 2 (Handout)

Read the end of the story: What kind of infectious disease did the child present with? Summarize the end of the story and mention the presented treatment methods. Describe how management proceeds in Germany today.

Part 2

<u>Supplements to the text's content:</u>

* The pediatrician came, looked me over, and showed my mother the telltale Koplik's spots that meant measles.
* Baby brother was given a shot of gamma globulin for passive immunity.
* At that time, accepted treatments for fever were baby aspirin, alcohol sponge baths, and ice packs.
* Days passed, and the rash didn't appear. I grew sicker. Usually the measles rash appears two to three days after the first symptoms. Not in my case.
* *telltale*: verdächtig/verräterisch
* *Koplik's spots:* viral enanthem of measles manifesting two to three days before the measles rash itself [von Enanthem (griechisch), medizinischer Fachausdruck. Bezeichnet einen Ausschlag im Bereich der Schleimhäute; dabei handelt es sich um eine flächenhafte oder fleckige Effloreszenz im Mund- u. Rachenbereich]

<u>End of story:</u>

In 1961, the year of my illness, American children received vaccines to prevent diphtheria, tetanus, pertussis, poliomyelitis, and smallpox - but not measles. In 1963, the FDA[53] licensed the first vaccine for measles. In 1964, the first nationwide recommendations for childhood vaccinations were issued.

As I write this in September 2013, a measles outbreak is raging in parts of Queensland, Australia. In this country, we've seen a significant measles outbreak in Texas. This year may go on record as the one with the most measles cases in the United States since 1996. Measles remains one of the deadliest preventable diseases. The MMR vaccine eliminated endemic measles once. We should make that once and for all.

[Adapted from Barton, Beverly (2013): "Beverly's Story" In: *Shot by Shot: Stories of Vaccine-Preventable Diseases project.* In cooperation with the California Immunization Coalition. Online: http://shotbyshot.org/measles/beverlys-story/.]

---

[53] Food and Drug Administration (dt. Nahrungs- und Medizinverwaltung)

Activity 4) Advice and Instructions (Handout)

Read the text again: How does the physician give instructions and advice? Underline specific features. Review in class, collect further examples and discuss differences and use.

"The spots will turn into a rash. Besides, the fever will rise and peak but then your little girl should recover. You need to keep the fever down. The body of a child cannot handle this high temperature on its own. You have to use ice packs and alcohol sponge baths. This should reduce the fever. You must make sure that your child gets plenty of fluids. To prevent dehydration she should consume more fluids than she loses, for example, due to sweating. She will also loose lots of weight. Thus, you need to give her nutritious beverages and substantial meals whenever possible. You have to ease the pain with baby aspirin, especially when the rash presents and itching starts. We should give her little brother a vaccine for medical prevention. Nevertheless, you have to ensure that he keeps his distance since his sister is contagious."

Further examples:

…………………………………………………………………………

…………………………………………………………………………

…………………………………………………………………………

…………………………………………………………………………

…………………………………………………………………………

Rules:

…………………………………………………………………………

…………………………………………………………………………

…………………………………………………………………………

…………………………………………………………………………

…………………………………………………………………………

Activity 5) Consolidation (Handout)

Complete the worksheet with **need** *and* **needn't**, **have to** *and* **have not to**, **must** *and* **mustn't**, **should** *and* **shouldn't**. *Sometimes there are more possibilities. Discuss your results in class and correct if necessary. If there are still doubts left, look up the grammar in your scaffolding material and grammar book!*

1. I …………… go now.
2. What you …………… know about diabetes
3. Do you …………… wear a tie for school?
4. Passengers …………… fasten their seat-belts.
5. If you don't like him, you don't …………… see him again.
6. Who …………… be vaccinated?
7. Do you …………… anything from the store?
8. What …………… I eat?
9. In a non-smoking area you …………… smoke, but in a smoking area you don't …………… smoke but you can if you want to.
10. The referee…………… send a player off if he has committed foul play.
11. People……………protect the environment.
12. The teams……………have more than 11 players on the field during a match.
13. Players ……………play the ball with their feet only.
14. You haven't seen the new movie with Brad Pitt yet? You …………… go and see it!
15. Even if you have lots of things to do you …………….. be so rude.

Scaffolding material

Grammar Revision: Modal Verbs

- "have to" ist die Ersatzform für "must" und "need" außerhalb vom Präsens
- "must" als auch "have to" drücken eine Verpflichtung
- "must" geht dabei eher vom Sprecher aus
- "have to" stellt eher eine externe Verpflichtung dar
- I said to my son: "You must do your homework!" (Anordnung des Sprechers)
- You have to do your homework to be good at school. (allgemeine Erfahrung)

<u>Verneinung von must:</u>
- "must not" bedeutet "nicht dürfen" (ein Verbot oder Abraten)
- "need not" bedeutet "nicht müssen"(eine Möglichkeit)

Must
Notwendigkeit: You must go to the grocery store today.

Wahrscheinlichkeit: You must be exhausted.

Ratschlag, dringende Empfehlung: You must go and see the new movie. It's hilarious.

Must not:
Verbot: You mustn't cross the line.

Need
Notwendigkeit: You need to know these things to be successful.

Bedarf/ Bedürfnis: We need more volunteers.

Need not
Keine Notwendigkeit: I do not need to go to work today. I have a day off.

Should
Ratschlag: You should drive carefully.

Verpflichtung: You should switch off the engine when leaving the car.

Shouldn't
Ratschlag: You shouldn't be so rude.

Verpflichtung: You shouldn't go to work if you're ill. Your colleagues may become infected.

More examples:

I must play football. = I have to play football.

I do not need to play football. = I do not have to play football

I must not play football. = I am not allowed to play football.

Passengers must not cross the railway line.

Visitors must not feed the horses!

Training - Interactive Activities

- British Council (2014): *Grammar Video: Have to, must and should for obligation and advice.*
  Online:http://learnenglishteens.britishcouncil.org/grammar-vocabulary/grammar-videos/have-must-and-should-obligation-and-advice.

- Frankfurt International School (2014): *Modal verbs.*
  Online: http://esl.fis.edu/grammar/rules/modal.htm.

Reading material on Virology, Vaccination

(general and current research):

- Doerr, Hans W. (Hrsg.) (2002): *Medizinische Virologie: Grundlagen, Diagnostik und Therapie virologischer Krankheitsbilder.* 1. Aufl. Stuttgart: Thieme.

- Kriwy, Peter (2007): *Gesundheitsvorsorge bei Kindern: Eine empirische Untersuchung des Impfverhaltens bei Masern, Mumps und Röteln.* 1. Aufl. Wiesbaden: VS Verlag für Sozialwissenschaften.

- Glendinning, Eric H./ Howard, Ron (2007): *Professional English in use Medicine.* Reprinted. Cambridge: University Press, 42-44, 56-58.

Online:

- Robert Koch Institut (2015): *Impfen.*
  Online: http://www.rki.de/DE/Content/Infekt/Impfen/impfen.html.

- Klingensmith, Milt, Michigan News (2014): *How do vaccinations work? The science of immunizations.* Online:http://www.mlive.com/news/index.ssf/ 2014/12/how_do_vaccinations_work_the_s.html.

- Baxter, David (2007): "Active and passive immunity, vaccine types, excipients and licensing" in: *Oxford Journals - Occupational Medicine*, Vol. 57 (8), p.552-556.
  Online: http://occmed.oxfordjournals.org/content/57/8/552.full.

- World Health Organization (2015): *Measles and rubella*. Online:
  http://www.euro.who.int/en/health-topics/communicable-diseases/measles-and-rubella.

- World Health Organization (2015): *Immunization, Vaccines and Biologicals*.
  Online: http://www.who.int/immunization/en/.

- European Centre for Disease Prevention and Control (ECDC) (2015). Online: http://ecdc.europa.eu/en/Pages/home.aspx.

- Virology Journal: http://www.virologyj.com/about/contact.

U.S. Vaccine Record file:

- Immunization Action Coalition (2014): *MMR Vaccine.* Online: http://www.immunize.org/talking-about-vaccines/mmr.asp.

Incidence rates of Measles in the USA:

- Centers for Disease Control and Prevention (2015): *Measles (Rubeola) Measles Cases and Outbreaks.* Online: http://www.cdc.gov/measles/cases-outbreaks.html.

New vaccine- combination of all four infectious diseases:

- Australian Government – Department of Health (2015): "Measles, Mumps, Rubella, Varicella Vaccine Information for Parents. New combination Measles, Mumps, Rubella and Varicella Vaccine" in *Immunise Australia Program.* Online: http://www.immunise.health.gov.au/internet/ immunise/publishing.nsf/Content/IT0169-cnt#1.

Documentation

- Minnesota Department of Health (2011): *Got your shots? Provider's Guide - Documenting Shots.* Online: http://www.health.state. mn.us/divs/idepc/immunize/ hcp/provguide/docshots.pdf.

- Murray, Dennis (ed. 2013): *Documenting Parental Refusal to Have Their Children Vaccinated.* Online: https://www2.aap.org/immunization/ pediatricians/pdf/refusaltovaccinate.pdf.

Informational video clips:

- Biology 103: Microbiology (2015): *Rubella and German Measles: Diseases of the Togaviridae Virus Family.* Online: https://www.youtube.com/watch?v=diqE-1Hai9s.

- Bloomberg Business (2015): *Measles Outbreak: Everything You Need to Know in 90 Seconds.* Online: https://www.youtube.com/watch?v=xbm37sD9-zA.

vii. Course 2, Module/ Topic 2: Session two

 MMR Vaccination, Prevalence/ Incidence Rates

Activity 1) Introduction (Projector/ Laptop)

Why is it important to vaccine children? Discuss the risks of infectious diseases as well as the benefits and possible side effects of vaccinations.
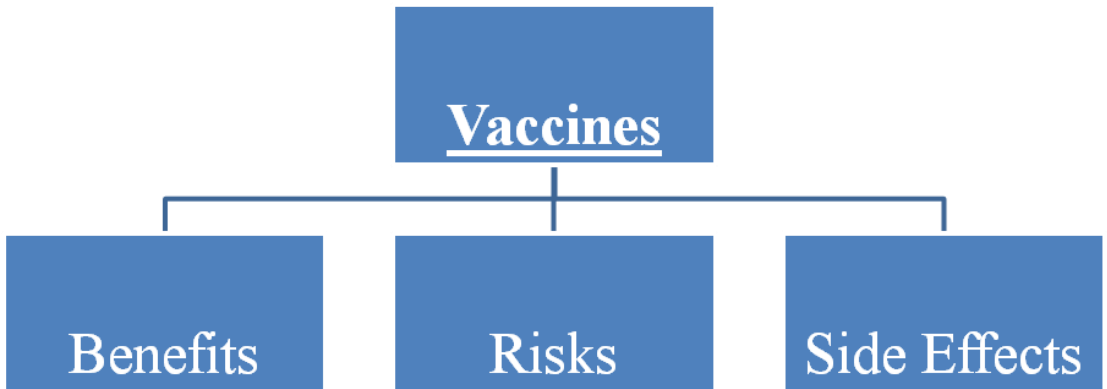
Activity 2) Describing Diagrams & Making Comparisons (Handout)

a) In Pairs: Discuss the status of the measles-mumps-rubella vaccination in Germany (is it obligatory/recommended)?

b) Have a look at the diagrams: How high is the incidence rate of measles? What has changed over the years? Collect ideas how to describe these statistics.
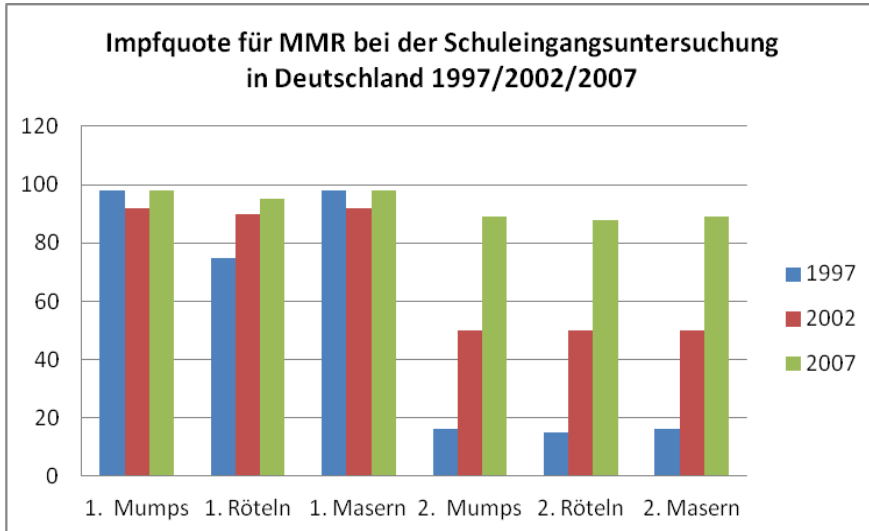
Statistic A

Übermittelte Masern-Fälle in den Jahren 2010 bis 2015 in Deutschland

Jahr	Anzahl der Masern-Fälle	Inzidenz pro 1Mio. Einw.
2010	770	9,4
2011	1.600	19,00
2012	155	1,9
2013	1,850	22,1
2014	420	5,1
2015	590	7, 3

[Own illustration:The data simulates realistic figures]

Statistic B

Impfquote für MMR bei der Schuleingangsuntersuchung in Deutschland 1997/2002/2007

[Own illustration:The data simulates a realistic trend]
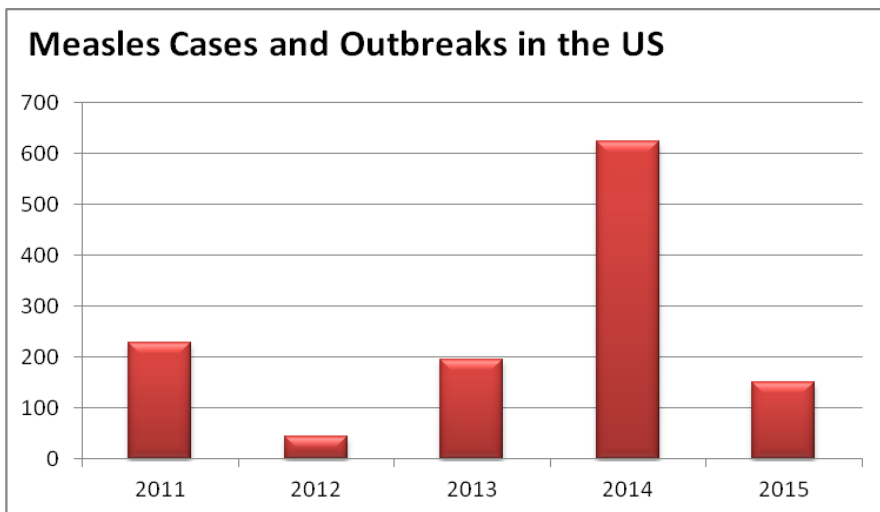
Notes: How to describe diagrams/ statistics….

c) What kind of development can be determined in other countries? Collect ideas how comparison can be made. Thus, describe the statistics and discuss the presented data.

Statistic C

Measles Cases and Outbreaks in the US
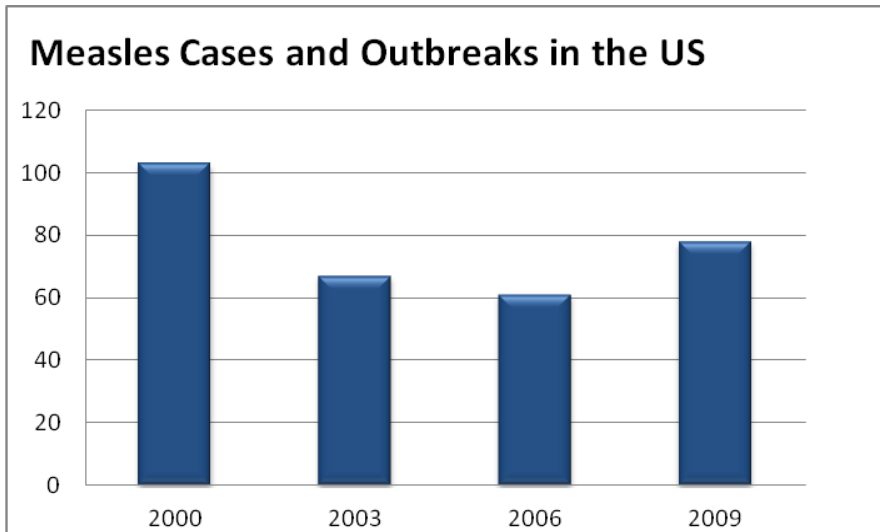
[Own illustration:The data simulates a realistic trend]

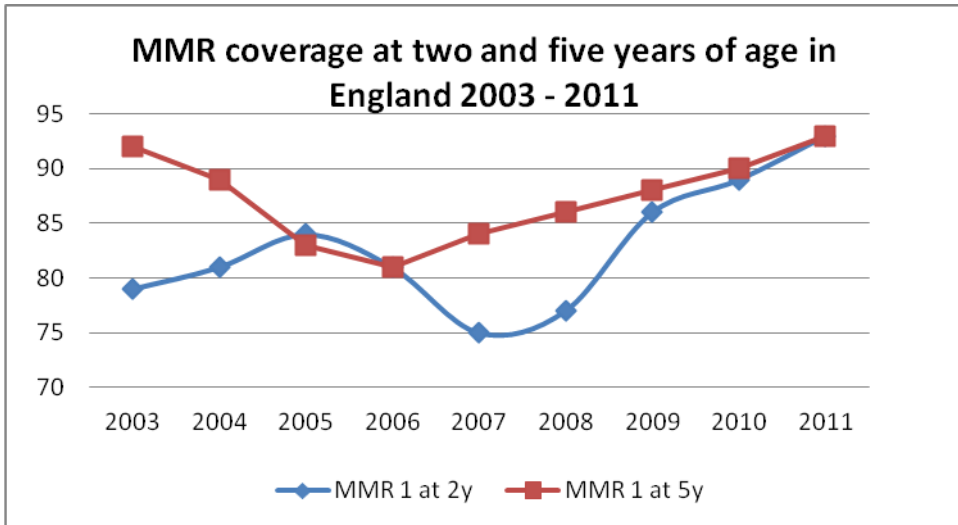**Statistic D**

Measles Cases and Outbreaks in the US

[Own illustration:The data simulates a realistic trend]

Notes: How to describe statistics and compare data….
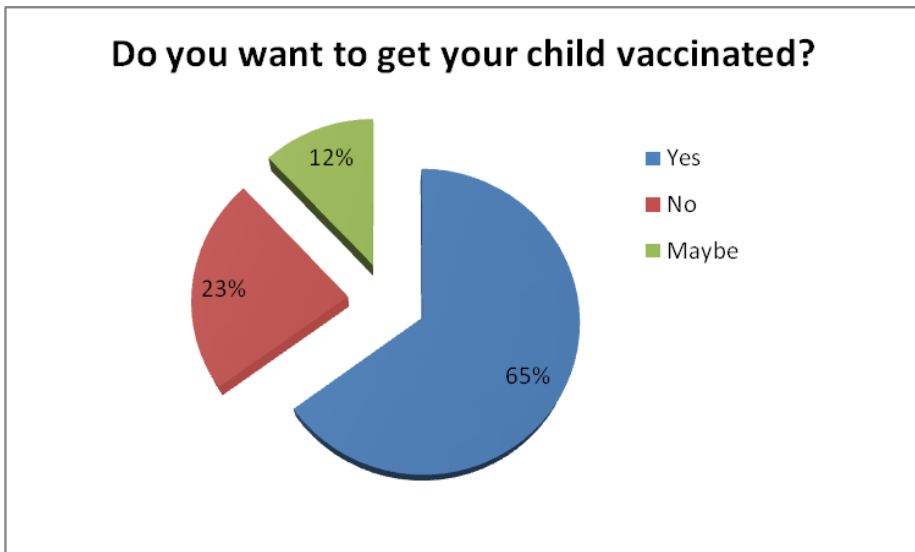
Statistic E

[Own illustration:The data simulates a realistic development]

Statistic F

General survey in a magazine: vaccination before the age of 8.

[Own illustration:The data simulates a realistic situation]

<u>Activity 3</u>) Talk about the future (Handout)

How do we form the will-future?

……………………………………………………………………………………

……………………………………………………………………………………

……………………………………………………………………………………

<u>Think of an example for each of these categories</u>

Affirmative sentences:

………………………………………………………………………….

Negative sentences:

………………………………………………………………………….

Questions:

………………………………………………………………………….

<u>Use of the will-future:</u>

……………………………………………………………………………………

……………………………………………………………………………………

……………………………………………………………………………………

……………………………………………………………………………………

……………………………………………………………………………………

Get together with a partner and look at these two statistics. One of you asks questions about the presented data/forecasts (using the will-future, simple past and simple present). The other one should answer in an adequate way, keeping in mind the correct tense. Take turns with your partner.

Statistic A
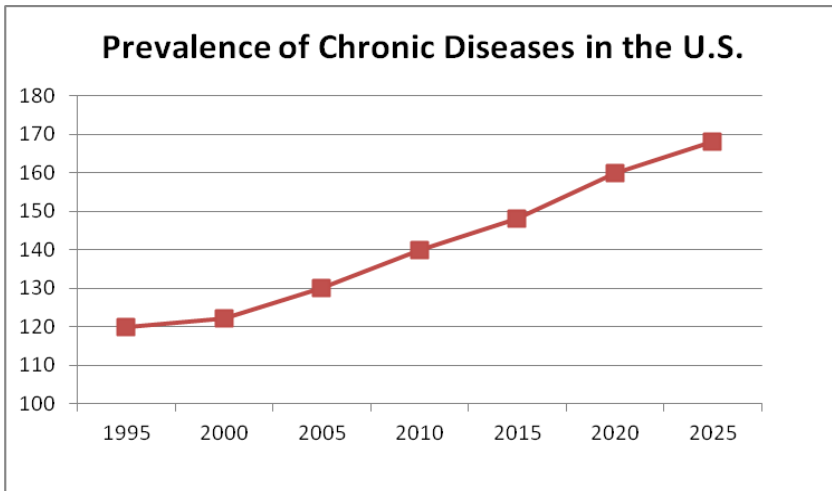
[Own illustration:The data simulates a realistic development]

Statistic B
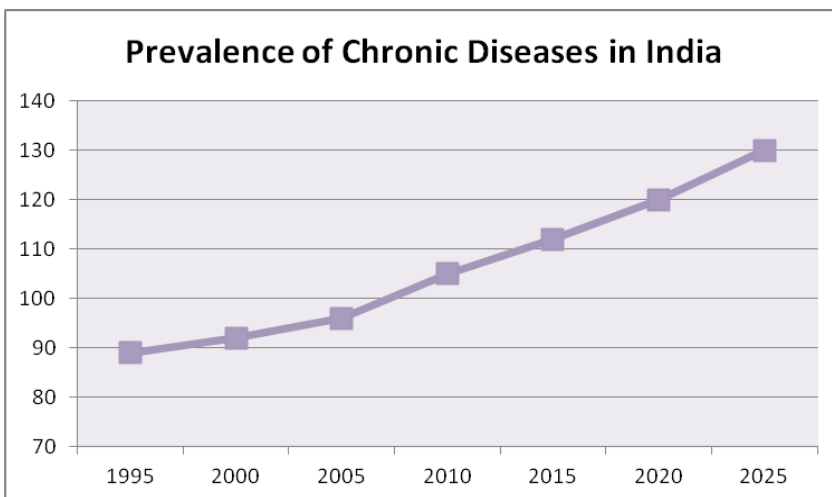
[Own illustration:The data simulates a realistic development]

Activity 4) Consult with Colleagues (Handout)

How to express personal views and interact with colleagues, what is different when interacting with other professionals or patients?

Have a look at this excerpt from the description of some clinical features of mumps. Use a dictionary, if necessary.[54]

- The following is the clinical definition of mumps for the purpose of epidemiological surveillance: Any person with fever and at least two of the following: (1) sudden onset of tender swelling of the parotid gland or other salivary glands, (2) orchitis, or (3) meningitis.

- Mumps is primarily a respiratory infection and as such transmitted by aerosol and respiratory droplets. The invasion of the respiratory tract is frequently accompanied by viremia that results in organ involvement with a preference for the salivary glands.

- The most common clinical presentation of mumps is an acute and tender parotid swelling which develops 16–18 days after exposure in up to 70% of cases. The swelling may be unilateral or bilateral (30–40% of cases) and the inflamed swollen parotid gland lifts the earlobe up and out in a characteristic fashion. The submandibular and sublingual glands may also be involved and swollen.

- Parotitis may be preceded by non-specific prodromal symptoms lasting 3–5 days including malaise, fever, headache, myalgia and arthralgia.

- Serious complications, including encephalitis, may precede or follow the parotitis and can also occur without any apparent involvement of the salivary glands.

---

[54] Adapted from: European Centre for Disease Prevention and Control (ECDC) (2015): Mumps- Fact sheet for the professionals. Online available at: http://ecdc.europa.eu/en/healthtopics/mumps/Pages/factsheet_professionals.aspx.

- Central nervous system (CNS) infection is common with mumps and up to 50% of patients have been shown to have asymptomatic pleocytosis in the cerebrospinal fluid (CSF).

- Mumps meningitis is a mild and often asymptomatic disease with complete recovery. Clinical signs and symptoms of meningism are associated with finding the virus in CSF in up to 15% of cases.

- Orchitis occurs in 25–50% of mumps infections in post pubertal men. In about 30% of cases the orchitis is bilateral and may lead to oligospermia, subfertility and decreased testosterone production but only rarely sterility.

- Mumps can cause pancreatitis which may be associated with transient hyperglycaemia.

- Arthropathy, myocarditis, mastitis, thyroiditis, uveitis and nephritis have been reported.

- The incidence of myocarditis is reported to be up to 15%, but it is usually asymptomatic although deaths have been reported.

Now have a look at the following medical case:

1) How would you communicate this medical case to your colleague?

2) How would you inform the patient's parents?

   What would you say differently?

A previously healthy 4 year old boy is brought to your office by his mother for having low fewer for three days already. Some days prior he had complained about headaches and sore muscles.
First, he continued to take liquids, but he drinks poorly by now. Moreover, he lost appetite since his jaw seems to hurt. His temperature this morning was 103 degrees F (39.4 degree C).

1) <u>Look at these sentences:</u>

How would you inform your colleague or pass on the information to the patient? Rephrase the sentences accordingly.

Use a medical dictionary if you need.

Physician ↔ Patient	Physician ↔ Physician
My daughter is running temperature today.	
She has a sore throat.	
I am feeling dizzy.	
I cannot sleep at night.	
He has swollen joints.	
	We have to administer an enema to the patient.
	The child should get a pertussis vaccination.
	The patient presents with conjunctivitis.
	This may lead to pneumonia.
	One clinical feature is malaise.

2) <u>Express opinions - collect at least 3 examples for the following categories:</u>

Expressing agreement (☺)

…………………………………………………………………………………

…………………………………………………………………………………

…………………………………………………………………………………

…………………………………………………………………………………

Expressing disagreement (☹)

…………………………………………………………………………………

…………………………………………………………………………………

…………………………………………………………………………………

…………………………………………………………………………………

Expressing uncertainty (?)

…………………………………………………………………………………

…………………………………………………………………………………

…………………………………………………………………………………

…………………………………………………………………………………

Expressing confidence (!)

…………………………………………………………………………………

…………………………………………………………………………………

…………………………………………………………………………………

…………………………………………………………………………………

Activity 5) Medical case 1&2, Role play (Handout)

Choose one role card, read it carefully and simulate the scene with your partners. As physician remember how to take a medical history and how to give advice.

Physician: Mrs. McGomery	Father: Tom Smith	Patient: Karen, 8 year old girl
You have to take the anamnesis and diagnose what the problem might be: - ask for the symptoms and medical history, - carry out a physical exam, - consult with a colleague (physician of other group), - explain further procedure to the patient, - give advice to girl and father on drug administration, - take notes of the medical history, differential diagnosis and treatment.	You tell the physician that Karen has already been sick for three days. Symptoms: She is tired the whole time and has a fever of 38 °C. You ask for: - the cause, - transmission and contagion, - treatment, - precautions/ preventions, - inform the physician that there have been ill children in Karen's class – you don't know what exactly they had.	You tell the physician how you feel, ask questions and want to get more information about the treatment: - you feel tired and sick, - you have no appetite, - you have a sore throat, - today your skin is itching, - you noticed red bumps on your torso, - tell him you have holidays in a few days and you want to visit your grandma.

Physician: Mr. Martin	Mother: Susan Hofman	Patient: Robert, 6 year old boy
You have to take the anamnesis,and diagnose what the problem might be: - ask for the symptoms and medical history , - carry out a physical exam, - consult with a colleague - (physician of other group), - explain further procedure to the patient, - give advice to boy and mother on drug administration/ preventive measures, - take notes of the medical history, differential diagnosis and treatment.	You tell the physician that you noticed a mild rash on Robert's face and neck. He is a little tired but not feverish. However, he seems to have a cold. <u>You ask for:</u> the cause, transmission and treatment. You have another child of 3years. You want to know if there are any precautions you have to take or if there are any vaccines. - ask about the benefits, risks and side effects, - ask if you should get the toddler vaccinated or treated as well.	You tell the physician how you feel, ask questions and want to get more information about the treatment: - you feel tired, - you have no appetite, - you have ear pain since your lymph nodes are swollen, - you have a mild rash on your neck and chest, - you eyes hurt, - you present with typical upper respiratory tract symptoms such as runny nose and coughing.

<u>Activity 7 - Homework</u>

1) Now, all of you are the physicians: write a short medical report on both cases. This should include giving the patient advice on how to behave/ what to do (using need, have to, must and should, will-future). The text has to be submitted.

2) Check out the clinical presentations mentioned on *Pedscases* for further training. You can listen to podcasts and do quizzes on medical cases: Lewis, Dr. Melanie, Gill, Dr. Peter, Kitney, Dr. Lauren (2015): *Pedscases- Pediatrics for Medical Students*. Online: http://www.pedscases.com/clinical-presentation.

Scaffolding material

<u>Grammar</u>

This is just a short review. You should look it up again in your grammar book, if there are still questions left.

<u>How to form the will-future:</u>

Positive	*Negative*	*Question*	
I will speak.	I will not speak.	Will I speak?	= will + infinitive

<u>How to use the will-future:</u>

- Future actions happen without the speaker's intention, or cannot be influenced (e.g. It will rain tomorrow)
- Predictions, assumptions (e.g.: She will probably go back tomorrow.)
- Spontaneous actions (e.g.: Wait, I will help you.)
- Promises (e.g.: I will not watch TV tonight)
- First Conditional (likely to happen, possible e.g.: If I arrive late, I will call you.)

<u>Signal words:</u>

in a year, next …, tomorrow

I think, probably, perhaps

<u>Expressing Your Opinion</u>

I think...	In my experience...
As far as I'm concerned…	As far as I understand / can see/see it…
It seems to me that...	I'd say / I'd suggest that…
In my point of view / my opinion,....	I'd like to point out that…

I am of the opinion that...   I believe that/ I am convinced that…

My personal view is that...   What I mean is…

Agreeing with an opinion:

I agree with this opinion/ statement/ procedure…

I completely agree with this view…..

This is absolutely right. / I couldn't agree more.

Disagreeing with an opinion:

I'm afraid I can't agree with you. ..

I disagree with you…

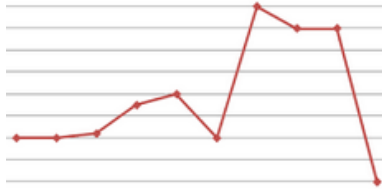I don't agree with you.

I'm not sure about that…

Partial agreement:

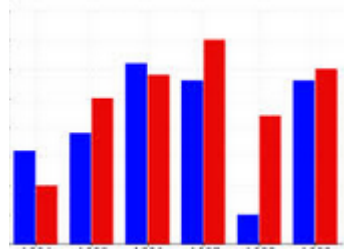I agree with this point of view, but...

This idea is right, but...

I agree with you, but/however...

Describing diagrams

[Own illustrations]

line graph

bar chart

pie chart

table chart

Months	Amount
January	10%
February	15%
March	12%

Describing trends

↑ UP AT THE TOP	rise, increase, grow, go up, improve// a rise, an increase, growth, an upward/ rising/ increasing trend, an improvement, a jump// reach a peak, reach its/their highest point
↓ DOWN AT THE BOTTOM	fall, decrease, drop, decline, go down// a fall, a decrease, a decline, a downward/falling/ decreasing trend // hit/reach its/their lowest point
NO CHANGE	remain stable/constant, stay at the same level, stabilize
FREQUENT CHANGE	Fluctuate/ fluctuation

Some phrases to describe diagrams:

- The pie chart is about/is concerned with ...
- The bar chart deals with ...
- The line graph shows/illustrates ...
- ... has the largest/lowest (number of) ...
- ... has the second largest (number of) ...
- The number..increases/goes up/grows by..
- The number ..decreases/ goes down/ sinks by ..
- The number ... does not change/ remains stable

Adverbs:
- considerably, sharply, significantly, moderately,
- slightly, suddenly, rapidly, steadily, gradually,
- slowly

Prepositions:
- a rise *from* £725 *to* £825
- to increase *by* 2.1 %
- an increase *of* 2.1 % *in* the crime rate

Comparisons: With *than* or *as...as*
→ Spring is warmer than winter.
→ In spring it is nearly as warm as in
    autumn.
For comparing two things you can use:

- "a lot", "much", "a little", "slightly" and "far"
- before "more / less than"
For saying how two things are similar you can use:
- "almost as … as", "not quite as … as", "(not)
- nearly as … as", "nowhere near as … as",
  "twice as … as" and "half as … as"

Examples:
- ... is as high as ...
- ... is twice as big as ...
- ... is bigger/ greater/ smaller than ...
- Almost as many.... as in...
- The numbers in X are higher/lower than in Y…

Further reading:

Information about vaccines and MMR

- BZgA (2015): *Deutschland sucht den Impfpass – Informationen über Impfungen*. Online:https://www.impfen-info.de/impfpass/infos-zu-masern/.

- Mediresource Inc. (2015): *Drug Factsheet M-M-R II (measles, mumps, and rubella vaccine)*. Online: http://chealth.canoe.com/drug_info_details.asp?brand _name_id=1535.

- Owain, John, Pollard, Prof. Andrew (2014): *Vaccine Knowledge project - Infectious diseases*. Online: http://www.ovg.ox.ac.uk/infectious-diseases.

- Ramsay, Dr. Mary (Head of Immunisation, PHE) (2013): *Measles in England 2012 and 2013 Public Health England.* Online: https://www.gov.uk/ government/uploads/system/uploads/attachment_data/file/192611/Presentatio n_by_Mary_Ramsay_-_Measles_in_England_2012___2013.pdf.

Professional interaction and patient interaction

- Travaline, John M., Ruchinskas, Robert, D'Alonzo, Gilbert E. (2005): "Patient-Physician Communication: Why and How" in: *The Journal of the American Osteopathic Association*, January 2005, Vol. 105, 13-18. Online: http://jaoa.org/article.aspx?articleid=2093086.

- Morgan, Sonya (2013): "Miscommunication between patients and general practitioners: implications for clinical practice" in: *Journal of Primary Health Care* 2013, 5(2):123–128. Online:https://rnzcgp.org.nz/ assets/ documents/Publications/JPHC/June-2013/JPHCOSPMorganJune2013.pdf

- Adegbite, Wale, Odebunmi, Akin (2006): "Discourse Tact In Doctor-Patient Interactions In English:

- An Analysis of Diagnosis in Medical Communication in Nigeria" in: *Nordic Journal of African Studies* 15(4): 499–519. Online: http://www.njas.helsinki.fi/pdf-files/vol15 num4/adegbite.pdf.

- Maynard, Douglas W., Heritage, John (2005): "Conversation analysis, doctor–patient interaction and medical communication" in: *Blackwell Publishing Ltd Medical Education* 39, 428–435.

- Ludwig-Maximilians-Universität München - Sprachenzentrum der LMU (2015): *Communication for medical staff.* Online: http://www.medilingua. uni-muenchen.de/online_bausteine/ comm_medical_staff/index.html.

Interactive practice and videos:

- Lewis, Dr. Melanie, Gill, Dr. Peter, Kitney, Dr. Lauren (2015): *Pedscases-Pediatrics for Medical Students.* Online: http://www.pedscases.com/clinical-presentation.

- National Health Service - UK Government (2013): *Infectious illnesses in children.* Online: http://www.nhs.uk/conditions/pregnancy-and-baby/pages/infectious-illnesses-children.aspx#close.

viii. Outlook: Example activites and courses

Draft For The Tandem Project

Exchange of German medical students and medical students of other countries (preferable native speakers of English of partner universities)

1. Sheet with general information:

What is a tandem project and how does it work?

How do I register? What is necessary to participate?

2. Registration sheet:

Mother tongue	
Language to be learnt	
Language level	
Medical course/ specialties	
Number of semester	
Difficulties	
Further information	

3. Template for students: What can be discussed during the sessions?

Presentation

- name, age, place of residence
- Motivation for studying medicine
- Hobbies and interests
- Languages you speak, learn (where, how long)
- Experiences and journeys

Future job
- Where would you like to work/ in which specified medical area?
- Do you like to work in your home country or somewhere else?
- What are your objectives for that?
- Why are you interested in this medical area?
- What plans do you have for your professional future?
- What would you like to experience or accomplish?
- Could you imagine and would you participate in international aid projects?

Similarities or differences of language and culture
- Cultural misunderstandings
- Personal experiences
- Different practices and possibilities
- Authorities and laws

Health care system
- Organization of hospitals or health services
- Medical treatment
- Statutory and private health insurance
- choice of physicians
- types of professions/ specialized areas in the medical sector
- physical aspect of physicians (uniform, etc.) and ambulances
- exams and prerequisite for working

Medicine programs in higher education
- Educational system
- Years of study
- Numerous clauses/ requirements
- Universities of good reputation/ good faculties
- Obligatory and optional modules/ subjects
- Difficulties
- Internships/ practical experiences
- Residences

- Exchange programs or scholarships
- Extra-curricular activities / courses

Medical terminology
- medical and professional jargon
- words, expressions, devices and machines, medications and drugs
- Change of register when speaking to colleagues or patients? During formal meetings or when meeting in the cafeteria?
- Clinical cases/ occurrences
- Clinical trials: What is allowed/ forbidden?
- What kind of experience do you have? Taking notes, working shifts, clinical documentation, administer drugs, etc.
- Experience of interesting/ strange/ demanding incidents
- Any anecdotes of patients you can remember/ want to share?
- Has something funny/ repulsive/ unbelievable/ fascinating happened to you or someone you know?

Projects and future plans
- In general and in relation to your study and profession
- Conclusion of conversations / sessions
- Did you like it or not?
- What did you learn, what did help?
- What do you want to learn additionally?
- Do you want to continue with this exchange?
- What do you want to discuss in future sessions?

4. Register of each session (for student's self-evaluation and professors)

Name	
Partner	
Date	
Duration	
Topic(s)	
What I learned	
What I taught / explained to my partner	
Mistakes that I noticed	
How I can improve	
Suggestions	
Comments	
Remarks for next session (topic, date…)	

5. Questionnaire following the project (for professors/ institution)

Language level	
Level of conversation partner	
Number of sessions	
Duration of sessions	
Regularity	
Topics of discussion	
What did you learn?	
What was effective and good?	
What did you miss?	
Did you have any difficulties -technique-wise -language-wise -with your partner	
Was it helpful for improving your listening and speaking skills? -Yes, it was effective -I liked it, don't know if it was very effective -I will continue in future -I did not like the project -It did not help me	

ix.Further course topics/ sessions

Before specific systems, diseases and symptoms are addressed, there should also be CLIL courses offered on the basics such as:

- Body parts
- Body functions
- Health and Illness
- Medical personnel and places

Additional options:

Terminology

Students get to know more about the typical components of medical words and suffixes. Besides, they get to know the meaning of these words in different cultural contexts and compare professional medical concepts with general understanding (BICS-CALP). A good informational and interactive learning possibility, distinguished between British and American English, is provided by Hutton, Andy (2014): *InterActive Medical Terminology.*Online available at: http://www.medterminologyforcare.co.uk/medical/.

Medicine and Culture

Students get to know different cultural practices and beliefs. They analyze cases in which miscommunication occurred due to cultural differences and get to know alternative medicine practices. The following material can be taken as basis:

- Völkner, Michael (2015): *Patienten beim Hausarzt: Kulturelle Unterschiede bezüglich der Erwartungen und Erfahrungen.* Marburg, Univ., Dissertation.

- Coors, Michael (Hrsg.) (2014): *Interkulturalität und Ethik : der Umgang mit Fremdheit in Medizin und Pflege*. Göttingen : Ed. Ruprecht.)

- McLaughlin, Linda A., Braun, Kathryn L. (1998): "Asian and Pacific Islander cultural values: Considerations for health care decision-making" in: *Health and Social Work*, 23 (2).

- Qiu, Jane (2007): "Traditional medicine: A culture in the balance" in: *Nature* (Nature Publishing Group) Vol. 448, 126-128.

- EuroMed Info (2015): *How culture influences health beliefs*. Online: http://www.euromedinfo.eu/how-culture-influences-health-beliefs.html/.

Health Care Systems

Students get to know different health care systems in various countries and the corresponding health-related educational system, i.e. the medicine program. Thus, they do get familiar with cultural differences and learn about possibilities to work and interact in other countries. This might also be of interest for students going aboard or intending to do so. For comparisons of medicine programs in higher education the following sources can be consulted:

- Glendinning, Eric H., Howard, Ron (2007): *Professional English in use Medicine*. Reprinted. Cambridge: University Press, 30-34.

- MedUni.com - Das Portal der Mediziner (2015): *Medizinstudium in England*. Online: http://www.meduni.com/angebote/ausbildung/ medizinstudium/ausland/england.html.

- RAND Corporation (de Vries, Han, Sanderson, Paul, Janta, Barbara et al.) (2009): *International Comparison of Ten Medical Regulatory Systems - Egypt, Germany, Greece, India, Italy, Nigeria, Pakistan, Poland, South Africa and Spain*. (Prepared for the UK General Medical Council). Online: http://www.gmc-uk.org/International_Comparison _of_Ten_ Medical_Regulatory_Systems___final_report.pdf_25404378.pdf.

Medical Series

In this interactive class, students analyze diverse medical video sequences and as such physician-patient/ physician-physician consultations in English. Medical series such as Dr. House or Grey's Anatomy can be used. To support understanding the transcripts can be given to the students. Analysis should lead to a critical reflection of real-life occurrences and the dealing with ethical question. For instance, it can be discussed if sequences are authentic or rather film-like and what occurrences are unrealistic. Moreover, it can be argued if actions in some scenes would be ethically correct in Germany / the EU or not. An interesting article on this topic is „Wenn Fernsehen schlau macht" from Schmidt, Werner (2008), in *Eine Sonderausgabe der Süddeutschen Zeitung*, Nr. 278. Online available at: https://www.uni-marburg.de/fb20/rpz/presse/dr_house.pdf.

Furthermore, Andrew Holtz published a book in which he analyzed the approach of House: Holtz, Andrew (2006): The Medical Science of House, M.D. Berkley Publishing Group, Penguin Books, London/New York.

Skillslabs

Students gain more hands-on experience in practice-oriented courses. Some *Skillslabs* are integrated in the medicine program and as such are compulsory; others can be attended as extracurricular, voluntary sessions.

GRIPS courses provided throughout the medicine program aim at enhancing the basic skills each physician needs e.g. by doing simulations. For instance, *GRIPS* courses are offered during the pre-clinical, clinical stage and as extracurricular class. Simulations in the pre-clinical stage include: blood pressure measurement, ECG placing and derivation, blood glucose monitoring, subcutaneous injections, preparing infusions, electronic curve guidance, and hygiene and bandages (JLU-FB11 2015l). During the clinical stage, the first semester students participate in courses on anamnesis, physical examination, cardiac auscultation, blood pressure measurement/ ECG derivation and interpretation, pulmonary auscultation, blood taking, suture and knot techniques/ washing and hygiene in surgery. In their second semester students participate in neurological examinations, ENT, locomotor system (1. part knee and acromioclavicular joint/ 2. part vertebral column, hip joint, ankle) and sonography. A course offered on ophthalmology should be attended in the fourth semester. During the 5th semester of the clinical stage students get more hands-on experience during sessions that are part of the block practical training. These include urinal catheter (integrated in the training urology), lumbar puncture (in neurology), ENT examination (in ENT), and obstetrics (in gynecology) (JLU-FB11 2015m).

GiSim courses focus on anesthesia and emergency medicine (JLU-FB11 2015k). Regular *GiSim* courses in the medicine program encompass *Basic Life Support* and *Advanced Life Support* in the first clinical semester. Practical trainings on anesthesia have to be attended in the second and

intensive care medicine in the 6th semester. Students in more advanced semesters and attendants of the PJ can voluntarily take part in reanimation workshops. Moreover, students may participate in an external course on *Prehospital Trauma Life Support* (PHTLS) (JLU-FB11 2015n).

x. Further Possible Resources and Scaffolding Material

Möglichkeiten im Ausland/ für Auslandserfahrungen

Medizinernachwuchs (2015): *Chancen im Ausland.* Online: http://medizinernachwuchs.de/category/chancen-im-ausland.

Informationen über das Ausführen des Berufes Arzt in Großbritannien/ Möglichkeiten

BDI aktuell (2007): *Facharzt Innere Medizin in Großbritannien.* Online: http://www.bdi.de/fileadmin/PDF/bdi_aktuell/2007/04/08_weiterbildung.pdf.

Deutsch-Englische-Ärzte-Vereinigung - Anglo-German-Medical-Society

AGMS-DEÄV (2015): *Deutsch-Englische Ärztevereinigung.* Online: http://www.agms.net/index.php?id=15.

American College of Physicians. Patient Care & Office Forms for downloading

ACP (2015): *Patient Care & Office Forms.* Online: https://www.acponline.org/running_practice/practice_management/forms/matrix.htm.

English for Medical Purposes, dialogues and vocabulary

AboutEducation (2015): English for Medical Purposes. Online: http://esl.about.com/od/englishformedicalpurpose/.

Flashcards, Listening Exercises, Worksheets for diverse topics

Cox, Max (2015): *English for medical professional.* Online: http://www.hospitalenglish.com/.

Bundesinstitut für Arzneimittel und Medizinprodukte

BfArM (2013): *DE (BfArM) PSUR Submission Letter.* Online: http://www.bfarm.de/SharedDocs/Formulare/DE/Arzneimittel/Pharmakovigilanz/psur/ca-psur-einreichung.rtf?__blob=publicationFile.

Study-related organization, going abroad

- Robert L. Snipes (1998): Planning a "Famulatur". Online: https://www.uni-giessen.de/cms/fbz/fb11/studium/medizin/ausland/planning%20a%20famulatur.
- Robert L. Snipes (1998): Description in English "Famulatur". Online: https://www.uni-giessen.de/cms/fbz/fb11/studium/medizin/ausland/beschreibung%20famulatur
- Robert L. Snipes (1998): Planning a PJ. Online: https://www.uni-giessen.de/cms/fbz/fb11/studium/medizin/ausland/planning%20a%20pj

CLIL resources and information
- Inglin, Oswald (2013): "Difference between Content Subject in English vs. CLIL and Content Subject through English", in: *CLIL's Little Helpers*. hep Verlag, 17.
- Dale, Liz/ Tanner, Rosie (2012): "Differences between CLIL and other teaching approaches", in: *CLIL Activities.* Cambridge University Press, 4-5.
- Latin American Journal of Content and Language Integrated Learning (LACLIL). Issued by the Universidad de La Sabana, Departamento de Lenguas y Culturas. Online available at: http://unisabana.academia.edu/LACLIL.
- International CLIL Research Journal. Issued by the University of Jyväskylä, Finland. Online available at: http://www.icrj.eu/.

Medical Releases and Research
The following journals can be taken as basis for the enhancement of medical concepts, lectures and seminars. Current research information and data provided online can be used in education. Further, students should be familiar with these leading medical journals in order to keep up to date with new developments and findings.

- British Medical Journal (BMJ). London, UK. Online available at: http://www.bmj.com/.
- Oxford University Press (OUP) Journals – Medicine & Health. Oxford, UK. Online available at: http://www.oxfordjournals.org/en/our-journals/medicine-and-health.html.
- The American Journal of Medicine – Official Journal of the Alliance for Academic Internal Medicine (AMJMED). Tucson, Arizona. Online available at: http://www.amjmed.com/.

- The Medical Journal of Australia (MJA). Sydney, Australia. Online available at: https://www.mja.com.au/.
- The New England Journal of Medicine (NEJM). Waltham, Massachusetts. Online available at: http://www.nejm.org/.

This thesis explores the ways in which Content and Language Integrated Learning (CLIL) with English can be implemented in medicine programs for higher education. This teaching approach emphasizes learning content while simultaneously developing language skills and promoting an effective motivational learning arrangement whilst occupational language skills and knowledge of interest are acquired. The necessity for students of medicine to have a certain proficiency of English and how they can be supported in improving their language skills is discussed.

UB