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**The general practice rotation:**

**Level of student involvement, occurrence of teaching  
points, and questions asked by preceptors**

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## **Abbreviations**

AMEE: The Association for Medical Education in Europe

GP: General practitioner

ESMGPR: Ethnographical study of the Marburg general practice rotation

MCQ: Multiple choice question

MESBA: Marburger ethnographische Studie zum Blockpraktikum Allgemeinmedizin

OSCE: Objective structured clinical examination

SNAPPS: Mnemonic for 1) Summarize the history and findings 2) Narrow the differential 3) Analyze the differential 4) Probe the preceptor 5) Plan management for the patient's medical issues 6) Select a case-related issue for self-directed learning

## **1. Introduction**

### **1.1. Background information and research context**

#### **General practice and family medicine rotation in Marburg**

A three-week general practice and family medicine rotation is mandatory for all medical students attending Philipps University, Marburg, Germany. The rotation is part of the third clinical year (fifth overall year) of the undergraduate medical course. The students spend approximately 60 hours in a general practitioner's office. A seminar accompanies the rotation. The students are expected to complete at least five case studies using structured forms supplied by the Institute of Family Medicine and General Practice, Marburg. The case studies include the following medical issues: benign acute disease, chronic disease, management of a medical emergency, psychological or social issue, care of the elderly, death and dying, prevention and health promotion, substance abuse and addiction.

Students are expected to observe and participate in patient consultations. General practitioners may also delegate certain tasks to the student, such as history taking or physical examination. Students may also experience visiting care homes and home visits whilst accompanying the general practitioner. In short, they join in any and every activity the general practitioner experiences on an everyday basis.

With the assistance of an electronic registration form, students are able to choose their preferred practice. The students are allocated to the practices on a first come, first served basis.

On completion of the rotation, the students evaluate the practice, the practitioner, and their learning experience, whilst the practitioners mark the students' performance. A written examination and an objective structured clinical examination (OSCE) are conducted on the last day of the rotation.

### **German context**

It is mandatory for all undergraduate medical students in Germany to complete a two-week general practice and family medicine rotation (Bundesgesetzblatt 2012). The Philipps University of Marburg medical faculty, similarly to a number of other German medical schools, requires students to complete a three-week rotation (DEGAM 2013). Primary care has been allocated greater priority for future undergraduate medical degree courses as a consequence of the changing medical care landscape (Bundesministerium für Bildung und Forschung 2017).

Student-teacher interaction occurring in this setting has been sparsely investigated in the past. Steinhäuser et al analysed how medical students perceived family medicine as a specialty (Steinhäuser et al. 2013), whilst Kiolbassa et al surveyed factors in undergraduate medical students impacting on specialty career choice (Kiolbassa et al. 2011).

Depending on the medical faculty, the general practice rotation occurs at a different point during undergraduate education. Students completing their undergraduate medical training in Marburg are in their fifth year of a six-year course. Consequently, their knowledge and skills would be of a standard enabling active participation in patient consultation.

General practitioners do not currently have to participate in any form of training concerning teaching techniques. Courses and seminars on teaching are offered by some faculties, including Marburg.

The family medicine clerkship was investigated by Kowlowitz et al in relation to medical issues encountered by students, the form of supervision provided, and student inclusion in the consultation process (Kowlowitz et al. 1996).

The data presented here aspire to illuminate different aspects of student-teacher interaction occurring during the general practice rotation.

The abbreviation MESBA stands for 'Marburger ethnographische Studie zum Blockpraktikum Allgemeinmedizin,' which can be translated as 'the ethnographical study of the Marburg general practice rotation' (ESMGPR). This study enabled direct observation of the teaching occurring during the general practice and family medicine rotation. The possibility of direct observation was one of the reasons for inception of this study. The report presented here examines the occurrence and content of teaching points, the level of student involvement, and the type of questions asked and tasks set by the teaching physician.

## **International context**

An Australian study on a longitudinal family medicine community clerkship in rural areas saw general practitioners viewing the process as beneficial for all involved (student, teaching physician and the rural community) (Hudson et al. 2011). This qualitative study investigated rural GPs' perceptions of a new long-term clerkship for medical students. The longitudinal model was seen as a way of recruiting future potential and offering a real-life learning environment.

The programme was based on the idea of communities of practice (Wenger 2008), a social learning theory, whereby a student may become a member of a certain community via a process termed legitimate peripheral participation (Lave and Wenger 1991).

Another Australian publication investigated the general practitioner's perception of being involved in teaching medical students (Sturman et al. 2011). Negative impacts such as perceived time pressure, reduced productivity, and mental fatigue as well as positive impacts such as intellectual stimulation and teaching itself as a satisfying process were found (Sturman et al. 2011).

There are also examples of how to combine student education with outpatient care. In the AMEE (The Association for Medical Education in Europe) Guide on teaching in ambulatory care, John A. Dent provides a practice oriented overview on how to integrate student education into outpatient care (Dent 2005).

In 1995, Irby conducted a comprehensive review on the teaching and learning situation in ambulatory medicine (Irby 1995). The review identified characteristics of proficient teachers, but also found that generally little discussion and review of cases took place, with little or no teaching, and scarce feedback. The same author found six domains of knowledge demonstrated by effective clinical teachers when conducting teaching rounds (Irby 1994). Teaching scripts containing teaching points, or based on cases, were viewed as a component of instruction techniques (Irby 1994).

A survey of senior medical students and residents found certain characteristics to be associated with effective clinical teachers (Irby et al. 1991). These included involving the trainee in the learning process, communicating performance expectations, stimulating the learner's interest, and skilful interaction with patients (Irby et al. 1991). The learning environment was found to possess no great relevance (Irby et al. 1991).

## **1.2. Teaching points**

This report examines different aspects of student-teacher interaction occurring within the general practice rotation. One aspect examined was the occurrence and content of teaching points. Before proceeding, it seems judicial to define the term teaching point utilized in the study presented here.

A teaching point can be defined as the statement of a general rule or a specific case- related piece of information. This unit of information

may consist of a single sentence. The expression of a teaching point seldom requires more than one to two minutes. Irby and colleagues used the term in a report on teaching points identified by clinical teachers observing different videotaped teaching models (Irby et al. 2004). To enable efficient coordination of patient management and student instruction, teaching points can be integrated into a teaching script (Irby et al. 2004)(Irby 1994)(Irby 1995). Furthermore, clinical instructors may memorize these scripts due to repetition. Certain subjects and situations may trigger particular teaching scripts (Irby et al. 2004)(Irby 1995). Common beginners' pitfalls also form part of effective teaching scripts (Irby et al. 2004).

The data presented here differentiate between general and specific teaching points. General teaching points contain a universal rule, which is transferrable to future consultations, and therefore useful for formation of universal medical knowledge and skills.

For the purpose of this study, specific teaching points are defined as units of information imparted with the aim of understanding the patient present. Thus, specific teaching points may be crucial to orienting the student to unique details of a particular case.

In order to illustrate and measure components of the teaching process, teaching points were recorded and analyzed regarding content and specification.



### **1.3. Student involvement: Legitimate peripheral participation and communities of practice**

Another aspect examined by this report is the level of student involvement in the consultation process. The theoretical background is largely provided by the concept of legitimate peripheral participation, as described by Lave and Wenger (Lave and Wenger 1991). Lave and Wenger described apprenticeships in the light of situated learning (Lave and Wenger 1991). Parboosingh described the concept of community of practice in medical education in 2002 (Parboosingh 2002). This topic was later reviewed by Cruess et al (Cruess et al. 2018).

Situated learning is seen as an apprenticeship, where legitimate peripheral participation in a so-called community of practice leads to the novice becoming a member of the community. In the study described here, the community of practice was represented by the general practice surgery in which the student completed his or her rotation.

The concept of cognitive apprenticeship, as described by Brown et al, embeds learning in activity, thus making use of the social and physical context (Brown et al. 1989). As Brown notes, "Cognitive apprenticeship methods try to enculturate students into authentic practices through activity and social interaction in a way similar to that evident-and evidently successful-in craft apprenticeship" (Brown et al. 1989).

Lave and Wenger argue that, "as an aspect of social practice, learning involves the whole person" (Lave and Wenger 1991, p. 53). This in turn "implies not only a relation to specific activities, but a relation to social communities " and " becoming a full participant, a member, a kind of person" (Lave and Wenger 1991, p. 53). Peripheral membership is necessary in order to develop full membership, or in the medical education setting, professional identity (Monrouxe 2010)(Wilson et al. 2013). Or as Lave and Wenger note, "learning and a sense of identity are inseparable: They are aspects of the same phenomenon" (Lave and Wenger 1991, p. 115).

The concept of situated learning can be viewed as a rationale for clinical rotations and clerkships. Legitimate peripheral participation "concerns the process by which newcomers become part of a community of practice" (Lave and Wenger 1991, p. 29). In other words, "the concept of legitimate peripheral participation obtains its meaning, not in a concise definition of its boundaries, but in its multiple, theoretically generative interconnections with persons, activities, knowing, and world" (Lave and Wenger 1991, p. 121). Learning is seen as more than `just` acquisition of knowledge, but rather as a process of becoming a member of a community of practice (Lave and Wenger 1991, p. 49). Not "learn[ing] *from* talk," but learning "to talk" is seen "as a key to legitimate peripheral participation" (Lave and Wenger 1991, p. 109).

In order for the novice to know in which direction to develop, it is important that the community of practice is transparent (Lave and Wenger 1991, p. 102). However, this ideal learning situation is not always encountered, as mentioned by Hammersley and Atkinson in their book on ethnography (Hammersley and Atkinson 2007, p. 189).

Certain craftsmen are described as occasionally deliberately keeping knowledge from novices. The newcomer is initially only permitted to perform menial tasks, while the craft is kept a mystery. Apart from being transparent, a community of practice must also be accessible to the beginner, as without initial access, no membership of any kind can be gained (Lave and Wenger 1991, pp. 101–102)(Hammersley and Atkinson 2007, p. 189).

Furthermore, Lave and Wenger describe the idea of “cycles of social reproduction ” (Lave and Wenger 1991, p. 57) and “developmental cycles of communities of practice,” (Lave and Wenger 1991, p. 121) with a constant replacement of old-timers by (former) apprentices. However, as a community constantly changes, everyone is to a certain extent always an apprentice. The environmental changes are also driven by the very people who have to adapt to their own changes (Lave and Wenger 1991, p. 57). This can lead to a conflict between generations, as “learning, transformation, and change are always implicated in one another” (Lave and Wenger 1991, p. 57).

Learning and teaching are seen as two separate entities, with conflicting goals and viewpoints (Lave and Wenger 1991, p. 97, 1991, p. 113). As a result, there is a difference between learning and teaching curriculums.

The “circulation of knowledge among peers or near-peers” is also seen as an important factor for the dispersion of knowledge (Lave and Wenger 1991, p. 93).

## **1.4. Qualitative research**

Qualitative research encompasses a variety of different methods, instruments, and background theories which can be utilized according to the type of research question (Kuper et al. 2008b) (Kuper et al. 2008a).

Quantitative research is often founded on an objectivist epistemology, with the view that there is one discoverable reality. The corresponding theoretical framework is termed positivism (Kuper et al. 2008b).

In contrast, qualitative research is often founded on a constructivist epistemology, which assumes that reality is built by different factors on individual, societal, local, global, and historical levels. Common theoretical frameworks include ethnography, grounded theory, discourse analysis, interactionism, phenomenology, hermeneutics, critical theory, feminism, and postmodernism (Kuper et al. 2008b).

Objectivist research tools commonly include statistical analysis and surveys, often based on experimental setups, whilst constructivist researchers use direct observation of everyday life, interviews, focus groups, and analyses of text documents, videotapes, and audio-recordings. (Kuper et al. 2008b).

The researcher is often situated within the observed setting, even if a non-participant approach is chosen. Sampling may be purposeful and non-random. Thus, reflection on the role and the influence the researcher has on the observation methods used and results gained,

is seen as important. This is termed reflexivity. (Kuper et al. 2008b) (Kuper et al. 2008a).

In objectivist, purely quantitative research, validity, reliability, and statistical significance are used as quality criteria, whereas the concepts of trustworthiness and dependability, credibility, transferability, and resonance may be of greater relevance in constructivist research (Kuper et al. 2008b).

It may be possible to transfer qualitative research outcomes to different settings. However, creating generalizable results in the manner of quantitative studies is not the main aim of qualitative research. Rather, qualitative research produces detailed descriptions of individuals or groups within society (Kuper et al. 2008b).

It is important to note that a constructivist approach does not exclude quantitative methods in the form of statistical analysis.

Lingard et al describe mixed methods as a certain approach which combines elements of both quantitative and qualitative research in order to deal with more complicated queries (Lingard et al. 2008).

The different approaches may be used consecutively or simultaneously, methods may be viewed as equal, or prioritised. A strategy for the handling of the different approaches should exist. (Lingard et al. 2008).

Defining the theoretical framework of the qualitative analysis executed as part of the study presented here as not post-modern is appropriate (Brewer 2000) (Hammersley and Atkinson 2007) (Kuper et al. 2008b). This entails that criteria concerning the quality of

research adhere, for example reflexivity and triangulation of data collection and analysis methods (Brewer 2000) (Hammersley and Atkinson 2007) (Reeves et al. 2013) (Kuper et al. 2008b).

#### **1.4.1. Classification of student involvement**

The study employed a multi-step hierarchy developed primarily by Norbert Donner-Banzhoff, a study initiator and co-investigator, in order to categorize the level of student involvement in the consultation process. To the knowledge of the investigators, no other instrument suitable for the studied context existed. The levels range from passive to different forms of active involvement. The system was developed with the assumption that the more active the involvement, the more effective in supporting the development towards becoming a doctor the experience is. As described above, the process of legitimate peripheral participation (Lave and Wenger 1991) and professional identity formation (Monrouxe 2010; Parboosingh 2002) provide a theoretical background to this categorization. The hierarchy as such is divided into three main categories (A-C), encompassing five discernible levels of student involvement (I-V), which span six different modes of involvement (1-6). During one consultation, different modes of teaching could occur, so consequentially multiple categorizations per consultation were possible. An overview is presented in table 1.

The three main categories are passive student attention, allocation of single tasks or demonstration of findings by the GP, and student

consultation. The third category is subdivided into four different modes of student consultation: Student consultation followed by consultation conducted by the practitioner without any form of prior student case presentation (3a). Student consultation followed by GP consultation, which is preceded by the student reporting back without active patient involvement (duet, or 3b). Student consultation followed by GP consultation, which is preceded by the student reporting back with active patient involvement (trio, or 3c). The last step in the hierarchy of teaching modes is defined as student consultation under direct supervision by the general practitioner (3d).

Categories 3b and 3c are very similar in terms of teaching mode, as they both include student consultation followed by some form of student report or case presentation. The only point in which they differ is active patient involvement. Under the aspect of teaching, they can be viewed as one level of student involvement. Passive patient attention during student case reporting can occur for different reasons, as personal character, politeness, or linguistic exclusion due to the student and practitioner using medical vocabulary not comprehensible to the general public (Elsley et al. 2017; Monrouxe et al. 2009; Rees et al. 2013). However, the latter is not the subject of this dissertation. The dissertation by Lisa Marie Roth also utilized the classification of student involvement described here as a basis for selecting videotapes in order to analyse linguistic forms of power expression (Roth 2018).

**Table 1. Categorization of student involvement**

<b>1</b> Passive student involvement
<b>2</b> Demonstration
<b>3</b> Student consultation
<b>3a</b> Re-Consultation by GP
<b>3b</b> Duet: student reports back without patient involvement
<b>3c</b> Trio: student reports back with patient involvement
<b>3d</b> Student consultation under direct observation

(Multiple categorizations possible)

### **1.5. Why Ethnography?**

It may seem unusual to come across the terms ‘ethnography’ or ‘ethnographical methods’ in the context of research conducted under the auspices of a medical institute. A definition and an explanation are called for! According to the online version of the Chambers 21<sup>st</sup> Century Dictionary, ethnography is defined as “a detailed description of the culture of a particular society based on fieldwork and participation in the life of the society” (Chambers 21st Century Dictionary). The study described here (MESBA) aimed to gain detailed insights into the teaching which took place during the general practice and family medicine rotation. This was achieved by taking field notes or videotaping whilst participating in patient consultation as an observer. The ‘society’ referred to here is the



teaching physician's office. The terms environment, or teaching environment, perhaps more aptly describe the situation under observation. For the purpose of our study, it is also useful to consider the definition supplied by Brewer (Brewer 2000). He differentiated between "big ethnography," meaning "qualitative research as a whole," and so-called "little ethnography," meaning "ethnography-as-fieldwork" (Brewer 2000, p. 10). The latter form is characterized as following: "Ethnography is the study of people in naturally occurring settings or 'fields' by means of methods which capture their social meanings and ordinary activities, involving the researcher participating directly in the setting, if not also activities, in order to collect data in a systematic manner but without meaning being imposed on them externally" (Brewer 2000, p. 10).

The definition used here is based, in turn, on Atkinson and Hammersley's definition of ethnography (Atkinson, Paul and Hammersley, Martyn 1998)(Brewer 2000, pp. 18-19).

As formulated by Reeves et al, "Ethnography is a methodology with an associated toolbox of methods - primarily participant observation - and a range of products (e.g. reports, videos)" (Reeves et al. 2013).

The word 'method' refers to "a way of doing something, especially an ordered set of procedures or an orderly system," or "a technique used in a particular activity " (Chambers 21st Century Dictionary). The same source defines the term 'methodology' as "the system of methods and principles used in a particular activity, science, etc.," or, "the study of method and procedure " (Chambers 21st Century Dictionary).

According to Reeves et al, "Ethnography is the study of social interactions, behaviours, and perceptions that occur within groups, teams, organisations, and communities" (Reeves et al. 2008).

Ethnography aims to generate "rich, holistic insights into people's views and actions, as well as the nature . . . of the location they inhabit, through the collection of detailed observations and interviews" (Reeves et al. 2008).

Central traits of ethnographic research include the "emphasis on exploring the nature of a particular social phenomenon," rather than testing hypothesis (Reeves et al. 2008). This form of research tends to work with so-called 'unstructured data' not yet coded at point of collection (Reeves et al. 2008). Often, a small number of cases is sampled and described in great detail (Reeves et al. 2008).

Ethnographical work can be interpreted in many different ways. There are a multitude of perspectives and attitudes toward ethnographic methods voiced by other professionals, lay people or adopted by ethnographers themselves (Brewer 2000) (Denzin 1997).

However, the constraints mentioned in the discussion should always be taken into consideration.

A number of ethnographical works dealing with medical education have been produced over the years. "Boy in white: Student culture in medical education" was published in 1961 by Becker and colleagues (Becker et al. 2007), preceded by "Training for uncertainty" by Fox (Fox R 1957), which in turn formed part of the book titled "The student physician: Introductory studies in the sociology of medical

education,” edited by Merton et al (Merton et al. 1957). Other publications followed (Bloom SW 1973), (Atkinson 1984), (Lindenbaum 1993), (Sinclair 1997) ). These were also mentioned in the paper “Ethnography in qualitative educational research: AMEE Guide No. 80,” by Reeves et al (Reeves et al. 2013), as well as by Atkinson and Pugsley (Atkinson and Pugsley 2005).

## **1.6. Bloom’s Taxonomy**

The qualitative aspect of this dissertation deals with the questions asked and assignments allotted by educators in the general practice context. An attempt is made to align the questions and tasks with educational objectives. These objectives have previously been described by Bloom and colleagues (Bloom 1987), and then developed further by Anderson and Krathwohl et al (Anderson and Krathwohl 2001). The objectives were originally developed for the (American) college context, not specifically for undergraduate medical education. As a result, this analysis also explores whether an adaptation for the general practice rotation is at all feasible. This is not about students’ answers, or knowledge, or skills, but about what is being asked of them in the first place.

In the mid-twentieth century, Bloom and colleagues discussed how to define and structure different educational outcomes (Bloom 1987; Krathwohl et al. 1981). The resulting handbooks were developed as a group project, coordinated via conferences held in the USA between 1949 and 1953 for the cognitive domain, and until 1957 for the affective domain. The cognitive handbook (Bloom 1987) was first

published in 1956, the affective handbook (Krathwohl et al. 1981) followed in 1964. The contributors had background experience as college examiners; an informal meeting under the auspices of the American Psychological Association Convention in Boston in 1948 sparked the idea of forming a new system by which to classify educational objectives. The main motive for doing so being the stimulation of research concerning examination and education (Bloom 1987).

Before continuing, it is useful to define the central term, taxonomy. The word `taxonomy´ is defined as "The branch of science concerned with classification, especially of organisms; systematics," or "A scheme of classification" (Oxford Dictionaries). Another source describes taxonomy as "the practice or technique of classification" (Chambers 21st Century Dictionary). The group of college examiners in the mid-twentieth century aimed to classify educational objectives, so as to be able to communicate across disciplines (psychology, education) when conducting research. In Bloom´s (1987) words, the Handbook is "an attempt to build a taxonomy of educational objectives. It is intended to provide for classification of educational goals of our [USA, 1950s to mid -1960s] educational system. It is expected to be of general help to all teachers, administrators, professional specialists, and research workers who deal with curricular and evaluation problems. It is especially intended to help them discuss these problems with greater precision" (Bloom 1987, p. 1). Teaching methods or materials are not the object of the taxonomies. Rather, the "intended behavior of students -- the ways in which individuals are to act [psychomotor domain], think [cognitive

domain], or feel [affective domain] as a result of participating in some unit of instruction” (Bloom 1987, p. 12) is classified.

Examples of student behaviour and possible ways of testing for these behaviours or `objectives´ are provided by Bloom and colleagues for each category, subcategory and sub-subcategory.

### **1.6.1. Outline of domains**

#### **1.6.1.1. Cognitive domain**

The foreword to the cognitive Handbook contains a brief outline of each taxonomical domain. The cognitive domain is defined as including “objectives which deal with the recall or recognition of knowledge and the development of intellectual abilities and skills” (Bloom 1987, p. 7). It is the first domain Bloom and colleagues completed, as it is the area in which they found the clearest definitions and descriptions, and the field most educational thought had been applied to (Bloom 1987, p. 7).

#### **1.6.1.2. Affective domain**

The affective domain is defined as including “objectives which describe changes in interest, attitudes, and values, and the

development of appreciations and adequate adjustment” (Bloom 1987, p. 7). As one can imagine, this part of the taxonomy took longer to complete (1964), as it is difficult to precisely describe emotional behaviour, and even more difficult to assess, as one has to rely on overt behaviour in order to assess covert changes (Bloom 1987, p. 7).

### **1.6.1.3. Psychomotor domain**

The psychomotor, or “manipulative or motor - skill” domain was seen as existent by Bloom and colleagues (Bloom 1987, p. 7). However, they saw such sparse evidence of its implementation in education, that they did “not believe the development of a classification of these objectives would be very useful” at that point (Bloom 1987, pp. 7–8).

### **1.6.2. Rationale for concentrating on the cognitive domain**

This dissertation concentrates on the cognitive domain for the qualitative analysis of procured videotapes. This is due to the fact that cognitive categories are easier to apply to the observed interaction. Questions, answers and statements made by teaching practitioners and students are overtly observable, and thus easier to categorize. The affective dimension involved in student-teacher interaction is much harder to assess, as the people involved do not necessarily show or express their emotions in an overt and clearly

definable manner. The psychomotor taxonomy was not developed by Bloom and colleagues, and is not included in the following evaluation. Furthermore, gaining psychomotor skills is not an explicit objective of the general practice rotation. Instead, previously gained skills are more likely to be integrated into student participation in the consultation process.

### **Summary of cognitive domain and definitions**

A summary of content is useful in order to gain an overview of the subject. Handbook 1, which contains the cognitive domain, is made up of two parts (Bloom 1987). Part I gives an overview of the taxonomy project, with its history and background (Bloom 1987). The ideas and principles behind the taxonomy are explained. Part II contains the taxonomy itself, with a description of each category, subcategory (and in some cases, sub-subcategory), followed by suggestions on how to test for these categories (Bloom 1987). The taxonomy is summarized below as a table.

For the study presented here, the revised categories according to Anderson and Krathwohl et al were adapted and used for the evaluation of the videotaped interaction between students and teaching physicians (Krathwohl 2002; Krathwohl et al. 1981). The original taxonomy is important, as it forms the base on which the revised version was developed.

**Table 2. Original Bloom Taxonomy**

<b>1. 00 Knowledge</b>	
<b>1.10</b>	<b>Knowledge of specifics</b>
<b>1.11</b>	<b>Knowledge of terminology</b>
<b>1.12</b>	<b>Knowledge of specific facts</b>
<b>1.20</b>	<b>Knowledge of ways and means of dealing with specifics</b>
<b>1.21</b>	<b>Knowledge of conventions</b>
<b>1.22</b>	<b>Knowledge of trends and sequences</b>
<b>1.23</b>	<b>Knowledge of classifications and categories</b>
<b>1.24</b>	<b>Knowledge of criteria</b>
<b>1.25</b>	<b>Knowledge of methodology</b>
<b>1.30</b>	<b>Knowledge of universals and abstractions in a field</b>
<b>1.31</b>	<b>Knowledge of principles and generalizations</b>
<b>1.32</b>	<b>Knowledge of theories and structures</b>
<b>2.00 Comprehension</b>	
	<b>2.10 Translation</b>
	<b>2.20 Interpretation</b>
	<b>2.30 Extrapolation</b>
<b>3.00 Application</b>	
<b>4.00 Analysis</b>	
	<b>4.10 Analysis of elements</b>
	<b>4.20 Analysis of relationships</b>
	<b>4.30 Analysis of organizational principles</b>
<b>5.00 Synthesis</b>	
	<b>5.10 Production of a unique communication</b>
	<b>5.20 Production of a plan, or a proposed set of operations</b>
	<b>5.30 Derivation of a set of abstract relations</b>
<b>6.00 Evaluation</b>	
	<b>6.10 Evaluation in terms of internal evidence</b>
	<b>6.20 Judgements in terms of external evidence</b>

Source: Table based on Bloom (Bloom 1987, pp. 201–207) and Krathwohl (Krathwohl 2002).



## **1.7. Revised Taxonomy**

Anderson, Krathwohl and colleagues devised a revised version of Bloom's Taxonomy in 2001 (Anderson and Krathwohl 2001). David R. Krathwohl described and summarized the revised taxonomy in 2002 (Krathwohl 2002). The paper was used as a reference for the qualitative analysis conducted as part of this dissertation. The revised version becomes two-dimensional as opposed to the one-dimensional original. The knowledge dimension comprises of four different categories, namely factual, conceptual, procedural, and metacognitive knowledge. The metacognitive knowledge category is not included in the original taxonomy. The cognitive process dimension contains the verbs previously used in the original taxonomy as main categories. Each objective can be categorized according to the cognitive process (remember, understand, apply, analyze, evaluate, create) demanded, as well as the corresponding knowledge dimension. More than one placement within the taxonomy table is possible for one event. The categories evaluate and create have switched positions, as the process of creating something new and original is seen as more complex than evaluating given facts. A table, as opposed to a purely hierarchical list, is formed. Strict hierarchy is abandoned. However, a certain ranking is retained in the cognitive process dimension, as the processes 'remember' and 'understand' form prerequisites for the more complex processes 'apply,' 'analyze,' 'evaluate' and 'create.'

"The Taxonomy of Educational Objectives," as originally defined by Bloom and colleagues, as well as the revised taxonomy, refer mainly

to text-associated assignments (Bloom 1987) (Anderson and Krathwohl 2001) (Krathwohl 2002). Therefore, an adaptation to the consultation setting was necessary. Descriptive transcript extracts from the assessed videotapes are included in the results section.

**Table 3. The Revised Taxonomy**

<b>The cognitive process dimension</b>						
<b>The knowledge dimension</b>	<b>1: Remember</b>	<b>2: Understand</b>	<b>3: Apply</b>	<b>4: Analyze</b>	<b>5: Evaluate</b>	<b>6: Create</b>
<b>A: Factual Knowledge</b>						
<b>B: Conceptual Knowledge</b>						
<b>C: Procedural Knowledge</b>						
<b>D: Metacognitive Knowledge</b>						

Source: Table based on Anderson and Krathwohl (Anderson and Krathwohl 2001) and (Krathwohl 2002).

## **1.8. Comparison of the original and revised taxonomies**

The original taxonomy (Bloom 1987) comprises of six main, increasingly complex categories. The revised taxonomy (Anderson and Krathwohl 2001) (Krathwohl 2002) is structured as a table, the vertical axis describing the knowledge dimension, and the horizontal axis representing the cognitive process dimension. Thus, cells are formed at the intersections of the knowledge dimensions and cognitive process dimensions. Any objective (question, task) can be classified according to one or more cell(s). The original taxonomy allows for objective classification according to one main category, or subcategory within the main category. It is strictly hierarchical, ranging from simple to complex objectives. The revised table allows for the assessment of a curriculum, blank cells appearing where there is perhaps room for improvement, or concentration of objectives within a few cells, thus making an accurate description possible (strengths, weaknesses, aims etc.). Categories five (synthesis) and six (evaluation) switch places, becoming five (evaluate) and six (create). Creating something new is seen as more challenging than evaluation of known, given facts (Bloom 1987) (Anderson and Krathwohl 2001) (Krathwohl 2002).

The following analysis utilized the revised taxonomy for a number of reasons. It was possible to draw a more dimensional picture of the content taught, thus enabling a rounded description of a certain event. The classification of a particular objective was no longer limited to one level within a hierarchy. Rather, different aspects of a

single objective became visible, as the objective could be placed in more than one cell within the table described above.

A number of different publications have described the utilization of Bloom's taxonomy (original and revised versions) in medical education curricula (Zaidi et al. 2017a) (Zaidi et al. 2017b) (Thompson and O'Loughlin 2015) (Morton and Colbert-Getz 2017) (Crowe et al. 2008) (Plack et al. 2007) (Zheng et al. 2008) (Miller et al. 1991) (Adams 2015) (Phillips et al. 2013) (Patel et al. 2009), a pharmacotherapeutics course (Kim et al. 2012), nursing education (Phillips et al. 2017) (Moxley et al. 2017; Su et al. 2004) (Su et al. 2005), neurophysiology education (Semsar and Casagrand 2017), and personality assessment (Ramirez 2017). However, up to date, no implementation in the general practice rotation seems to have been described.

### **1.9. Study objectives**

MESBA, or „Marburger ethnographische Studie zum Blockpraktikum Allgemeinmedizin“ translates as `the ethnographical study of the Marburg general practice rotation´ (ESMGPR). This study was conceived of in order to examine the teaching provided in the general practice and family medicine rotation at first hand.

### **1.9.1. Quantitative study objectives**

1. Do teaching points occur? If so, which topics do they contain?
2. How actively do teaching practitioners involve students in patient consultation?
3. In addition, general background (location, perceived time pressure, duration of consultation, medical issue) and demographic data concerning teaching practitioners and students were collected. (These data were also presented in separate dissertation (Roth 2018)).

### **1.9.2. Qualitative study objectives**

1. Which questions are asked and what tasks are set by the preceptors?
2. Can these events (questions and tasks) be categorized according to the revised version of Bloom's taxonomy by Anderson and Krathwohl et al?
3. If so, where do the events appear according to the revised taxonomy?

## **2. Methods**

### **2.1. Data collection**

Ethnographical methods were used for data collection. The rationale and background are described above.

Teaching practitioners and their students were observed during patient consultation in order to record teaching interaction taking place in its natural setting. A structured form was used for taking field notes, so as to systematically document points of interest, as well as allowing for the unstructured recording of observations. A number of consultations were primarily videotaped. The videotapes were then transcribed to field note forms following observation.

### **2.2. Instruments**

#### **2.2.1. Field note forms**

Field note forms were used for the documentation of consultations. Demographic and background data were recorded once per practitioner and student. Otherwise a separate form was used for each unit of observation.

All written data were recorded anonymously. The patients' names, gender and age were not recorded in writing. The medical issues were categorized. Each participating practice was allocated an identification code consisting of a letter (P) and a number (1-12). This was in order to prevent backtracking to specific practices, students or patients.

### **2.2.2. Videotapes**

Additionally, videotapes of sixty-four separate consultations were obtained. In four surgeries, videotaping occurred on one day, whilst in one surgery, all consultations were taped. These tapes were then subsequently transferred to field note forms.

The videotapes were saved on an internal server belonging to the Institute of General Practice and Family Medicine in Marburg. This insured the protection of patient confidentiality. The patients could consent either to the use of the videotaped sequences for study purposes only, or to possible additional use in prospective curriculum development teaching sessions.

### **2.3. Unit of observation**

Each consultation which took place in the presence of the student, and for which consent had been provided by all involved (patient, GP and student), was classified as a separate unit of observation.

The observers (GFD and LMR) participated peripherally in order to take structured field notes during patient consultation in the presence of the student. In five out of twelve observed general practitioners' offices, videos were obtained for a part (four practices) or all (one practice) of the observed consultations.

Use of these real-time observation methods allowed for the documentation of situations, incidents and processes as they unfurled. Thus, reliance on retrospective assessment by the participants was avoided. However, like any other method, the methods of observation applied in this study have their own advantages as well as disadvantages. These shall be reviewed in the discussion.

#### **2.4. Recruitment**

The allocation of students to the respective practices took place at the beginning of the semester. This was achieved with the assistance of an electronic registration form which functioned on a first come, first served basis. Students could choose in which practice they would prefer to complete the rotation. After the allocations were confirmed, the researchers were provided with the relevant information. Two to eight weeks before commencement of the block rotation, the practitioners and students were contacted.

The practitioners were contacted first. The matching students were then contacted following the practitioner's consent. After receiving an affirmative response from the student, arrangements for



observation in the practice were made. Should the student decline to participate, the student(s) taking part in consecutive rotation(s) were contacted.

## **2.5. Inclusion and exclusion criteria of participants**

### **2.5.1. Practitioners**

All practitioners participating as clinical teachers for the general practice and family medicine rotation from April 2012 through December 2012 organized by the Marburg University Institute for General Practice and Family Medicine were eligible for participation. Those not part of the rotation programme in Marburg were not eligible. Those unwilling to participate in the study were also of course excluded.

### **2.5.2. Students**

All students taking part in the general practice and family medicine rotation organized by the Institute for General Practice and Family Medicine in Marburg, Germany from April through December 2012 were eligible for participation. Those students not partaking in the rotation were ineligible for study participation. Those opposed to involvement in the study were also excluded.

### **2.5.3. Patients**

On the days of observation, patients seeking consultation with the participating practitioner were informed and asked for consent. On receiving consent, observation was carried out. In some cases, patients forgot to hand over their written consent form. The data collected during consultation was then excluded from the study. Did the patient not wish to participate in the study, no observation of the consultation was made.

Providing all those involved (practitioner, student, patient) consented and logistically feasible (layout and use of rooms, patient flow etc.), consultation was videotaped. This usually took place on the last day of observation. This was the case in four out of twelve practices. One practitioner specifically requested videotaping on all days of observation, as an additional person in the room was seen as too intrusive.

## **2.6. Validation**

In order to assess interrater agreement, the Cohens kappa coefficient was calculated for each item on the basis of twelve videotaped consultations (Grouven et al. 2007). The units of observation were observed and categorized by each observer independently, using the form implemented for written documentation of the consultations. The results will be discussed in the appropriate section.

## **2.7. Methods of data analysis**

Quantitative and qualitative data analyses were performed.

### **2.7.1. Quantitative analysis**

The quantitative analysis aimed to describe the level of student involvement, and whether teaching points were made. Points of interest concerning feedback and verification of history taking and physical examination were presented in a separate dissertation (Roth 2018) and paper (Bösner et al. 2017). Furthermore, background and demographic data were collected and analyzed.

The documented field note items were transferred to an Excel spreadsheet (Microsoft Office 2010). The videotaped consultations were first transferred to field note form and subsequently to Excel (Microsoft Office 2010). The following quantitative analysis was performed using Excel (Microsoft Office 2010). These data are statistically descriptive.

### **2.7.2. Qualitative analysis**

Video analysis based on the revision of Bloom's taxonomy by Anderson and Krathwohl (Anderson and Krathwohl 2001) was executed. The author of this dissertation (GFD) preliminarily viewed all 64 videotapes in search of teaching events (questions asked and tasks set by teaching practitioners). Thus, video sequences relevant for the planned analysis were identified. Following the initial identification of relevant units of observation, these were then viewed by the co-investigators (LMR, SB and NDB) with the purpose of achieving consensus concerning the relevance of the pre-identified content. Agreement was achieved via group discussion with the co-investigators.

After agreement was reached on which consultations to include in the final analysis, the audio-visual content was transformed into written form. This was achieved by writing a description of the consultation setting as well as the relevant conversation transcript in German and English. The transcriptions in both languages were undertaken by the author. The full transcriptions are included in the appendix. Extracts are contained in the results section.

The identifiable questions asked and tasks set by the GP were assigned consecutive numbers for the purpose of re-identification. The transcriptions were read by the author and a co-investigator (GFD and LMR). The items (questions asked and tasks set by the preceptor) were then assigned the corresponding category (or categories) within the revised taxonomy table according to Krathwohl

(Krathwohl 2002). Each item could be allotted more than one different placement in the revised taxonomy table (see `1.7. Revised Taxonomy´ and `1.8. Comparison of the original and revised taxonomies´). The overall sum of events per category was then calculated in order to gain an overview of the occurrence of different teaching objectives.

This process was executed by the author (GFD) and co-investigator (LMR) independently. The respective results were then compared.

## **2.8. Data security and ethics review**

Ethical approval was obtained in form of a positive ethics review from the Faculty Ethics Commission (“Ethikkommission des Fachbereichs Medizin der Philipps-Universität Marburg”) before commencement of the study (AZ 206/11). All participating practitioners, students and patients provided written, informed consent. All written data were recorded anonymously; all videotapes were stored using the institute’s secure internal server system.

### **3. Results**

The results of this study are divided into two sections. Firstly, the quantitative aspects of the collected data will be described. Secondly, a qualitative analysis of the videotaped consultations will follow.

#### **3.1. Quantitative results**

##### **3.1.1. Background and demographic data**

###### **3.1.1.1. Recruitment and Participation**

###### **3.1.1.1.1. Practitioners**

From April 2012 through December 2012, thirty-five practitioners in a total of thirty-one surgeries participating in the general practice and family medicine rotation were asked to participate in the study. Thirteen practitioners declined, whilst twenty-two consented to participate. This resulted in a positive practitioner recruitment rate of 62.9%. Of those willing to take part, sixteen GPs were then observed. This means 45.7% of all contacted practitioners took part. Altogether, data were collected in twelve different practices. Two GPs per practice took part in the study in four of the practices, meaning 16 GPs were observed altogether.

The numbers according to surgery, as opposed to physician, are: Thirty-one surgeries were asked to participate, of which eighteen (58%) were willing, and thirteen (37.1%) unwilling to do so. Data collection commenced in twelve (38.7%) of the thirty-one surgeries initially asked.

### **3.1.1.1.2. Students**

From April 2012 to December 2012, thirty-six students registered for the general practice and family medicine block rotation were asked to participate in the study via electronic mail. Sixteen (44.4%) were unwilling to participate. (Ten responded, six did not respond). Twenty (55.6%) agreed to partake in the study. Thirteen students were then actually observed, which meant that 36.1% of all students contacted took part.

Consultation was observed in twelve general practitioners' offices for the duration of three to five hours each on three to four separate days. Overall, sixteen GPs and thirteen students were observed. Altogether, 410 separate consultations were surveyed. Observation and recruitment were conducted by two fifth year medical students (LMR and the author, GFD). Only one person carried out observation on any one day in any practice. Both LMR and GFD were involved in observation in three practices. LMR observed in five further practices, whilst GFD watched and took note in four further practices.

### **3.1.1.1.3. Patients**

Over 410 patients were asked for consent. Eight refusals were documented. Seven refused on the grounds of general reluctance to have students present during consultation, one refusal was due to videotaping. All 410 patients included in the study provided informed, written consent.

However, practice nurses and practitioners did not ask certain patients to participate in the study, if the patient in question was known to be unlikely to participate or unable to provide consent (due to language barrier or mental impairment, for example). The researcher was not always present during the initial recruitment process, as this was often conducted by practice nurses during ongoing observation of consultations.

### **3.1.1.2. Gender distribution**

The gender distribution of students and practitioners is shown in table 4. Most practitioners were male, whilst most students were female. The gender of participating patients was not recorded for reasons of confidentiality.

The gender of non-participants was not recorded for confidentiality and ethical reasons.



**Table 4. Number and gender of participating students and GPs**

	Female		Male		
Students	10	76.9%	3	23.1%	n=13
GPs	6	37.5%	10	62.5%	n=16

### **3.1.1.3. Location**

The distribution of participating surgeries according to location is shown in table 5. The distribution of purely urban or rural settings was equal; a small number of surgeries were classified as representing a mixed setting.

The location of non-participants was not recorded for reasons of confidentiality.

**Table 5. Practice location**

Location	Number	Percent	
Urban	5	41.7%	n=12
Rural	5	41.7%	n=12
Urban/rural mixed	2	16.6%	n=12

#### **3.1.1.4. Age**

The average age of participating practitioners and students is shown in table 6. Male GPs and students were on average slightly older than their female counterparts.

Patient age was not recorded for reasons of confidentiality. The age of non-participants was not recorded for the same reason.

**Table 6. Average participant age**

Participants	Age
Female students	24.8 years
Male students	25.3 years
Female GPs	50.8 years
Male GPs	53 years

It was not possible to compare gender, age, and location distribution of the study sample with the whole pool due to confidentiality and data protection issues.

#### **3.1.1.5. Consultation location**

The location of the observed consultation is shown in table 7. Almost all consultations took place in the physician's practice, whereas only a few consultations were observed on home visits to the patient.

**Table 7. Location of observed consultation**

	Number	Percent	
Practice	391	95.4%	n=410
Home visit	19	4.6%	n=410

**3.1.1.6. Perceived time pressure**

Time pressure during consultation, as perceived by the observer, is shown in table 8. In the majority of observed consultations, time pressure was viewed as being low.

**Table 8. Time pressure as perceived by observer**

	Number	Percent	
Non-existent	118	28.8%	n=410
Low	229	55.8%	n=410
High	63	14.4%	n=410

**3.1.1.7. Consultation type**

The mode of consultation in terms of acuteness is shown in table 9. Pre-scheduled, elective appointments were slightly more common than acute, non-scheduled consultations.

**Table 9. Consultation type**

	Number	Percent	
Acute consultation	192	46.8%	n=410
Elective consultation	218	53.2%	n=410

**3.1.1.8. Consultation constellation**

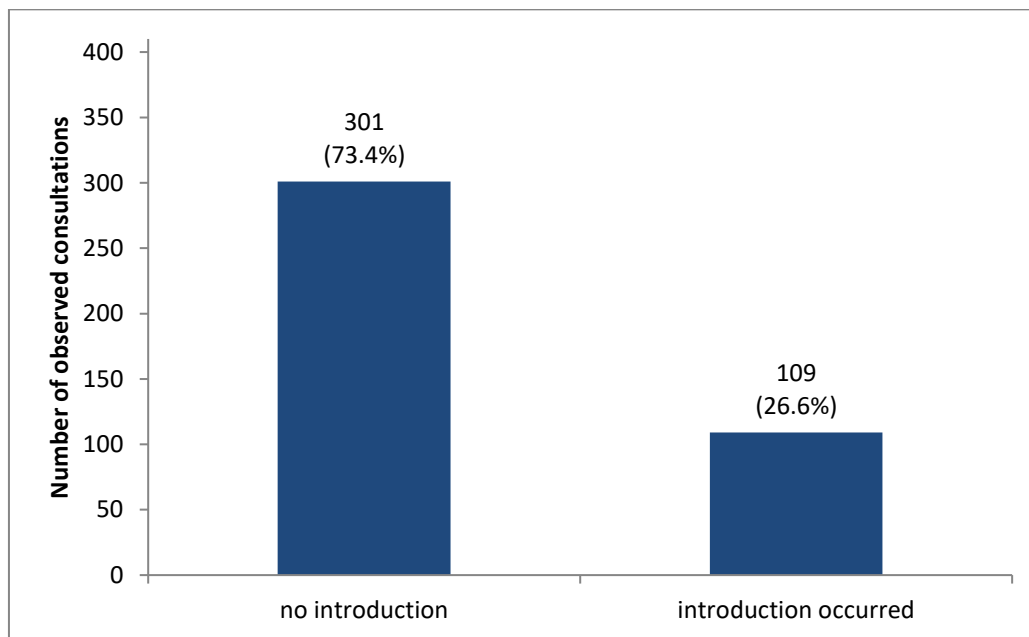
The constellation student, patient, and GP occurred in all 410 observed consultations, as this was a criterion for inclusion in the study. Additionally, in eighty-one of the observed consultations, there was an episode in which the student and patient were alone. In 140 of observed consultations, there was an episode without the patient's presence, consisting of the student and the GP only. Multiple categorizations were possible.

**3.1.1.9. Constellation duration**

The average complete consultation lasted 14.8 minutes, whilst the consultation duration involving all three participants was 11.1 minutes on average. In the eighty-one episodes involving the student and patient only, the average time spent together was approximately 11.5 minutes. In the 140 episodes involving only the student and GP, the average time spent together was 4.5 minutes.

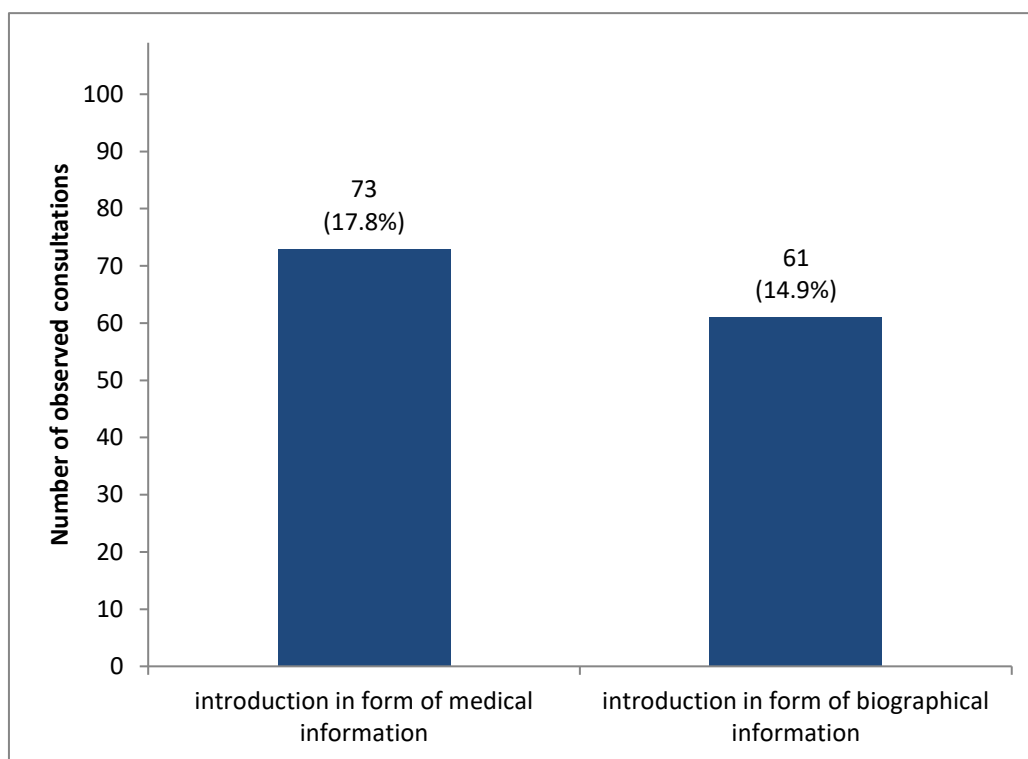
### 3.1.1.10. Introduction to patient

Whether or not the patient, or the patient's case, was in any way introduced to the student before consultation commenced, is shown in figure 1. In 73.4% of observed consultations, no introduction to the patient in terms of name or medical history was made at all. In 26.6% of observed consultations, some form of introduction took place: In seventy-three (17.8%) cases, medical information concerning the patient, and in sixty-one (14.9%) cases, biographical information, such as the patient's name or age was imparted. In a small number of cases, both types of information were divulged. Multiple categorizations were possible.



**Figure 1. Introduction to patient.**

(n=410)



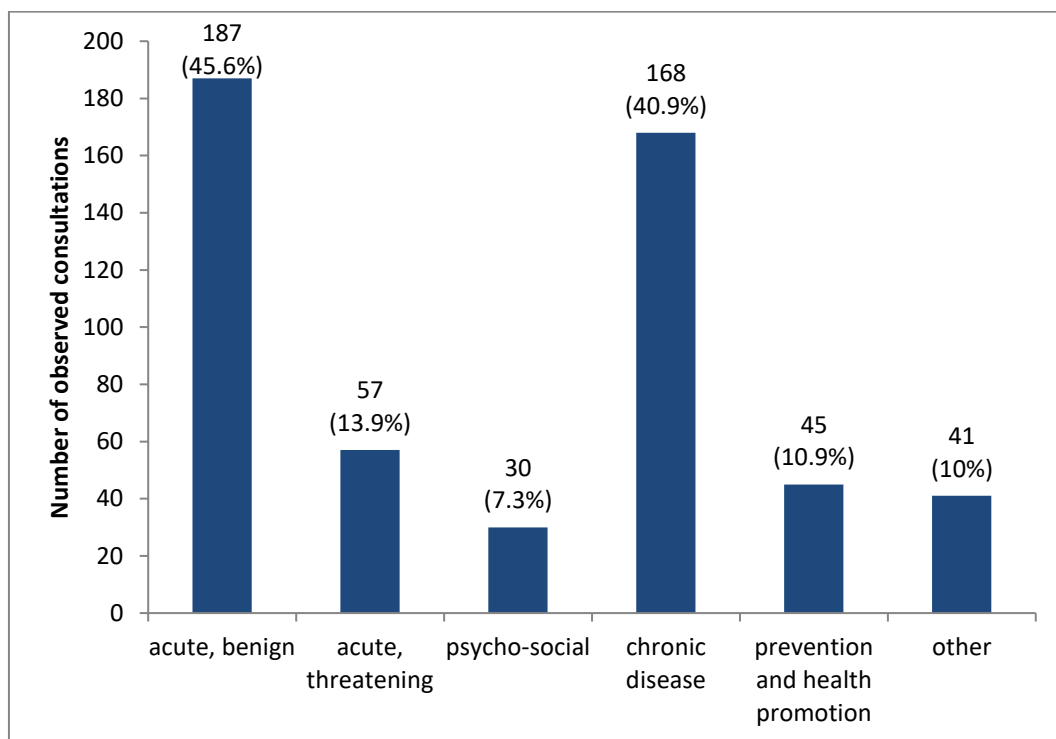
**Figure 2. Type of introduction to patient.**

Multiple categorizations possible (n=410).

### **3.1.1.11. Medical issue**

The reason(s) for consultation, categorized according to type of medical issue the patient presented with, are shown in figure 3. Multiple categorizations were possible. The most common reasons for consultation were acute, benign issues and for management of chronic disease, occurring in 45.6% and 40.9% of observed

consultations, respectively. These were followed by acute, potentially life-threatening symptoms at 13.9%, prevention and health promotion at 10.9%, psychosocial issues at 7.3%, and other issues, at 10 %.



**Figure 3. Medical issue.**

Multiple categorizations possible (n=410).

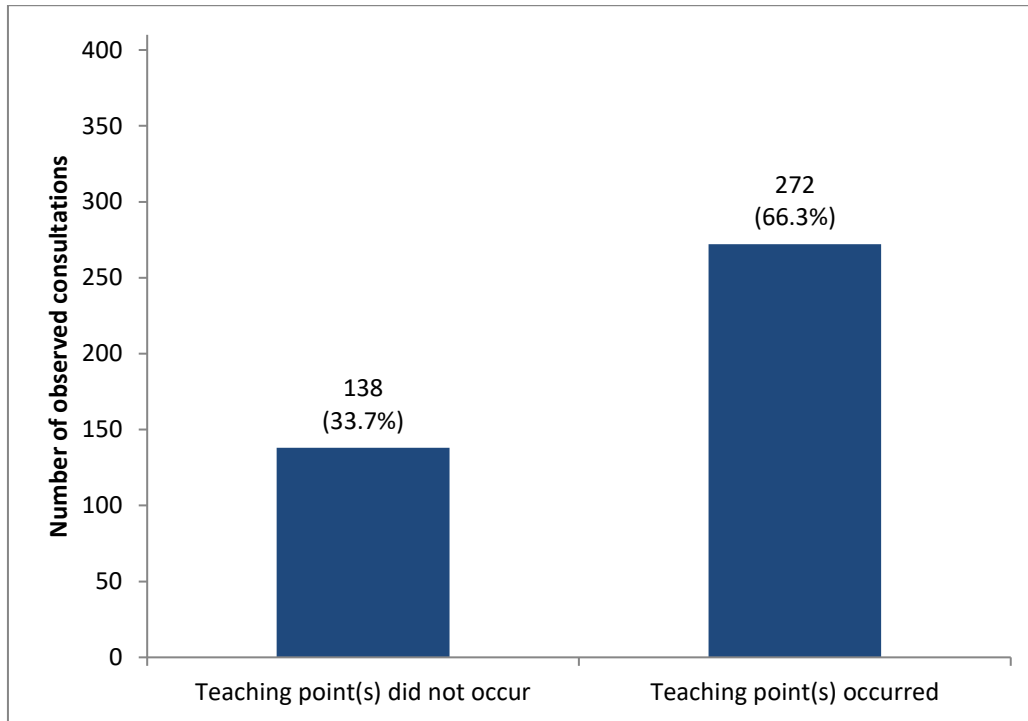
### **3.1.2. Specific points of interest**

#### **3.1.2.1. Teaching points**

The occurrence and content of teaching points made during the observed consultations are shown in figures 4-6. Teaching points were made in 66.3% of observed consultations; most of these were of a general nature, occurring in 74.3% of consultations. Specific, case-related teaching points were made in 46.3% of the consultations. Multiple categorizations of mode and content were possible. The majority of teaching points dealt with therapy (disease management) (48.5%), followed by patient history (24.6%), diagnostic procedure (20.2%), physical examination (19.1%), disease pathology (16.5%), differential diagnosis (11%), risk factors (5.9%), and case presentation (0.4%).



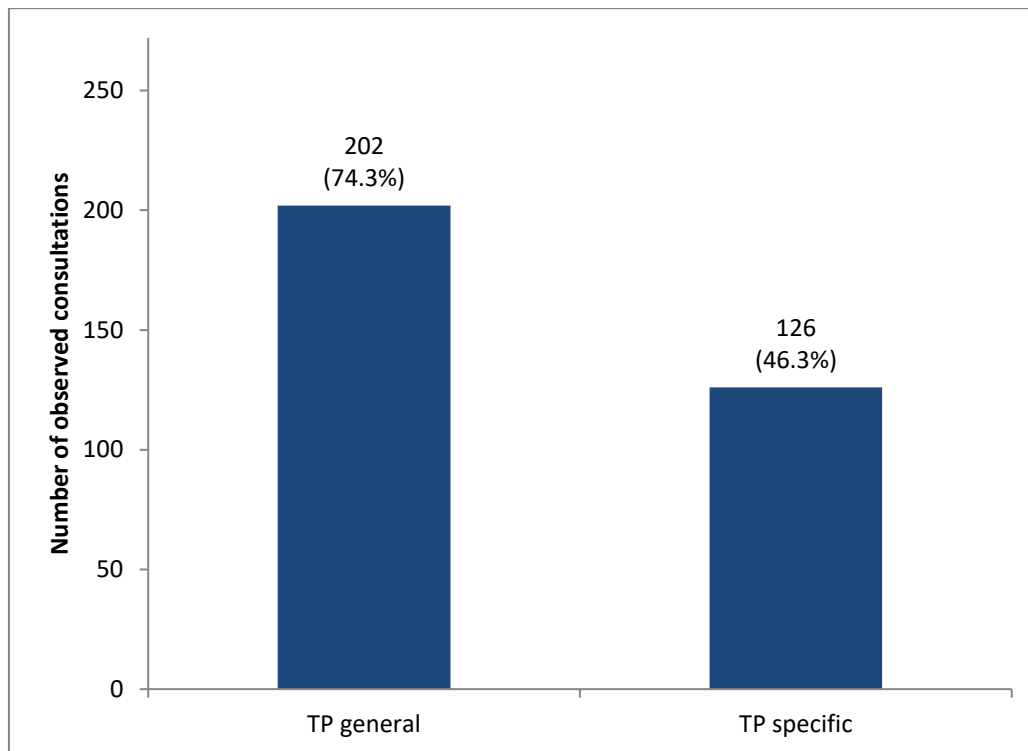
### 3.1.2.1.1. Occurrence of teaching points



**Figure 4. Occurrence of teaching points.**

(n=410)

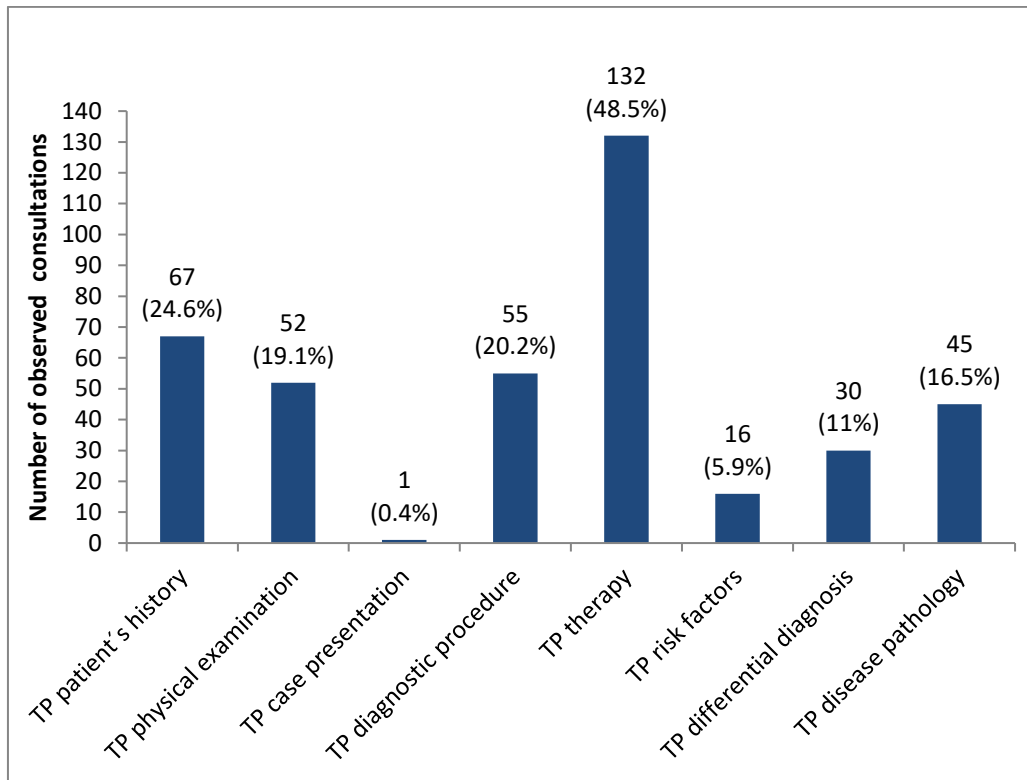
### 3.1.2.1.2. Type of teaching point



**Figure 5. Type of teaching point.**

Multiple categorizations possible (n=272).

### 3.1.2.1.3. Content of teaching points



**Figure 6. Content of teaching points.**

Multiple categorizations possible (n=272).

### 3.1.2.2. Level of student involvement

Levels of student involvement are shown in table 10. A multi-step, hierarchical scale was developed for this purpose, as described previously (‘1.3.1. Classification of student involvement’). The scale categorized passive to different modes of active student involvement.

The analysis revealed passive student attention to be the most common mode of teaching, followed by the allocation of single tasks or demonstration of findings by the GP. The least frequent mode of teaching observed was student consultation, whereby the student took on the role of the practitioner.

Using the 132 units of observation including student consultation as a reference, GPs repeated consultation with some form of prior case presentation by the student in half the cases. Student consultation under direct GP supervision took place in a minority of observed cases

**Table 10. Student involvement**

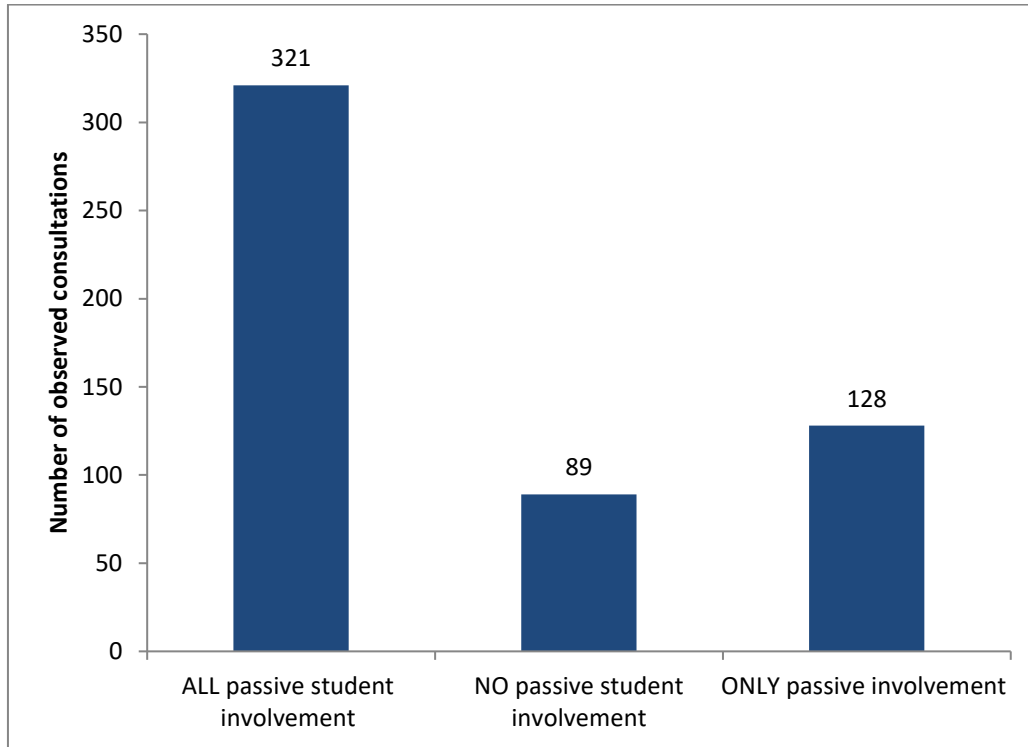
Category	Number	Percent	
<b>1</b> (passive student involvement)	321	78.3%	n=410
<b>2</b> (demonstration)	208	50.7%	n=410
<b>3</b> (student consultation; more than one type of category 3 possible)	132	32.2%	n=410
<b>3a</b> (re-consultation by GP)	57	13.9%/43.2%	n=410/n=132
<b>3b</b> (duet; student reports back without patient involvement)	20	4.9%/15.2%	n=410/n=132
<b>3c</b> (trio; student reports back with patient involvement)	45	10.9%/34.1%	n=410/n=132
<b>3d</b> (student consultation under direct observation)	24	5.9%/18.2%	n=410/n=132

(Multiple categorizations possible).

### **3.1.2.2.1. Passive student involvement**

A finer analysis of passive student involvement as a teaching mode is shown in figure 7. No passive student involvement at all occurred in 89 of observed consultations, which is equivalent of 21.7% of all 410 observed cases. Passive student involvement as the only teaching mode occurred in 128 of observed consultations. This is equivalent of

31.2% of all 410 observed cases, or 39.9% of all 321 consultations containing passive student involvement.



**Figure 7. Analysis of passive student involvement.**

### **3.1.2.2.2. Passive student involvement and teaching points**

Passive student involvement combined with teaching points occurred far more commonly than passive student attention without teaching points. The numbers are displayed below as percentages of all

observed consultations (n=410), and of those consultations containing passive student involvement (n=321), respectively.

**Table 11. Passive involvement and teaching points**

	Number	Percent	
passive involvement <b>plus</b> teaching point(s)	207	50.5%/64.5%	n=410/n=321
passive involvement <b>without</b> teaching point(s)	116	28.3%/36.1%	n=410/n=321

### **3.1.3. Validation**

The interrater reliability using Cohen 's kappa coefficient is displayed below in table 12.

**Table 12. Kappa according to item**

Practice/ home visit	Kappa= <b>1.0</b>
Time pressure	Kappa $\approx$ <b>0.556</b>
Type of consultation	Kappa $\approx$ <b>0.636</b>
Introduction to patient	Kappa= <b>1.0</b>
Medical issue	Kappa $\approx$ <b>0.463</b>
Student involvement	Kappa $\approx$ <b>0.825</b>
Teaching point yes/no	Kappa $\approx$ <b>0.567</b>
Teaching point general/specific	Kappa $\approx$ <b>0.325</b>
Teaching point content	Kappa $\approx$ <b>0.584</b>



## **3.2. Qualitative results**

### **3.2.1. Questions asked and tasks set by teaching physicians: an analysis based on the revised version of Bloom's taxonomy**

In order to obtain qualitative results, the sixty-four videotaped consultations were evaluated. Twenty-two videotaped consultations contained identifiable teaching objectives. More than one question or task could occur during one given consultation, or no item of interest occurred at all. The number of events and items is therefore not congruent with the number of videotaped consultations. The overall sum of categorizable events (question asked or task set by preceptor) was 57. Due to the possibility of multiple categorization, 66 items were registered. Thus, the average number of registered items per consultation was 3 (66 items, 22 consultations containing categorizable events). The quantifiable results are displayed below as a table.

**Table 13. Questions asked and tasks set by teaching physicians**

	The Cognitive Process Dimension						Sum Knowledge Dimension:
	1 Remember	2 Understand	3 Apply	4 Analyze	5 Evaluate	6 Create	
<b>The Knowledge Dimension</b>							
<b>A Factual Knowledge</b>	10	2	0	0	0	0	12
<b>B Conceptual Knowledge</b>	0	8	0	4	4	2	18
<b>C Procedural Knowledge</b>	0	0	19	0	9	8	36
<b>D Metacognitive Knowledge</b>	0	0	0	0	0	0	0
<b>Sum cognitive process Dimension:</b>	10	10	19	4	13	10	66

Table based on Krathwohl and Anderson et al (Krathwohl 2002) and (Anderson and Krathwohl 2001).

There was a concentration of events in the knowledge dimensions *conceptual* knowledge (18 events) and *procedural* knowledge (36 events), together representing 54 out of 66 overall events. The *metacognitive* knowledge dimension registered no objectives across all cognitive process dimensions. Every cognitive process dimension showed at least four events across one to two knowledge dimensions.

The category 'remember factual knowledge' (A1) registered ten events. For example, the questions posed by the GP concerning a patient with type 2 diabetes mellitus. The GP and student examined the patient's feet together; the GP then asked the following questions:

*3.1: "Try to describe, just try to describe the situation concerning the left foot."*

*3.2: "I mean the bones...from a skeletal point of view."*

*3.3: "What about the longitudinal arch [of the foot]?"*

*3.5: "And specifically? Do you know the medical term? If not, just describe: what is going on?"*

*3.7: "What antidiabetic medication is Mrs R [patient] on?"*

A different consultation concerning a patient presenting with a skin condition registered the following question asked by the GP after advising the use of hand cream:

*5.2: "And what medication?"*

These questions all required the recalling of simple factual knowledge in the form of correct terminology, or the drug used for the treatment of a certain condition. This category did not require any explanation regarding disease pathology or pharmacology.

All other knowledge dimensions concerning the cognitive process *remember* (B1, C1, D1) registered no events at all. The categories remembering conceptual, procedural and metacognitive knowledge, could for example have included explaining the pathophysiology behind Charcot's foot (B1), then explaining how to examine a diabetic patient's feet (C1) and reflecting on how to improve one's own knowledge and skills relevant to the subject (D1).

The cognitive dimension *understand* registered two events in *factual* knowledge and eight events under *conceptual* knowledge. An example for *understanding factual knowledge* (A2) was demonstrated in a consultation concerning a patient presenting with intercostal neuralgia. The GP entered the room just as the student was about to start examining the patient and asked for a brief summary:

*16.1: "Just briefly, can you say what this is about?"*

Here the student was asked to summarise his or her findings so far, progressing a step further than naming facts. Comprehension of the facts in term of the patient's history and physical examination became necessary in order to summarize the case coherently.

*Understanding conceptual knowledge* (B2) was demonstrated in a consultation concerning a patient presenting with a dog bite wound. The GP suggested starting the investigation with finding an explanation for a leading symptom:

*2.1: "Hmm, difficult; let's start with the pain there [upper arm], what could explain it?"*

The same category was also demonstrated in a question posed by the GP in a different consultation:

*7.1: "What rhythm does the ECG present?"*

These questions required the student not only to recognize and remember facts, but to further demonstrate that he or she had understood a certain concept (what could cause pain in the presented context, or the concept of sinus rhythm versus non-sinus rhythm). *Understanding procedural (C2) and metacognitive (D2) knowledge* registered no events. These categories could have included being required to explain the procedure behind the investigation and follow-up of a certain symptom (for example shoulder pain), followed by reflection on whether further revision was required.

The cognitive process dimension *apply* registered all 19 events under *procedural* knowledge (C3). One example was demonstrated in a consultation concerning a patient presenting with elbow pain. At one point the GP asked:

*4.1: "Tennis elbow...have you ever done any tests for this? Do you know what one can do to prove tennis elbow, any specific tests?"*

Another example was demonstrated in a consultation concerning a routine abdominal ultrasound scan. The GP asked the student whether he would like to conduct the examination:

*11.1: "You can try if you like".*

In a further consultation, the student was asked to take a blood sample.

*17.3: "OK, then please take a blood sample"?*

These examples all required the student to demonstrate a certain practical skill.

The other knowledge dimensions under the cognitive process *apply* (A3, B3, D3) registered no events. If the student had been asked what medication to prescribe, he or she would have been required to apply factual knowledge (A3). In order to plan the follow-up, the student would have been required to apply conceptual knowledge (B3). Applying metacognitive knowledge would perhaps have required the student to read-up or reflect on how to improve their knowledge and skills.

The cognitive process *analyze* registered all four events under *conceptual* knowledge (B4). In the consultation mentioned earlier concerning the patient presenting with elbow pain, the GP continued to demonstrate tests and then asked:

*4.2: "Now he [the patient] has a different problem, what do you think it is?"*

This category called for the student to demonstrate that he or she was able to think of possibilities which arose from a certain concept, as in the process of differential diagnosis.

No other knowledge dimensions were used under the cognitive process *analyze* (A4, C4, D4).

Analysing factual knowledge (A4) would perhaps have required the student to break down a patient's history according to thematic subgroups, such as organ-related symptoms, psychosocial aspects, and coping resources.

Analyzing procedural knowledge (C4) could have entailed looking at a procedure, such as taking a blood sample, and breaking the process down into the different skills required. Analyzing metacognitive knowledge (D4) could have included a thorough break-down of the self-reflection process.

The cognitive process *evaluate* registered four events under *conceptual* knowledge (B5) and nine events under *procedural* (C5) knowledge. An example for *evaluating conceptual knowledge* was presented in a case concerning a patient presenting with an infection of the upper respiratory tract. Following a brief history taking and physical examination, the GP asked the student:

*1.1: "Your diagnosis"?*

The same patient also presented with a painful popliteal fossa, and a similar question was asked by the GP after the student had examined and questioned the patient:

*1.7: "What would you say?"*

The student was required to go a step further than analyzing, in as much as certain possibilities had to be ranked according to probability in order to state a suspected diagnosis.

Examples for *evaluating procedural knowledge* (C5) were included in the following teaching encounters:

In the consultation mentioned above concerning the upper respiratory tract infection and the popliteal fossa, the GP continued with the question:

*1.2: "Do we suggest them [antibiotics] or not?"*

Later, the GP asked:

*1.3: "Now the question is...how many days do we write him off sick for?"*

Further on the following question was asked by the GP:

*1.8: "So the first question is, do we, what do we say to him, is it something serious, what tips can we give him?"*

In a different case concerning a dog bite wound, also mentioned above, the GP asked:

*2.3: "What are our options for action? What possibilities do we have?"*

As demonstrated above, evaluating procedural knowledge required the student to devise a plan for further diagnostic work-up or treatment. Evaluating factual knowledge (A5) goes a step further than analyzing, in as much as weighing up of information according to likelihood is required. Evaluating metacognitive knowledge (D5) could have entailed questioning whether the self-reflection process or skills were adequate for a given situation.



The cognitive process *create* registered two events under *conceptual (B6)*, and eight events under *procedural (C6)* knowledge. *Creating conceptual knowledge* was also demonstrated with the question

1.1: "*Your diagnosis?*"

The above mentioned question was also categorized under *evaluating conceptual knowledge (B5)* in the consultation concerning an upper respiratory tract infection.

Creating procedural knowledge also occurred in the question

1.8: "*So the first question is, do we, what do we say to him, is it something serious, what tips can we give him?*"

This question was also categorised as *C5, evaluating procedural knowledge*. The question

2.3: "*What are our options for action? What possibilities do we have?*"

also appeared under *evaluating procedural knowledge*, as well as *creating procedural knowledge*.

As shown above, creating conceptual knowledge (B6), and creating procedural knowledge (C6) are at times similar to the evaluating categories, depending on how the question is interpreted. Creating a plan goes a step further than evaluating a situation, as the production of something new is required. Analysis and evaluation can be viewed as prerequisites for the production process.

Creating factual knowledge (A6) could entail production of original research results, whilst creating metacognitive knowledge (D6) could include devising a plan for reflection and feedback sessions.

As is clear from the descriptions above, metacognitive knowledge registered no events at all. The implications arising out of this situation are discussed below.

### **3.2.2. Comparison of the initial categorization versus the re-categorization results**

The re-categorization results based on Anderson and Krathwohl et al (Anderson and Krathwohl 2001) (Krathwohl 2002) are displayed below.

**Table 14. Re -categorization**

	The Cognitive Process Dimension						Sum Knowledge Dimension:
	1 Remember	2 Understand	3 Apply	4 Analyze	5 Evaluate	6 Create	
<b>A Factual Knowledge</b>	9	2	0	0	0	0	11
<b>B Conceptual Knowledge</b>	2	7	1	4	5	1	20
<b>C Procedural Knowledge</b>	0	0	18	3	13	8	42
<b>D Metacognitive Knowledge</b>	0	0	0	0	0	0	0
<b>Sum cognitive process Dimension:</b>	11	9	19	7	18	9	73

Table based on Anderson and Krathwohl et al (Anderson and Krathwohl 2001) (Krathwohl 2002).

In order to assess whether the categorization based on Anderson and Krathwohl et al (Anderson and Krathwohl 2001) (Krathwohl 2002) was in any way to be reproduced, the process was repeated by a second investigator (LMR). The second investigator received the teaching encounter descriptions and instructions on how to proceed. The repeat categorization registered a total of 73 events, as opposed to 66 events registered in the original categorization process. Similarly to the initial categorization process, the repeat also

registered a concentration of events in the knowledge dimensions *conceptual* knowledge (20 events) and *procedural* knowledge (42 events), together representing 62 out of 73 events. The initial evaluation registered 18 events under *conceptual* knowledge, and 36 events under *procedural* knowledge, together representing 54 out of 66 events overall. The *factual* knowledge dimension registered a similar number of events in both evaluations (11 events in the re-evaluation, 12 in the initial evaluation). The *metacognitive* knowledge dimension registered no events in both run-throughs. Every cognitive process dimension registered at least seven events across two to three knowledge dimensions in the repeat, as opposed to a minimum of four events per cognitive process dimension across one to two knowledge dimensions in the original categorization.

## **4. Discussion**

### **4.1. Methods**

The methods used in the research presented here possess strengths as well as limitations.

#### **4.1.1. Recruitment and Participants**

Certain patients were not asked by practice nurses and practitioners for consent to participate in the study. This was due to various reasons, for example if it was expected that the person in question would decline to participate. Other reasons included inability to give consent due to language barrier or mental disability.

Triaging of potential participants may have caused the loss of interesting teaching encounters. Due to logistical and personal resource restraints, recruitment was often conducted by surgery employees (nurses and GPs), and not by the researchers themselves, as they conducted observation of ongoing consultations simultaneously to recruitment by practice staff. This may have made it easier for the patient to decline participation (Rees and Knight 2008). Subsequently, the recruitment process may have reduced the number of patients taking part due to perceived pressure. Pichlhöfer et al found that patients generally have few reservations about student presence during consultation (Pichlhöfer et al. 2013). Eight refusals were documented, however, there is a certain possibility that a greater number occurred without the researchers being present or

informed of the event. One has to assume that a larger number than the registered refusals occurred whilst the researchers were not present. In general, the patients were willing to participate, as they supported the idea of researching medical education, thus improving their future doctors.

On any given observation day, one observer was present per practice. Recruitment occurred consecutively, as every patient was initially considered eligible. This aspect can be regarded as a methodical strength. The researchers were responsible for recruitment as well as observation. Recruitment was carried out according to judgemental sampling, which is a non-probability method (Brewer 2000, pp. 79–82). There were not sufficient financial and employee resources, as well as resources in time, to cope with a full scale, randomized recruitment process. Potential participant practitioners were contacted according to infrastructural accessibility, whether the student had already consented, whether the practitioner had put his/her name down on a list for participation in the study, and past experience of the department concerning research involvement of the practice and, as research continued, whether the practitioner had already been asked.

In relation to the practitioners, there is a possibility that the cohort consisted of participants with greater self-confidence in their teaching style and patient management abilities, or that a greater awareness concerning teaching issues pre-existed. It is also possible that student participators had greater self-confidence than their non-participant peers and consequently influenced the type of interaction observed.

#### **4.1.2. Data collection**

Time sampling occurred on three to four days per practice. This was the only logistically feasible way of procuring any data at all, as the two researchers conducting fieldwork had to coordinate research with their undergraduate medical courses. In addition, a number of practitioners were sensitive to having an additional person in the room during patient consultation and only tolerated this in knowing that it was for a limited space of time only. A perceived loss of efficient patient-flow due to the process of informing patients and gaining subsequent consent was also voiced by some GPs.

Real-time observation granted the documentation of situations, incidents and processes as they unfolded. As a consequence, the investigation was not exclusively reliant on retrospective assessment. The researchers were non-participant. However, they were visible, and due to prior procurement of informed consent, all involved were aware of being observed. Thus, one cannot rule out the Hawthorne effect. Participants may have demonstrated behaviour they deemed desirable. One practitioner requested videotaping without the presence of an observer. For the majority of cases, however, the researcher was present in the consultation room in order to take notes or control the camera. It is possible that the Hawthorne effect differed according to type of observation mode.

Videotaping as an observation method has been infrequently used in the family medicine setting. A study on power construction in family

medicine bedside teaching (Rees et al. 2013), as well as a study researching GP teaching (Walters et al. 2009) both deployed videotaping for data collection. Audiotaping, in contrast, has been used for collecting data in a number of different studies in the hospital inpatient bedside teaching setting, dealing with topics such as power construction (Rees and Monrouxe 2010), patient involvement (Monrouxe et al. 2009), and linguistic aspects (Rees and Monrouxe 2010) (Rees and Monrouxe 2008) .

A number of ethnographic studies relating to medical education used field notes, video- or audiotaping as data collection methods. Hägg-Martinell et al used field notes (Hägg-Martinell et al. 2016) (Hägg-Martinell et al. 2017). Analogously to MESBA, the field notes were collected by a person acquainted with the context, but participated as minimally as possible. Unlike MESBA, conversations with the observed were also executed with the purpose of data collection (Hägg-Martinell et al. 2017) (Hägg-Martinell et al. 2016). Sagasser MH et al described methods similar to MESBA, namely nonparticipant observation with collection of field notes (Sagasser et al. 2016). Unlike the study presented here, audiotaping and interviews with the observed participants were conducted (Sagasser et al. 2016). Elsey C et al used videotapes of 25 bedside teaching encounters as a basis for their analysis (Elsey et al. 2017). This is similar to the methods used by MESBA, which in comparison included 64 videotapes. Field note collection and audiotaped interviews were utilized for examining nursing education in two studies (Manninen et al. 2015) (Manninen et al. 2014). Direct observation, audio-recording and interviews, as well as field notes were used to collect data in a study on clinical communication (Quilligan 2015).



Videotaping supplied an additional form of data, as recorded sequences were recallable at any date, whereas the field notes registered only what was noticed at the time of observation. Thus, interrater agreement was assessed using videotaped consultations. However, as it usually was harder to gain consent for this particular observation method, it is unlikely that as many as 410 consultations would have been observed over the same time span. Thus, field notes formed the main source of information.

These methods of enquiry allowed the collection of first-hand information concerning the points of interest. The qualitative perspectives achieved by these methods are a way of enriching the quantitative information gathered, and vice versa. By using pre-structured field note forms, the accumulation of numeric, quantitative data was enabled, which were used for the statistical description of the observed environment.

Using structured field note forms ensured the recording of pre-defined items of interest. However, one cannot guarantee that certain items, or more random and unexpected occurrences were not missed. Teaching also occurred in between consultations. However, as the unit of observation for study purposes included patient presence, such episodes were not included in data analyses.

### **4.1.3. Data analyses**

#### **4.1.3.1. Quantitative data analyses**

Quantitative analysis was performed using Excel (Microsoft Office 2010). The resulting data were statistically descriptive.

Interrater agreement was assessed using Cohen's Kappa coefficients, which were calculated for twelve videotaped consultations. The results showed moderate agreement. Due to logistical and resource restraints already mentioned elsewhere, it was not possible for both researchers to observe and categorize the consultations simultaneously. This principally would have been an option for the reduction of interrater variability. It is however worth emphasizing that evaluation of interrater agreement occurred.

#### **4.1.3.2. Qualitative data analyses**

The study can be classified as mixed methods research, as both qualitative and quantitative elements were combined. The MESBA project used qualitative, ethnographic data collection methods with the aim of gaining deeper insight into student-teacher interaction. Descriptive analysis of the quantitative data collected during observation was performed. In addition to the quantitative frequency analysis, qualitative analysis based on a revised version of Bloom's

taxonomy was performed (Anderson and Krathwohl 2001) (Krathwohl 2002).

As already outlined in the introduction, the theoretical foundation of the qualitative analysis is best defined as not post-modern (Brewer 2000) (Hammersley and Atkinson 2007) (Kuper et al. 2008b). Consequently, criteria for research quality apply, such as the concepts of reflexivity and triangulation (Brewer 2000) (Hammersley and Atkinson 2007) (Reeves et al. 2013) (Kuper et al. 2008b).

In the study presented here, the observation and data collection techniques were ethnographical (real-time observation), so typically qualitative in nature. However, the study did foresee and plan the collection of structured, quantitative data. Regarding data analysis, the descriptive, quantitative analysis was executed before the qualitative video analysis. The chronology does not necessarily imply the inferiority of qualitative aspects. However, it is possible to regard the data analysis as primarily quantitative, combined with a qualitative enrichment strategy using video sequences.

The nature and timing of method integration can be full or partial, during data collection, analysis, or interpretation. The observation and data collection methods were ethnographic, so typically qualitative in nature. The ensuing data analysis was primarily quantitative and descriptive, followed by qualitative video analysis. However, the analysis based on Anderson and Krathwohl et al 's (Anderson and Krathwohl 2001) revision of Bloom 's taxonomy (Bloom 1987) also possessed quantitative, descriptive traits. Subsequently, the methods were intertwined from the beginning of

the project, with qualitative observation methods combined with collection of descriptive, quantitative data. The analyses and interpretation used each method according to research question. The frequencies of teaching points and types of student involvement were analyzed descriptively (quantitatively), whereas the questioned asked and tasks set by preceptors were analyzed qualitatively, as well as descriptively in relation to the frequency of items per category.

The MESBA project therefore primarily used qualitative data collection methods, and combined quantitative, descriptive data analysis with qualitative analysis as an enrichment of quantitative findings.

Reflexivity is viewed as an important aspect of qualitative research. It is a process by which the researchers themselves reflect on whether they as individuals influenced the research they conducted. Attributes such as gender, age, ethnicity, professional, socioeconomic, and cultural backgrounds may affect the questions posed, the methods employed for data collection and analyses, as well as the conclusions reached (Kuper et al. 2008b). In the study presented and discussed here, the two researchers (GFD and LMR) conducting data collection and the following analyses were undergraduate medical students at the time. Subsequently, they were familiar with the family medicine rotation as a setting and perhaps had certain expectations due to their own experiences as students. Perhaps they hoped to find particular phenomena due to the literature they had read as part of the preparation for formulation of research questions.

Triangulation is seen as an important aspect of qualitative, and therefore also ethnographic research. Triangulation is a process

providing complementary approaches to different aspects of a research project (Kuper et al. 2008b) (Reeves et al. 2013). A combination of different methods, for example quantitative and qualitative methods, and different types of data in the form of field notes and videotapes, as found in the MESBA project discussed here, can be viewed as valid methods of data triangulation. Investigators with different outlooks and backgrounds, or the utilization of different theoretical frameworks are also forms of triangulation (Kuper et al. 2008a) (Kuper et al. 2008b) (Reeves et al. 2013). The observers responsible for the collection of the data presented here both had similar professional backgrounds and motives, in as much as they were both undergraduate medical students aiming to acquire an academic title through dissertations based on the project.

The process of finding patterns, or a concentration of a certain type of questions according to Bloom's revised taxonomy, was executed with the help of quantitative frequency analysis. The analysis of transcripts is typically utilized in qualitative research. Excerpts from the transcripts were used for illustrating examples. The observation and data collection methods used as a basis for the MESBA project are typically used in qualitative research (Kuper et al. 2008b) (Reeves et al. 2008). Subsequently, not only the analysis based on a revised version of Bloom's taxonomy can be viewed as qualitative, but the ethnographic methods used can also be classified as such.

#### **4.1.4. Ethnography**

The concept of ethnography in the medical education research context has previously been introduced (‘1.5 Why Ethnography?’).

Ethnography originated in anthropological studies at the beginning of the 20<sup>th</sup> century (Reeves et al. 2013). The everyday context is observed, as opposed to an experimental setup (Hammersley and Atkinson 2007). Data may be collected from a range of sources; the collection process may be unstructured and categories may be generated during analysis (Hammersley and Atkinson 2007). The focus is often on a few cases, and detailed descriptions are prioritized over purely statistical analyses (Hammersley and Atkinson 2007).

The MESBA project aimed to investigate the teaching interaction, the observation techniques used pre-defined categories as part of the field note forms, so as to be able to generate quantitative, descriptive data. The qualitative analyses were executed on the basis of video data, which were not yet coded at the time of recording. The study described here included a large number of cases (410), the qualitative video analyses were conducted on the basis of a smaller number of recorded consultations.

Conducting ethnographic research has advantages as well as disadvantages (Reeves et al. 2008). The advantages include gaining in-depth insights into social structures and phenomena, the disadvantages can be encountered in the form of difficulties in gaining access to certain settings or communities, as people

functioning as 'gatekeepers' may be concerned about damage to institutional reputation through research results (Reeves et al. 2008).

Rapid ethnography is a type of ethnography which allows fieldwork to be executed within a relatively short timeframe (as in weeks or months). This approach may be of use when time and resources are limited. The researchers start data collection with predefined questions, and the report will thus focus on these questions (Reeves et al. 2013). The investigation presented here is very similar to the concept of rapid ethnography, or could perhaps even be classified as such. The data were collected in the space of nine months, and the field notes included predefined categories, which in turn informed the analysis.

The methods used are not generally applied in the natural sciences, but this does not make the results any less their worthwhile. It is not possible to research the teaching process in practitioners' offices in a laboratory or gain real-time insight using questionnaires.

By making use of the role of non-participant observer, a portrayal of the processes and incidents as near to reality as possible is attempted. This form of investigation of the teaching process is a step toward continuing improvement of the instruction which takes place in practitioners' offices.

One can question whether meaning becomes imposed externally by the mere process of interpretation and discussion of results, or by the fact that observation took place at all. The observed environment, the people, and their interactions were viewed as worth watching in the first place, so some form of judgement had already been formed.

## **4.2. Results**

### **4.2.1. Teaching points**

Two-thirds of all observed consultations (272 out of 410) contained teaching points. The most frequent content related to disease treatment. General teaching points were more common, occurring in 74.3% of 272 consultations containing teaching points. Teaching points comprising specific, case-related subject matter ensued in 43.3% of the 272 consultations containing teaching points.

Teaching points were registered in over 60% of the observed consultations. It is however possible that a lower rate of teaching points occurred when no observation took place. A general rule can be used in more than one case the student encounters. General rules may be triggered by the patient present, acting as a cue for the physician's favourite topics. Disease management was the most frequent topic discussed. It is fair to question whether this reflected student knowledge deficit, or was primarily invoked by the teaching physician's inclinations. Commenting on case management is a way of including the student during ongoing patient care. The data presented here did not record whether efforts were made by the preceptors to gauge student knowledge previous to teaching episodes. Subsequently, determining whether a correlation existed between the topic taught and student knowledge deficit was not possible. Further investigation on this point may be called for.



An investigation examining teaching in family and community medicine found that similarly to the findings presented here, teaching physicians frequently taught general rules (Huang et al. 2004). A number of different teaching methods may include teaching points, even if not explicitly mentioned as such. A detailed case presentation forms the core of the traditional, patient centred precepting model (Aagaard et al. 2004). Here, the presentation by the student is followed by a discussion of the case and future patient management (Aagaard et al. 2004). As the preceptor is not required to investigate the student's existing knowledge, information and instruction may be unnecessarily repeated, whilst teaching opportunities may be missed. Teaching points as part of a teaching script may make up part of the information provided by the practitioner, even if he/she is unaware of the concept. Other teaching models include the Aunt Minnie model (Irby and Wilkerson 2008) (Cunningham et al. 1999), activated demonstration (Irby and Wilkerson 2008) (Wilkerson and Sarkin 1998), and bedside case presentation (Irby and Wilkerson 2008) (Usatine et al. 1997). These models are more learner centred when compared to the traditional precepting model described above.

The SNAPPS model for outpatient precepting enables the student to guide and initiate teaching encounters. The mnemonic characterises a method of using case presentations as learning and teaching opportunities (Wolpaw et al. 2003). A randomised trial comparing SNAPPS training, feedback training and usual-and-customary instruction found that students trained in SNAPPS exceeded their peers in clinical reasoning (Wolpaw et al. 2009). As case presentations as such were seldom the topic of teaching points, it may be necessary to create awareness for this entity of clinical

communication (Quilligan 2015) before training students and teaching physicians to implement the SNAPPS method.

In order to estimate the student 's learning needs whilst continuing efficient patient care, a teaching technique termed the One-Minute Preceptor model, or the Five Microskills model, can be implemented (Teherani et al. 2007) (Aagaard et al. 2004). This model is preferred by students (Teherani et al. 2007) and leads to greater teacher self-confidence when rating students (Aagaard et al. 2004). Both students and teaching physicians would concentrate on teaching points concerning diagnostic reasoning, evaluation and treatment (Teherani et al. 2007). The results presented here concerning teaching point content confirm that treatment is the most frequently taught topic, followed by differential diagnosis.

In order to inform clinical teachers on the options available concerning different teaching techniques and raise awareness for actual content taught, offering faculty development sessions is a possibility. Thus, a more conscious teaching process may be initiated. The results here can be viewed as a starting point for future enquiry.

The content of teaching encounters has not often been investigated (Huang et al. 2004) (Teherani et al. 2007). The majority of the teaching points contained disease treatment as a topic and included general rules, which can potentially be transferred to numerous situations.

#### **4.2.2. Level of student involvement**

Passive student attention was the most frequent form of student involvement in the consultation process (occurring in 78.3% of all consultations), followed by delegation of single tasks or demonstration of particular findings by the GP (occurring in 50.7% of all consultations). Some form of student consultation took place in almost a third of all observed patient encounters (32.2%).

Further analysis of passive student involvement showed that this mode of teaching occurred as the only form of instruction in 31.7% of observed consultations. No passive student involvement (category two and upwards) took place in 21.7% of all consultations.

Passive student attention combined with the occurrence of teaching points took place in 50.5% of all observed consultations. Passive student involvement without teaching points occurred in 28.3% of observed consultations.

Student consultation under direct GP supervision was rarely observed (5.9% of all observed consultations), meaning that only a small amount of cases allowed the possibility of feedback after direct observation. In most cases no feedback was possible on student performance in their role as (future) doctor. A greater number of cases with than without patient involvement during episodes of student reporting back to the GP were recorded. How this impacts teaching is hard to assess, and is not a topic of this study.

Observing how involved the student is can be seen as observing how peripheral the student's participation is: The more involved, the more a member of the particular community of practice the student becomes. The role of trust, or rather entrustment as a process (Sagasser et al. 2016) is also relevant, in as much as the more a teaching physician trusts a student or junior doctor, the more actively the learner will be involved in the consultation process. In this context, the GP's consultation room can be viewed as a micro-community. However, one can question whether the learning experience becomes more effective with increasing levels of student involvement. In order to answer that question, one could correlate the level of student involvement with examination results for summative measurement. Interviews with students and teaching physicians could be of use for formative assessment of the impact of the level of student involvement. In other words, a more vigorous triangulation of data collection methods would be necessary. This is a possible point for future research, as the data discussed here are not fully suited for correlation of these two aspects.

The fact that a non-validated instrument was implemented for the purpose of categorizing student involvement may be viewed as a limitation. However, no instrument suitable for the observed setting and points of interest investigated was available or known to the authors at the time of investigation.

Miller described a possible method of assessing a trainee's competence, known as the 'Miller pyramid' (Miller 1990). The pyramid is in effect also a hierarchy, progressing from passive

knowledge through procedural competence, to being able to perform in examinations, and culminating in active clinical practice.

The concept of communities of practice in the medical education context has been utilized by various authors. For example, Williamson resorts to the concept of communities of practice as described by Lave and Wenger (Lave and Wenger 1991) in a paper on teaching and learning in out-patient clinics (Williamson 2012). An overview of implementing the concept of communities of practice as a basis for medical education is provided by Cruess et al (Cruess et al. 2018). Parboosingh described a connection between the concept of community of practice and physician learning (Parboosingh 2002).

The concept of professional identity formation mentioned in the introduction is explored in a number of publications, including Monrouxe LV in her paper "Identity, identification and medical education. Why should we care?" (Monrouxe 2010). Wilson I et al also deal with the topic (Wilson et al. 2013). The formation of professional identity can be viewed as a process intertwined with becoming a member of a community of practice.

The concept of experience-based learning is described by Dornan et al (Dornan et al. 2007). Becoming a doctor is viewed as a process of "supported participation" in clinical practice ranging from "passive observer", through "active observer", and "actor in rehearsal" to "actor in performance" (Dornan et al. 2007). This concept is similar to the scale describing increasing levels of student involvement utilized by the MESBA project. Dornan et al argue that medical students must develop "practical competence" and a "positive state of mind"

including confidence, motivation, and a sense of professional identity, in order to become a physician (Dornan et al. 2007).

Quilligan also deals with student involvement in an ethnographic study dealing with clinical communication on ward rounds (Quilligan 2015). Some students were described as deciding not to attend rounds, effectively avoiding any form of involvement (Quilligan 2015).

Concerning the results presented here, it is encouraging that students were in some way actively involved in the consultation process. Nevertheless, it would be desirable to further reduce the number of encounters containing passive student attention as the sole form of teaching. Faculty development is a possible means of creating greater awareness concerning style of teaching in general, and inclusion of student activity specifically.

#### **4.2.3. Questions asked and tasks set by preceptors: an analysis based on the revised version of Bloom's taxonomy**

The original and increasingly, the revised version of Bloom's taxonomy have been used in describing curricula, and finding potential areas of improvement (Bloom 1987) (Anderson and Krathwohl 2001) (Zaidi et al. 2017b) (Zaidi et al. 2017a) (Thompson and O'Loughlin 2015) (Morton and Colbert-Getz 2017) (Plack et al. 2007) (Phillips et al. 2017) (Zheng et al. 2008) (Miller et al. 1991)

(Adams 2015) (Crowe et al. 2008) (Kim et al. 2012) (Semsar and Casagrand 2017) (Moxley et al. 2017) (Su et al. 2004) (Su et al. 2005) (Phillips et al. 2013) (Patel et al. 2009). The depiction of teaching in general practice using a qualitative, ethnographic methods approach enabled a thorough account of student-teacher interaction. According to the analysis presented here, teaching events concentrated in the categories conceptual and procedural knowledge. In contrast, the metacognitive knowledge dimension registered no events at all. This distribution of events was confirmed in an independent re-evaluation by a co-researcher.

Interestingly, most literature (described below) seemed to identify teaching objectives focussing on factual and conceptual knowledge, rather than procedural knowledge. This may be due to the fact that a greater number of papers dealt with written multiple-choice examinations, as opposed to real-time observation of clinical placements (as described and cited below). Metacognitive knowledge was seldom represented in findings published elsewhere, which mirrors the results shown here.

Most papers found lower-order categories, dealing with facts and concepts, whereas the results presented here show a concentration of events under 'applying procedural knowledge'. The rotation under scrutiny here was a non-text setting, as opposed to most publications on the subject. Metacognition was de-facto non-existent as an area of teaching events. Self-reflection was -at least explicitly- not demanded by preceptors. The fact that only one teaching point dealing with case presentation was registered also mirrors the scarcity of instruction on the execution of clinical practice and communication. The

presentation of professional knowledge and professional communication in the form of case presentation appeared to play a subordinate role.

Questions, tasks, and teaching points tended to concentrate on actual medical content (disease management, differential diagnosis, physical examination technique) rather than on reflection and metacognition. One can question whether the results shown by the MESBA project reflect student need or preceptor inclination, as no questioning of the observed was conducted as to why certain content was the subject of teaching.

Not the facts, figures, and procedures themselves, but how these were portrayed and communicated from one professional to another was hardly existent in the observed context. In order to develop self-awareness for thought processes, personal strengths and weaknesses, it is necessary to practice metacognitive skills in reflection on clinical practice and teaching.

Creating awareness for metacognition as a dimension of clinical practice and student instruction could be achieved by faculty development on the subject. This aspect is central to continued medical education after completion of the initial university degree.

The original Bloom taxonomy has been adopted by various medical educators, as illustrated further below. However, up until now there seem to be no data on the use of Bloom's taxonomy (original and revised version) in family medicine education. However, there are a number of publications describing the use of Bloom's taxonomy (original and revised version) for various aspects of assessment. The



following publications deal with aspects of medical education curricula. Zaidi B et al described the use of Bloom's original taxonomy in the context of a graduate level histology course (Zaidi et al. 2017a). The taxonomy was used to develop a scoring tool for analyzing quiz and examination questions generated by students and teachers. The so-called "Bloom's Taxonomy Histology Tool", or "BTHT" was used as a scoring tool for histology multiple-choice questions (MCQs) (Zaidi et al. 2017a). The authors found that teacher-generated MCQs with a higher level according to Bloom's taxonomy had a lower percentage of correct student answers, thus possessing a higher difficulty index, and in turn providing better discrimination between high and low performers (Zaidi et al. 2017a). In contrast, student generated MCQs showed no correlation between being able to generate and being able to answer higher level Bloom's taxonomy MCQs (Zaidi et al. 2017a). However, student skill in creating MCQs improved (higher BTHT scores) over the duration of the course (Zaidi et al. 2017a). This lead to the question whether a different set of skills was required for generating and answering higher level MCQs, respectively (Zaidi et al. 2017a). The authors concluded that Bloom's Taxonomy can be used to evaluate MCQs, and that MCQs can be used to test different Bloom's taxonomy performance levels (Zaidi et al. 2017a).

Thompson and O'Loughlin aimed to improve interrater reliability for anatomy MCQs using an adapted version of Bloom's original Taxonomy (Thompson and O'Loughlin 2015). The authors found that an adapted tool using the first four taxonomy levels showed greater interrater reliability compared to a previously used Blooming tool

when used by volunteers categorizing anatomy MCQs (Thompson and O'Loughlin 2015).

In order to compare the flipped classroom with the lecture classroom, Morton et al categorized assessment items according to Bloom's Taxonomy (Morton and Colbert-Getz 2017). The flipped classroom tuition appeared better for analysis (higher level) items, otherwise the two groups did not differ. The study used Bloom's taxonomy to categorize the level of their MCQ assessment items (Morton and Colbert-Getz 2017).

Plack et al described using a modified version of Bloom's taxonomy for assessment of reflective writing during a paediatric clerkship (Plack et al. 2007). The authors found interrater reliability of the assessment method to be substantial and that higher order thinking was demonstrated through reflective journal writing (Plack et al. 2007).

In another study, Phillips et al found that clinical facilitators in nursing who had undergone training regarding Bloom's taxonomy asked higher order questions according to the taxonomy (Phillips et al. 2017). Zheng et al used Bloom's Taxonomy to demonstrate that higher-order questions are posed in the Medical College Admission Test (MCAT) (Zheng et al. 2008).

Zaidi Nikki L. et al questioned whether Bloom's taxonomy was as useful as they had previously assumed (Zaidi et al. 2017b). The authors found that examiners and student examinees interpreted the level of MCQs differently in relation to level (higher or lower order) according to Bloom's taxonomy. Thus, questions viewed as higher

order by examiners may only require a lower order cognitive process by the student. This can depend on background knowledge and prior student experience, as well as cueing (certain “buzz” words), or pattern recognition (Zaidi et al. 2017b). This led the authors’ institute to discard the process of Blooming MCQs, as described in the comment titled “What Happens When We Assume: Examining Bloom’s Taxonomy From the Perspectives of Multiple Stakeholders” (Zaidi 2018).

When using Bloom’s taxonomy to evaluate the MCQs used for psychiatry training, most questions posed were found to be lower order, in that they asked for knowledge recall (Miller et al. 1991).

Adams NE described how Bloom’s taxonomy can be used for creating and describing educational objectives (Adams 2015).

Bloom’s taxonomy has also been used outside the medical education context. For example, an adapted version of Bloom’s taxonomy, the so-called Blooming Biology Tool (BBT) was utilised to avoid misalignment of teaching and testing (Crowe et al. 2008). Kim et al described categorizing the MCQs for testing items in a pharmacotherapeutics course with the aim of assessing critical thinking skills in students (Kim et al. 2012).

Bloom’s taxonomy has also been used for teaching personality assessment psychology (Ramirez 2017).

Semsar and Casagrand described a new Bloom’s training tool (Bloom’s dichotomous key (BDK)) for evaluating the cognitive difficulty of assessment items in neurophysiology. They aimed to increase interrater reliability as opposed to when using the BBT (Blooming Biology Tool) (Semsar and Casagrand 2017). Interrater

reliability increased, however background knowledge on Bloom was necessary for this effect (Semsar and Casagrand 2017).

The revised version of Bloom's taxonomy according to Anderson and Krathwohl et al (Anderson and Krathwohl 2001) has also been used for different aspects of health science curricula.

Moxley E et al described the development of a nursing lesson plan for the "2016 NCLEX-RN Detailed Test Plan" using the revised Bloom's Taxonomy as a didactic structure (Moxley et al. 2017). The revised version of Bloom's taxonomy has also been used in order to teach diagnostic reasoning skills in nursing (Su et al. 2004) (Su et al. 2005).

A version of the revised Bloom's taxonomy was adapted in order to create assessment and teaching content for a radiological anatomy course (Phillips et al. 2013). Teaching points were also mentioned.

Patel VL et al mentioned Bloom's taxonomy and the revised version according to Anderson and Krathwohl in their review as tools for assessment of competence in medical education (Patel et al. 2009). The two-dimensional revised taxonomy was seen as more comprehensive and useful for connecting educational objectives to assessment of student performance (Patel et al. 2009).

In a piece on describing how test items are developed, Bloom's taxonomy is utilized for creating content (Josette Akresh-Gonzales 2018).

As demonstrated above, Bloom's Taxonomy has been -and is being- used in a multitude of different fields in a number of adapted forms.

Lower order cognition was most commonly observed. Bloom's taxonomy was found to be of use in course evaluation, assessment of examination content or instruction format. However, there seems to be no current data on the use of Bloom's taxonomy in the general practice and family medicine context.

Bloom's taxonomy (original and revised) is often depicted as a pyramid, with the higher-level cognitive processes at the top, resting on the preceding processes. This structure can be compared to the Miller pyramid of assessment/skills/competencies (Miller 1990). The Miller pyramid describes a hierarchy, ranging from passive knowledge to clinical competence (Miller 1990).

In the results described here, there is a concentration in the category 'application', which could mean that the rotation investigated here is above average in comparison to publications mentioned above. However, there is still room for improvement, in as much as a more balanced out curriculum and teaching objectives could be aimed for. For example, questions and tasks dealing with metacognition were not identified at all. Applying procedural knowledge in terms of physical examination is perhaps easier for teaching physicians to integrate into the overall consultation process.

Did GPs expect certain content or student reaction? Were they consciously attempting a certain objective? Were the questions and tasks plainly categorizable? This analysis attempted an exploration. GPs can now become aware of what they are perhaps subconsciously deciding. The analysis enables conscious formulation of teaching objectives: new, different questions may be formulated in order to fill

in the blank cells. However, the revised version also possesses certain limitations. The system is at times perhaps too complex, and thus becomes hard to reproduce.

Follow-up interviews may be useful in future research in order to investigate the 'inner teaching process', and to find out whether preceptors acted on certain goals and preconceptions.

### **4.3. Conclusions**

The results presented here showed that whilst teaching points were made in two thirds of consultations, passive student attention was the most common form of involving the future physician. Questions and tasks tended to focus on application of previously acquired knowledge and skills. Whilst it is encouraging that teaching takes place, the data also demonstrated potential for future improvement concerning the teaching process. The results can be viewed as a starting point for further research and faculty development.

The latter could raise awareness for the current state of teaching and demonstrate different forms of communicating and organizing teaching content for -and with- students.

Future research could include interviews with teaching physicians in order to investigate whether some form of conscious teaching process occurs. Students could be interviewed with the aim of describing the perception of the teaching process and content, and whether these

are congruent with their own perceived needs. After all, tomorrow's doctors are formed by today's teaching.

## 5. Summary

### Purpose of dissertation

A general practice and family medicine rotation is mandatory as part of undergraduate medical education in Germany. The interaction between general practitioners and medical students has until now seldom been the focus of research.

The purpose of this dissertation was to investigate the occurrence and content of teaching points and the level of student involvement in the consultation process. Additionally, questions asked and tasks set by preceptors were categorized according to Anderson and Krathwohl et al 's revision of Bloom 's taxonomy.

All participants provided informed, written consent. Data were collected by two observers using field note forms and videotaping. This was followed by quantitative and qualitative analyses.

### Results

From April to December 2012, 410 patient consultations were observed. Twelve medical surgeries were involved, including 16 general practitioners and 13 medical students. Teaching points occurred in 66.3% of observed consultations. Most teaching points (74.3%) contained general information, whilst 46.3% of teaching points contained specific, case related information. The topic most frequently covered was therapy (disease management) (48.5%),



whilst case presentation was a topic in only 0.4% of consultations containing teaching points. Multiple categorizations were possible.

Student involvement was most commonly passive (78.3% of all consultations), followed by allocation of single tasks or demonstration of findings by the preceptor in 50.7% of all consultations. Some form of student consultation occurred in 32.2% of observed cases. Student consultation under direct supervision occurred in 5.9% of observed cases. Multiple categorizations were possible.

Questions asked and tasks set by teaching practitioners were categorized according to Anderson and Krathwohl et al 's revision of Bloom 's taxonomy. Twenty-two videotaped consultations containing altogether 57 categorizable events were transcribed and analyzed. There was a concentration of events in the conceptual knowledge (18 events) and procedural knowledge (36 events) dimensions. The metacognitive knowledge dimension registered no events at all. Multiple categorizations were possible.

## Discussion

Preceptors regularly imparted knowledge in the form of teaching points; however, students were most commonly passive observers of the consultation process. When questions were asked, they usually aimed for conceptual or procedural knowledge. Teaching practitioners therefore appeared to make an effort to transport knowledge to their future colleagues. Assuming that supervised active student participation in patient care has a higher educational value, these findings suggest the need for creating greater awareness for this issue. It is possible conceptual and procedural knowledge dimensions

were frequently aimed for as they were easier to verify or supervise. In contrast, metacognition is perhaps harder to convey.

The results may be affected by selection bias, as study participation was voluntary and observation visible. Thus, the participants may have possessed characteristics which influenced the interaction. Behaviour deemed desirable may have been demonstrated.

### Conclusions

The results presented here provide unique and detailed insights into the student-teacher interaction occurring during the general practice rotation. The results may be viewed as a starting point for further faculty development sessions and research in order to create awareness for different aspects of teaching and learning.

## **6. Zusammenfassung**

### Fragestellung

Ein Blockpraktikum in der Allgemeinmedizin ist verpflichtender Bestandteil des Medizinstudiums in Deutschland. Die Interaktion zwischen Lehrärzten und Studierenden ist bis heute kaum untersucht.

Das Ziel der hier vorgelegten Dissertation ist die Untersuchung des Vorkommens und der Inhalte von sogenannten Teaching Points, sowie der Grad der Einbeziehung von Studierenden in die Patientenkonsultation. Außerdem sollen durch Lehrärzte gestellte Fragen und Aufgaben nach einer durch Anderson und Krathwohl et al. revidierten Fassung der Taxonomie nach Bloom kategorisiert werden.

Alle Studienteilnehmer willigten schriftlich zur Studienteilnahme ein. Zwei Beobachterinnen sammelten Daten mittels Feldnotizen und Videoaufnahmen. Danach erfolgte eine quantitative sowie qualitative Analyse.

### Ergebnisse

Von April bis Dezember 2012 wurden 410 Patientenkonsultationen beobachtet. Es nahmen zwölf akademische Lehrpraxen mit insgesamt 16 Lehrärzten und 13 Studierende an der Studie teil. Teaching Points wurden in 66,3% der eingeschlossenen Konsultationen beobachtet. Die Mehrheit der Teaching Points (74,3%) enthielten allgemeine Informationen, während 46,3% der Teaching Points spezifische Information zum aktuellen Fall enthielten. Am häufigsten wurde die

Therapie (48,5%) thematisiert. Die passive studentische Einbeziehung wurde in 78,3% und die Zuteilung einzelner Aufgaben oder die Befunddemonstration durch Lehrende in 50,7% der Konsultationen beobachtet. Eine durch Studierende geführte Patientenkonsultation fand in 32,2% der Fälle statt, jedoch nur selten (5,9%) unter direkter Aufsicht des Lehrarztes. Mehrfachkategorisierungen waren möglich.

Zweiundzwanzig gefilmte Konsultationen, die insgesamt 57 Ereignisse enthielten, wurden in Schriftform transkribiert und nach einer Revision der Taxonomie nach Bloom analysiert. Eine Konzentrierung von Ereignissen in den Dimensionen des konzeptionellen (18 Ereignisse) und prozeduralen (36 Ereignisse) Wissens wurde sichtbar. Die metakognitive Ebene schien keine Rolle in den beobachteten Lehrinteraktionen zu spielen. Mehrfachkategorisierungen waren möglich.

## Diskussion

Lehrärzte gaben regelmäßig Wissen in Form von Teaching Points weiter; jedoch waren Studierende meist nur Beobachter der Konsultation. Durch Lehrärzte gestellte Fragen zielten meistens auf konzeptionelles oder prozedurales Wissen ab. Die Lehrärzte schienen sich zu bemühen, Wissen an ihre zukünftigen Kollegen weiterzugeben. Angenommen, dass die supervidierte aktive studentische Teilnahme eine effektivere Lehrmethode als die passive Beobachtung ist, zeigen diese Ergebnisse eventuell einen bestehenden Bedarf bezüglich der Weiterbildung von Lehrärzten.

Es ist möglich, dass prozedurales und konzeptionelles Wissen aufgrund der Wahrnehmung der Lehrärzte, dass diese Bereiche leichter zu überprüfen und zu beaufsichtigen sind, am häufigsten durch diese gefordert wurde. Im Gegensatz dazu ist die metakognitive Dimension eventuell schwieriger zu kommunizieren.

Die Ergebnisse könnten durch einen Selektionsbias beeinflusst worden sein, da die Studienteilnahme freiwillig und die Beobachtung durch die Untersucherinnen sichtbar war. Es ist daher nicht auszuschließen, dass Studienteilnehmer über Eigenschaften verfügten, welche die beobachtete Interaktion beeinflussten. Eventuell wurde Verhalten, welches als erwünscht schien, gezeigt.

#### Schlussfolgerungen

Die hier präsentierten Ergebnisse geben einen einmaligen und detaillierten Einblick in die Interaktionen zwischen Lehrärzten und Studierenden im allgemeinmedizinischen Blockpraktikum. Die Ergebnisse können als Anstoß für zukünftige Weiterbildungsangebote sowie für Forschung angesehen werden, um das Wissen bezüglich verschiedener Aspekte des Lehrens und Lernens zu erweitern.

## 7. References

Aagaard, E.; Teherani, A.; Irby, D. M. (2004): Effectiveness of the one-minute preceptor model for diagnosing the patient and the learner: proof of concept. In *Acad Med* 79 (1), pp. 42–49. Available online at <http://www.ncbi.nlm.nih.gov/pubmed/14690996>.

Adams, Nancy E. (2015): Bloom's taxonomy of cognitive learning objectives. In *Journal of the Medical Library Association: JMLA* 103 (3), pp. 152–153. DOI: 10.3163/1536-5050.103.3.010.

Anderson, Lorin W.; Krathwohl, David R. (2001): A taxonomy for learning, teaching, and assessing. A revision of Bloom's taxonomy of educational objectives. Complete ed. New York: Longman.

Atkinson, Paul (1984): Training for certainty. In *Social Science & Medicine* 19 (9), pp. 949–956. DOI: 10.1016/0277-9536(84)90324-1.

Atkinson, Paul; Pugsley, Lesley (2005): Making sense of ethnography and medical education. In *Med Educ* 39 (2), pp. 228–234. DOI: 10.1111/j.1365-2929.2004.02070.x.

Atkinson, Paul and Hammersley, Martyn (1998): Ethnography and Participant Observation. In: Denzin, Norman K.; Lincoln, Yvonna S. *Strategies of qualitative inquiry*. Thousand Oaks, Calif: Sage Publications.

Becker, Howard Saul; Geer, Blanche; Hughes, Everett C.; Strauss, Anselm L. (2007): *Boys in white. Student culture in medical school*. 10<sup>th</sup> ed. New Brunswick: Transaction Publishing.

Bloom, Benjamin Samuel (1987): Taxonomy of educational objectives. The classification of educational goals. Handbook 1

Cognitive Domain. 31<sup>st</sup> ed. New York, New York, London: McKay; Longman.

Bloom SW (1973): Power and Dissent in the Medical School. New York: Free Press.

Bösner, Stefan; Roth, Lisa Marie; Duncan, Gertrude Florence; Donner-Banzhoff, Norbert (2017): Verification and feedback for medical students. An observational study during general practice rotations. In *Postgraduate medical journal* 93 (1095), pp. 3–7. DOI: 10.1136/postgradmedj-2015-133420.

Brewer, John D. (2000): *Ethnography*: John D. Brewer // *Ethnography*. Buckingham, Philadelphia, PA: Open University Press.

Brown, J. S.; Collins, A.; Duguid, P. (1989): Situated Cognition and the Culture of Learning. In *Educational Researcher* (1). Available online at [http://people.ucsc.edu/~gwells/Files/Courses\\_Folder/ED%20261%20Papers/Situated%20Cognition.pdf](http://people.ucsc.edu/~gwells/Files/Courses_Folder/ED%20261%20Papers/Situated%20Cognition.pdf), checked on 7/26/2012.

Bundesgesetzblatt (2012). Erste Verordnung zur Änderung der Approbationsordnung für Ärzte: Vom 17. Juli 2012. Available online at [http://www.bgbl.de/banzxaver/bgbl/start.xav?start=//\\*%5B@attr\\_id=%27bgbl112s1561b.pdf%27%5D#\\_\\_bgbl\\_\\_%2F%2F\\*%5B%40attr\\_id%3D%27bgbl112s1539.pdf%27%5D\\_\\_1404290210867](http://www.bgbl.de/banzxaver/bgbl/start.xav?start=//*%5B@attr_id=%27bgbl112s1561b.pdf%27%5D#__bgbl__%2F%2F*%5B%40attr_id%3D%27bgbl112s1539.pdf%27%5D__1404290210867), checked on 7/2/2014.

Bundesministerium für Bildung und Forschung (2017): "Masterplan Medizinstudium 2020". Available online at [https://www.bmbf.de/files/2017-03-31\\_Masterplan%20Beschlusstext.pdf](https://www.bmbf.de/files/2017-03-31_Masterplan%20Beschlusstext.pdf), checked on 8/31/2018.

Chambers 21st Century Dictionary: Chambers 21st Century Dictionary. ethnography. Available online at <https://chambers.co.uk/search/?query=ethnography&title=21st>, checked on 5/30/2019.

Chambers 21st Century Dictionary: Chambers 21st Century Dictionary. method. Available online at <https://chambers.co.uk/search/?query=method&title=21st>, checked on 8/27/2018.

Chambers 21st Century Dictionary: Chambers 21st Century Dictionary. methodology. Available online at <https://chambers.co.uk/search/?query=methodology&title=21st>, checked on 8/27/2018.

Chambers 21st Century Dictionary: Chambers 21st Century Dictionary. taxonomy. Available online at <https://chambers.co.uk/search/?query=taxonomy&title=21st>, checked on 8/27/2018.

Crowe, Alison; Dirks, Clarissa; Wenderoth, Mary Pat (2008): Biology in bloom: implementing Bloom's Taxonomy to enhance student learning in biology. In *CBE life sciences education* 7 (4), pp. 368–381. DOI: 10.1187/cbe.08-05-0024.

Cruess, Richard L.; Cruess, Sylvia R.; Steinert, Yvonne (2018): Medicine as a Community of Practice. Implications for Medical Education. In *Acad Med* 93 (2), pp. 185–191. DOI: 10.1097/ACM.0000000000001826.



Cunningham, Allan S.; Blatt, Steven D.; Fuller, Paul G.; Weinberger, Howard L. (1999): The Art of Precepting. In *Arch Pediatr Adolesc Med* 153 (2), pp. 114–116. DOI: 10.1001/archpedi.153.2.114.

DEGAM (2013): Sektionsbericht Studium und Hochschule 2013x - Sektionsbericht\_Studium\_und\_Hochschule\_2013x.pdf. Available online at [http://www.degam.de/fileadmin/user\\_upload/degam/Studium\\_und\\_Hochschule/Sektionsbericht\\_Studium\\_und\\_Hochschule\\_2013x.pdf](http://www.degam.de/fileadmin/user_upload/degam/Studium_und_Hochschule/Sektionsbericht_Studium_und_Hochschule_2013x.pdf), updated on 10/11/2013, checked on 1/15/2014.

Dent, John A. (2005): AMEE Guide No 26: clinical teaching in ambulatory care settings: making the most of learning opportunities with outpatients. In *Med Teach* 27 (4), pp. 302–315. DOI: 10.1080/01421590500150999.

Denzin, Norman K. (1997): Interpretive ethnography. Ethnographic practices for the 21st century. Thousand Oaks, Calif: Sage Publications.

Dornan, Tim; Boshuizen, Henny; King, Nigel; Scherpbier, Albert (2007): Experience-based learning. A model linking the processes and outcomes of medical students' workplace learning. In *Medical Education* 41 (1), pp. 84–91. DOI: 10.1111/j.1365-2929.2006.02652.x.

Duncan, Gertrude Florence; Roth, Lisa Marie; Donner-Banzhoff, Nobert; Boesner, Stefan (2016): Teaching points-do they occur and what do they contain? An observation study concerning the general practice rotation. In *BMC Med Educ* 16, p. 113. DOI: 10.1186/s12909-016-0636-y.

Else, Christopher; Challinor, Alexander; Monrouxe, Lynn V. (2017): Patients embodied and as-a-body within bedside teaching encounters: a video ethnographic study. In *Advances in health sciences education : theory and practice* 22 (1), pp. 123–146. DOI: 10.1007/s10459-016-9688-3.

Fox R: Training for uncertainty (1957). In : Merton RK, Reader G, Kendall PL, editors. *The student physician: Introductory studies in the sociology of medical education.*, pp. 207–241.

Grouven, U.; Bender, R.; Ziegler, A.; Lange, S. (2007): Der Kappa-Koeffizient. In *Dtsch med Wochenschr* 132 (S 01), pp. e65–e68. DOI: 10.1055/s-2007-959046.

Hägg-Martinell, A.; Hult, H.; Henriksson, P.; Kiessling, A. (2016): Community of practice and student interaction at an acute medical ward. An ethnographic study. In *Medical teacher* 38 (8), pp. 793–800. DOI: 10.3109/0142159X.2015.1104411.

Hägg-Martinell, A.; Hult, H.; Henriksson, P.; Kiessling, A. (2017): Medical students' opportunities to participate and learn from activities at an internal medicine ward: an ethnographic study. In *BMJ Open* 7 (2). DOI: 10.1136/bmjopen-2016-013046.

Hammersley, Martyn; Atkinson, Paul (2007): *Ethnography. Principles in Practice* Third Edition. Hoboken: Taylor & Francis.

Huang, William Y.; Dains, Joyce E.; Monteiro, F. Marconi; Rogers, John C. (2004): Observations on the teaching and learning occurring in offices of community-based family and community medicine clerkship preceptors. In *Fam Med* 36 (2), pp. 131–136. Available online at

<http://www.stfm.org/fmhub/fm2004/February/William131.pdf>,  
checked on 6/13/2014.

Hudson, Judith N.; Weston, Kathryn M.; Farmer, Elizabeth A. (2011): Engaging rural preceptors in new longitudinal community clerkships during workforce shortage: a qualitative study. In *BMC Fam Pract* 12, p. 103. DOI: 10.1186/1471-2296-12-103.

Irby, D. M. (1994): What clinical teachers in medicine need to know. In *Acad Med* 69 (5), pp. 333–342. Available online at <http://www.ncbi.nlm.nih.gov/pubmed/8166912>.

Irby, D. M. (1995): Teaching and learning in ambulatory care settings: a thematic review of the literature. In *Acad Med* 70 (10), pp. 898–931. Available online at <http://www.ncbi.nlm.nih.gov/pubmed/7575922>.

Irby, D. M.; Aagaard, E.; Teherani, A. (2004): Teaching points identified by preceptors observing one-minute preceptor and traditional preceptor encounters. In *Acad Med* 79 (1), pp. 50–55. Available online at <http://www.ncbi.nlm.nih.gov/pubmed/14690997>.

Irby, D. M.; Ramsey, P. G.; Gillmore, G. M.; Schaad, D. (1991): Characteristics of effective clinical teachers of ambulatory care medicine. In *Acad Med* 66 (1), pp. 54–55.

Irby, David M.; Wilkerson, LuAnn (2008): Teaching when time is limited. In *BMJ* 336 (7640), pp. 384–387. DOI: 10.1136/bmj.39456.727199.AD.

Josette Akresh-Gonzales (2018): Bloom's Taxonomy— From Knowledge to Practice. NEJM Knowledge plus. Available online at

<https://knowledgeplus.nejm.org/blog/blooms-taxonomy-from-knowledge-to-practice/>.

Kim, Myo-Kyoung; Patel, Rajul A.; Uchizono, James A.; Beck, Lynn (2012): Incorporation of Bloom's taxonomy into multiple-choice examination questions for a pharmacotherapeutics course. In *American journal of pharmaceutical education* 76 (6), p. 114. DOI: 10.5688/ajpe766114.

Kiolbassa, Kathrin; Miksch, Antje; Hermann, Katja; Loh, Andreas; Szecsenyi, Joachim; Joos, Stefanie; Goetz, Katja (2011): Becoming a general practitioner - Which factors have most impact on career choice of medical students? In *BMC Fam Pract* 12 (1), p. 25. DOI: 10.1186/1471-2296-12-25.

Kowlowitz, V.; Slatt, L. M.; Kollisch, D. O.; Strayhorn, G. (1996): Monitoring students' clinical experiences during a third-year family medicine clerkship. In *Acad Med* 71 (4), pp. 387–389. Available online at <http://www.ncbi.nlm.nih.gov/pubmed/?term=Kowlowitz+V+Monitoring+students%C2%B4+clinical+experiences>, checked on 6/23/2014.

Krathwohl, David R. (2002): A Revision of Bloom's Taxonomy: An Overview. In *Theory into Practice* 41 (4).

Krathwohl, David R.; Bloom, Benjamin Samuel; Masia, Bertram B. (1981): Taxonomy of educational objectives. Handbook 2 Affective Domain. 12<sup>th</sup> ed. New York [etc.]: Longman.

Kuper, A.; Lingard, L.; Levinson, W. (2008a): Critically appraising qualitative research. In *BMJ* 337 (aug07 3), pp. a1035. DOI: 10.1136/bmj.a1035.

Kuper, Ayelet; Reeves, Scott; Levinson, Wendy (2008b): An introduction to reading and appraising qualitative research. In *BMJ (Clinical research ed.)* 337, a288. DOI: 10.1136/bmj.a288.

Lave, Jean; Wenger, Etienne (1991): *Situated learning. Legitimate peripheral participation.* Cambridge [England], New York: Cambridge University Press.

Lindenbaum, Shirley (1993): *Knowledge, power, and practice. The anthropology of medicine and everyday life (Comparative studies of health systems and medical care).*

Lingard, Lorelei; Albert, Mathieu; Levinson, Wendy (2008): Grounded theory, mixed methods, and action research. In *BMJ (Clinical research ed.)* 337, a567. DOI: 10.1136/bmj.39602.690162.47.

Manninen, Katri; Henriksson, Elisabet Welin; Scheja, Max; Silen, Charlotte (2014): Patients' approaches to students' learning at a clinical education ward--an ethnographic study. In *BMC medical education* 14, p. 131. DOI: 10.1186/1472-6920-14-131.

Manninen, Katri; Henriksson, Elisabet Welin; Scheja, Max; Silen, Charlotte (2015): Supervisors' pedagogical role at a clinical education ward - an ethnographic study. In *BMC nursing* 14, p. 55. DOI: 10.1186/s12912-015-0106-6.

Merton, Robert K.; Reader, George G.; Kendall, Patricia L. (1957): *The Student-Physician. Introductory Studies in the Sociology of Medical Education.* s.l.: Harvard University Press (Commonwealth Fund Publications). Available online at [http://www.degruyter.com/search?f\\_0=isbnissn&q\\_0=9780674366831&searchTitles=true](http://www.degruyter.com/search?f_0=isbnissn&q_0=9780674366831&searchTitles=true).

Miller, D. A.; Sadler, J. Z.; Mohl, P. C.; Melchiodi, G. A. (1991): The cognitive context of examinations in psychiatry using Bloom's taxonomy. In *Medical Education* 25 (6), pp. 480–484.

Miller, G. E. (1990): The assessment of clinical skills/competence/performance. In *Acad Med* 65 (9 Suppl), p. 7. Available online at <http://www.ncbi.nlm.nih.gov/pubmed/2400509>, checked on 6/17/2014.

Monrouxe, L. V.; Rees, C. E.; Bradley, P. (2009): The construction of patients' involvement in hospital bedside teaching encounters. In *Qual Health Res* 19 (7), pp. 918–930.

Monrouxe, Lynn V. (2010): Identity, identification and medical education. Why should we care? In *Med Educ* 44 (1), pp. 40–49. DOI: 10.1111/j.1365-2923.2009.03440.x.

Morton, David A.; Colbert-Getz, Jorie M. (2017): Measuring the impact of the flipped anatomy classroom: The importance of categorizing an assessment by Bloom's taxonomy. In *Anatomical sciences education* 10 (2), pp. 170–175. DOI: 10.1002/ase.1635.

Moxley, Elizabeth; Maturin, Larry; Rakstang, Kristin (2017): NCLEX-RN® Success. An Integrative Lesson Plan. In *Teaching and Learning in Nursing* 12 (2), pp. 161–164. DOI: 10.1016/j.teln.2017.01.001.

Oxford Dictionaries: taxonomy | Definition of taxonomy in English by Oxford Dictionaries. Available online at <https://en.oxforddictionaries.com/definition/taxonomy>, checked on 8/27/2018.

Parboosingh, John T. (2002): Physician communities of practice. Where learning and practice are inseparable. In *The Journal of*

*continuing education in the health professions* 22 (4), pp. 230–236. DOI: 10.1002/chp.1340220407.

Patel, Vimla L.; Yoskowitz, Nicole A.; Arocha, Jose F. (2009): Towards effective evaluation and reform in medical education. A cognitive and learning sciences perspective. In *Adv Health Sci Educ Theory Pract* 14 (5), pp. 791–812. DOI: 10.1007/s10459-007-9091-1.

Phillips, Andrew W.; Smith, Sandy G.; Straus, Christopher M. (2013): Driving deeper learning by assessment: an adaptation of the Revised Bloom's Taxonomy for medical imaging in gross anatomy. In *Academic radiology* 20 (6), pp. 784–789. DOI: 10.1016/j.acra.2013.02.001.

Phillips, Nicole M.; Duke, Maxine M.; Weerasuriya, Rona (2017): Questioning skills of clinical facilitators supporting undergraduate nursing students. In *Journal of clinical nursing*. DOI: 10.1111/jocn.13761.

Pichlhöfer, Otto; Tönies, Hans; Spiegel, Wolfgang; Wilhelm-Mitteräcker, Andree; Maier, Manfred (2013): Patient and preceptor attitudes towards teaching medical students in General Practice. In *BMC Med Educ* 13 (1), p. 83. DOI: 10.1186/1472-6920-13-83.

Plack, Margaret M.; Driscoll, Maryanne; Marquez, Maria; Cuppernull, Lynn; Maring, Joyce; Greenberg, Larrie (2007): Assessing reflective writing on a pediatric clerkship by using a modified Bloom's Taxonomy. In *Ambulatory pediatrics: the official journal of the Ambulatory Pediatric Association* 7 (4), pp. 285–291. DOI: 10.1016/j.ambp.2007.04.006.

Quilligan, Sally (2015): Learning clinical communication on ward-rounds. An ethnographic case study. In *Medical teacher* 37 (2), pp. 168–173. DOI: 10.3109/0142159X.2014.947926.

Ramirez, Tatyana V. (2017): On Pedagogy of Personality Assessment: Application of Bloom's Taxonomy of Educational Objectives. In *Journal of personality assessment* 99 (2), pp. 146–152. DOI: 10.1080/00223891.2016.1167059.

Rees, Charlotte E.; Ajjawi, Rola; Monrouxe, Lynn V. (2013): The construction of power in family medicine bedside teaching: a video observation study. In *Medical Education* 47 (2), pp. 154–165. DOI: 10.1111/medu.12055.

Rees, Charlotte E.; Knight, Lynn V. (2008): Thinking 'no' but saying 'yes' to student presence in general practice consultations: politeness theory insights. In *Medical Education* 42 (12), pp. 1152–1154. DOI: 10.1111/j.1365-2923.2008.03173.x.

Rees, Charlotte E.; Monrouxe, Lynn V. (2008): 'Is it alright if I-um- we unbutton your pyjama top now?' Pronominal use in bedside teaching encounters. In *Commun Med* 5 (2), pp. 171–181.

Rees, Charlotte E.; Monrouxe, Lynn V. (2010): "I should be lucky ha ha ha ha ha": The construction of power, identity and gender through laughter within medical workplace learning encounters. In *Journal of Pragmatics* 42 (12), pp. 3384–3399. DOI: 10.1016/j.pragma.2010.05.004.

Reeves, Scott; Kuper, Ayelet; Hodges, Brian David (2008): Qualitative research methodologies: ethnography. In *BMJ (Clinical research ed.)* 337, a1020. DOI: 10.1136/bmj.a1020.



Reeves, Scott; Peller, Jennifer; Goldman, Joanne; Kitto, Simon (2013): Ethnography in qualitative educational research: AMEE Guide No. 80. In *Medical teacher* 35 (8), e1365-79. DOI: 10.3109/0142159X.2013.804977.

Roth, Lisa Marie (2018): Der Lehrprozess im Blockpraktikum Allgemeinmedizin: Feedback, Machtkonstruktion und Kontrolle von erhobener Anamnese und Befunden durch die Lehrärzte. Inaugural-Dissertation zur Erlangung des Doktorgrades der gesamten Humanmedizin dem Fachbereich Medizin der Philipps-Universität Marburg. Aus dem Institut für Allgemeinmedizin, Präventive und Rehabilitative Medizin.

Sagasser, Margaretha H. PhD; Fluit, Cornelia R.M.G. MD, PhD; van Weel, Chris MD, PhD; van der Vleuten, Cees P.M. PhD; Kramer, Anneke W.M. MD, PhD (2016): How Entrustment Is Informed by Holistic Judgments Across Time in a Family Medicine Residency Program: An Ethnographic Nonparticipant Observational Study. In *Acad Med*. DOI: 10.1097/ACM.0000000000001464.

Semsar, Katharine; Casagrand, Janet (2017): Bloom's dichotomous key: a new tool for evaluating the cognitive difficulty of assessments. In *Advances in physiology education* 41 (1), pp. 170-177. DOI: 10.1152/advan.00101.2016.

Sinclair, Simon (1997): Making doctors. An institutional apprenticeship. Oxford: Berg (Explorations in anthropology). Available online at <http://www.loc.gov/catdir/enhancements/fy0601/98115314-d.html>.

Steinhäuser, J.; Miksch, A.; Hermann, K.; Joos, S.; Loh, A.; Götz, K. (2013): Wie sehen Medizinstudierende die Allgemeinmedizin? In *Dtsch med Wochenschr.* DOI: 10.1055/s-0033-1349450.

Sturman, Nancy; Régo, Patricia; Dick, Marie-Louise (2011): Rewards, costs and challenges. The general practitioner's experience of teaching medical students. In *Med Educ* 45 (7), pp. 722–730. DOI: 10.1111/j.1365-2923.2011.03930.x.

Su, Whei Ming; Osisek, Paul J.; Starnes, Beth (2004): Applying the Revised Bloom's Taxonomy to a medical-surgical nursing lesson. In *Nurse educator* 29 (3), pp. 116–120.

Su, Whei Ming; Osisek, Paul J.; Starnes, Beth (2005): Using the Revised Bloom's Taxonomy in the clinical laboratory: thinking skills involved in diagnostic reasoning. In *Nurse educator* 30 (3), pp. 117–122.

Teherani, Arianne; O'Sullivan, Patricia; Aagaard, Eva M.; Morrison, Elizabeth H.; Irby, David M. (2007): Student perceptions of the one minute preceptor and traditional preceptor models, Medical Teacher, Informa Healthcare. In *Med Teach.* Available online at <http://informahealthcare.com/doi/abs/10.1080/01421590701287988>, checked on 6/4/2013.

Thompson, Andrew R.; O'Loughlin, Valerie D. (2015): The Blooming Anatomy Tool (BAT): A discipline-specific rubric for utilizing Bloom's taxonomy in the design and evaluation of assessments in the anatomical sciences. In *Anatomical sciences education* 8 (6), pp. 493–501. DOI: 10.1002/ase.1507.

Usatine, R. P.; Nguyen, K.; Randall, J.; Irby, D. M. (1997): Four exemplary preceptors' strategies for efficient teaching in managed care settings. In *Acad Med* 72 (9), pp. 766–769. Available online at [http://www.ncbi.nlm.nih.gov/pubmed?term=Usatine%20RP,%20Nguyen%20K,%20Randall%20J,%20Irby%20DM.%20Four%20exemplary%20preceptors%E2%80%99%20strategies%20for%20efficient%20teaching%20in%20managed%20care%20settings.%20Acad%20Med%201997;72:766-9.\[all\]&cmd=correctspelling](http://www.ncbi.nlm.nih.gov/pubmed?term=Usatine%20RP,%20Nguyen%20K,%20Randall%20J,%20Irby%20DM.%20Four%20exemplary%20preceptors%E2%80%99%20strategies%20for%20efficient%20teaching%20in%20managed%20care%20settings.%20Acad%20Med%201997;72:766-9.[all]&cmd=correctspelling), checked on 12/14/2014.

Walters, Lucie; Prideaux, David; Worley, Paul; Greenhill, Jennene; Rolfe, Heidi (2009): What do general practitioners do differently when consulting with a medical student? In *Medical Education* 43 (3), pp. 268–273. DOI: 10.1111/j.1365-2923.2008.03276.x.

Wenger, E. (2008): *Communities of practice. Learning, meaning, and identities*. 1. udg., 18. opl. Cambridge: Cambridge University Press.

Wilkerson, L.; Sarkin, R. T. (1998): Arrows in the Quiver: evaluation of a workshop on ambulatory teaching. In *Acad Med* 73 (10 Suppl), p. 9.

Williamson, James (2012): Teaching and learning in out-patient clinics. In *The clinical teacher* 9 (5), pp. 304–307. DOI: 10.1111/j.1743-498X.2012.00545.x.

Wilson, Ian; Cowin, Leanne S.; Johnson, Maree; Young, Helen (2013): Professional identity in medical students. Pedagogical challenges to medical education. In *Teach Learn Med* 25 (4), pp. 369–373. DOI: 10.1080/10401334.2013.827968.

Wolpaw, Terry; Papp, Klara K.; Bordage, Georges (2009): Using SNAPPS to facilitate the expression of clinical reasoning and uncertainties: a randomized comparison group trial. In *Acad Med* 84 (4), pp. 517–524. DOI: 10.1097/ACM.0b013e31819a8cbf.

Wolpaw, Terry M.; Wolpaw, Daniel R.; Papp, Klara K. (2003): SNAPPS: a learner-centered model for outpatient education. In *Acad Med* 78 (9), pp. 893–898.

Zaidi, Nikki B. (2018): What Happens When We Assume: Examining Bloom's Taxonomy From the Perspectives of Multiple Stakeholders. Guest Perspective, February 20th, 2018. Available online at <http://academicmedicineblog.org/what-happens-when-we-assume-examining-blooms-taxonomy-from-the-perspectives-of-multiple-stakeholders/>, checked on 8/28/2018.

Zaidi, Nikki B.; Hwang, Charles; Scott, Sara; Stallard, Stefanie; Purkiss, Joel; Hortsch, Michael (2017a): Climbing Bloom's taxonomy pyramid: Lessons from a graduate histology course. In *Anatomical sciences education*. DOI: 10.1002/ase.1685.

Zaidi, Nikki L. Bibler; Grob, Karri L.; Monrad, Seetha M.; Kurtz, Joshua B.; Tai, Andrew; Ahmed, Asra Z. et al. (2017b): Pushing Critical Thinking Skills With Multiple-Choice Questions. Does Bloom's Taxonomy Work? In *Acad Med*. DOI: 10.1097/ACM.0000000000002087.

Zheng, Alex Y.; Lawhorn, Janessa K.; Lumley, Thomas; Freeman, Scott (2008): Assessment. Application of Bloom's taxonomy debunks the "MCAT myth". In *Science (New York, N.Y.)* 319 (5862), pp. 414–415. DOI: 10.1126/science.1147852.

## **8. Appendix**

### **8.1. Bloom's Taxonomy**

#### **1.00 Knowledge**

According to the taxonomy of the cognitive domain, knowledge is specified as a process which includes "the recall of specifics and universals, the recall of methods and processes, or the recall of a pattern, structure, or setting" (Bloom 1987, p. 201). Knowledge is therefore mainly a matter of remembering.

#### **1.10 Knowledge of specifics**

Knowledge of specifics refers to "the recall of specific and isolable bits of information" (Bloom 1987, p. 63, 1987, p. 201), such as facts and field-specific terminology.

1.11 Knowledge of terminology

1.12 Knowledge of specific facts

#### **1.20 Knowledge of ways and means of dealing with specifics**

1.21 Knowledge of conventions

1.22 Knowledge of trends and sequences

1.23 Knowledge of classifications and categories

1.24 Knowledge of criteria

1.25 Knowledge of methodology

“Knowledge of the ways of organizing, studying, judging, and criticizing” (Bloom 1987, p. 68, 1987, p. 202), are remembered by the student, but not actively applied.

### **1.30 Knowledge of the universals and abstractions in a field**

1.31 Knowledge of principles and generalizations

1.32 Knowledge of theories and structures

“Knowledge of the major schemes, and patterns by which phenomena and ideas are organized” (Bloom 1987, p. 203). This subcategory is the most abstract within the knowledge group.

## **2.00 Comprehension**

Comprehension includes outcomes, behaviour and responses which show that the student understands the “literal message contained in a communication” (Bloom 1987, p. 89) . Bloom and colleagues differentiate between three types of comprehension (Bloom 1987, p. 89) (Bloom 1987, pp. 204–205):

**2.10 Translation**

**2.20 Interpretation**

**2.30 Extrapolation**

## **3.00 Application**

Application involves behaviour which is more complex than comprehension. It is a process which requires transfer of knowledge

and comprehension, as is needed in problem-solving (Bloom 1987, pp. 120–121) (Bloom 1987, p. 205).

#### **4.00 Analysis**

Analysis of a situation or text should lead to a more complete understanding thereof. This process includes the breaking down of elements, the relationships which exist between these elements, and of prevailing organizational principles (Bloom 1987, p. 144ff.; Bloom 1987, pp. 205–206), as demonstrated by the sub-categories:

##### **4.10 Analysis of elements**

##### **4.20 Analysis of relationships**

##### **4.30 Analysis of organizational principles**

#### **5.00 Synthesis**

Synthesis involves creating something new, as is clear from the subcategory headings (Bloom 1987, p. 162 ff.) (Bloom 1987, pp. 206–207):

##### **5.10 Production of a unique communication**

##### **5.20 Production of a plan, or proposed set of operations**

##### **5.30 Derivation of a set of abstract relations**

#### **6.00 Evaluation**

Evaluation encompasses work and behaviour which show judgement, according to internal and external criteria (Bloom 1987, 185 ff.) (Bloom 1987, p. 207).

## **6.10 Judgement in terms of internal evidence**

## **6.20 Judgement in terms of external criteria**

### **8.2. Revised Taxonomy**

Description of revised taxonomy category by category according to Krathwohl (Krathwohl 2002).

The Knowledge dimension of the revised taxonomy includes four main dimensions, which can be further divided into eleven subcategories.

- A. Factual Knowledge:** “The basic elements that students must know to be acquainted with a discipline or solve problems in it” (Krathwohl 2002). This includes “Knowledge of terminology”, and “Knowledge of specific details and elements” (Krathwohl 2002). (For example, correct term for medical procedure, threshold rates for hypertension).
- B. Conceptual Knowledge:** “The interrelationships among the basic elements within a larger structure that enable them to function together” (Krathwohl 2002). This includes “knowledge of classifications and categories”, “knowledge of principles and generalizations”, “knowledge of theories, models, and structures” (Krathwohl 2002). (For example, being able to explain NYHA, GOLD).
- C. Procedural Knowledge:** “How to do something; methods of enquiry, and criteria for using skills, algorithms, techniques, and methods” (Krathwohl 2002). This includes “knowledge of subject-specific skills and algorithms”, “knowledge of subject-specific techniques and methods”, and “knowledge of criteria



for determining when to use appropriate procedures” (Krathwohl 2002). (For example, physical examination, taking blood sample).

**D. Metacognitive Knowledge:** “Knowledge of cognition in general as well as awareness and knowledge of one’s own cognition” (Krathwohl 2002). This includes “strategic knowledge”, “knowledge about cognitive tasks, including appropriate contextual and conditional knowledge”, and “self-knowledge” (Krathwohl 2002). (For example, prioritizing tasks, self-reflection, appropriate behaviour).

The Cognitive process dimension of the revised taxonomy includes 19 specific cognitive processes which form subcategories of the six main categories.

**1. Remember:** “Retrieving relevant knowledge from long-term memory” (Krathwohl 2002). This includes “recognizing” and “recalling” (Krathwohl 2002). (For example, recognizing symptoms or remembering definitions).

**2. Understand:** “Determining the meaning of instructional messages, including oral, written, and graphic communication” (Krathwohl 2002). This includes “interpreting”, “exemplifying”, “classifying”, “summarizing”, “inferring”, “comparing”, and “explaining” (Krathwohl 2002). (For example, being able to explain symptoms or follow instructions for certain procedure).

**3. Apply:** “Carrying out or using a procedure in a given situation” (Krathwohl 2002). This includes “executing” and “implementing” (Krathwohl 2002). (For example, carrying out physical examination).

**4. Analyze:** "Breaking material into its constituent parts and detecting how the parts relate to one another and to an overall structure or purpose" (Krathwohl 2002). This includes "differentiating", "organizing", and "attributing" (Krathwohl 2002). (For example, analysing an ECG).

**5. Evaluate:** "Making judgements based on criteria and standards" (Krathwohl 2002). This includes "checking" and "critiquing" (Krathwohl 2002). (For example, differential diagnosis).

**6. Create:** "Putting elements together to form a novel, coherent whole or make an original product" (Krathwohl 2002). This includes "generating", "planning", and "producing" (Krathwohl 2002). (For example, treatment plan, doctors report).

### **8.3. Field note forms**



Philipps-Universität Marburg  
Abteilung für Allgemeinmedizin

**Marburger Ethnographische  
Studie zum Blockpraktikum  
Allgemeinmedizin (MESBA)**

Praxis ID

Ihre Ansprechpartner:

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**1. Kenndaten Student**

Alter: __ (Jahre)	Männlich <input type="checkbox"/>	Weiblich <input type="checkbox"/>
Vorerfahrung des Studenten	Famulatur im ambulanten Sektor? Nein <input type="checkbox"/> Ja <input type="checkbox"/>	
	Wenn Ja: Praxis <input type="checkbox"/> und / oder Poliklinik <input type="checkbox"/>	
	Ausbildung Gesundheitsberuf Ja <input type="checkbox"/> Nein <input type="checkbox"/>	Erfahrung Gesundheitsberuf Ja <input type="checkbox"/> Nein <input type="checkbox"/>

**2. Kenndaten Lehrpraxis**

Alter Lehrarzt: __ (Jahre)	Männlich <input type="checkbox"/>	Weiblich <input type="checkbox"/>
Einzelpraxis <input type="checkbox"/>	Gemeinschaftspraxis <input type="checkbox"/>	MVZ <input type="checkbox"/>
Bisher betreute Blockpraktikanten: ___ (Zahl)	Dauer der Praxistätigkeit: __ (Jahre)	
<b>Praxisschwerpunkte</b> Nein <input type="checkbox"/> Ja <input type="checkbox"/> Wenn Ja: (freie Angabe)		



Philipps-Universität Marburg  
Abteilung für Allgemeinmedizin

Marburger Ethnographische  
Studie zum Blockpraktikum  
Allgemeinmedizin (MESBA)

Praxis- ID	<b>Ihre Ansprechpartner:</b> Prof. Dr. Norbert Donner-Banzhoff, Dr. Stefan Bösner Philipps-Universität Marburg, Karl-von-Frisch-Str. 4, 35043 Marburg Telefon: 06421 – 28 65 122 Email: boesner@staff.uni-marburg.de
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**1. Basisdaten: Beobachtungseinheit**

Praxis	<input type="checkbox"/>										Hausbesuch	<input type="checkbox"/>
Praktikumstag	1	2	3	4	5	6	7	8	9	10	>10	
Zeitdruck	Nicht vorhanden <input type="checkbox"/>				Niedrig <input type="checkbox"/>				Hoch <input type="checkbox"/>			
Art Patienten-kontakt	Akut <input type="checkbox"/>						Vorgeplant <input type="checkbox"/>					
Dauer (min)	Student-Patient			Student-Pat.-Lehrarzt			Student-Lehrarzt					
Patienteneinführung: <i>(Mehrfachnennung möglich)</i>												
Nein <input type="checkbox"/> Ja (medizinische Informationen) <input type="checkbox"/> Ja (biografische Informationen) <input type="checkbox"/>												

**2. Medizinisches Problem**

Bezeichnung	Vorstellungsanlass
Akutes Problem gutartig <input type="checkbox"/>	
Akutes Problem bedrohlich <input type="checkbox"/>	
Psychosoziales Problem <input type="checkbox"/>	
Betreuung chronische Krankheit <input type="checkbox"/>	
Prävention und Gesundheitsförderung <input type="checkbox"/>	
Andere Probleme <input type="checkbox"/>	

Freitext/Notizen:

**3. Einbeziehung Student**

Skala	Bezeichnung	Notizen
1	Passive Beobachtung	<input type="checkbox"/>
2	Demonstration	<input type="checkbox"/>
3	Studentische Konsultation	<input type="checkbox"/>
3a	Rekonsultation	<input type="checkbox"/>
3b	Bericht an Lehrarzt (Duett)	<input type="checkbox"/>
3c	Bericht an Lehrarzt (Trio)	<input type="checkbox"/>

<b>3d</b>	Studentische Konsultation bei direkter Beobachtung	<input type="checkbox"/>
Freitext/Notizen:		
<b>4. Kontrolle</b>		
Kontrolle der Anamnese durch Lehrarzt:		Keine Anamnese erhoben <input type="checkbox"/>
Nein <input type="checkbox"/>	Ja, getriggert durch Student <input type="checkbox"/>	Ja, getriggert durch Lehrarzt <input type="checkbox"/>
Kontrolle des (Teil-) Befundes durch den Lehrarzt:		Keinen Befund erhoben <input type="checkbox"/>
Nein <input type="checkbox"/>	Ja, getriggert durch Student <input type="checkbox"/>	Ja, getriggert durch Lehrarzt <input type="checkbox"/>
Freitext/ Notizen		
<b>5. Feedback durch den Lehrarzt</b>		
Nein <input type="checkbox"/>		Ja <input type="checkbox"/>
Während Konsultation <input type="checkbox"/>	Nach Konsultation, Patient anwesend <input type="checkbox"/>	Nach Konsultation, Patient nicht anwesend <input type="checkbox"/>
<b>Inhalt</b>	Allgemein <input type="checkbox"/> Positiv <input type="checkbox"/> Negativ <input type="checkbox"/>	Spezifisch <input type="checkbox"/> Positiv <input type="checkbox"/> Negativ <input type="checkbox"/>
Freitext/Notizen:		
<b>6. Didaktische Interventionen</b>		
Ja <input type="checkbox"/>		Nein <input type="checkbox"/>
<b>Teaching points</b>	allgemein <input type="checkbox"/>	spezifisch <input type="checkbox"/>
<b>Bezieht sich auf:</b>		
Anamnese <input type="checkbox"/> Körperliche Untersuchung <input type="checkbox"/> Fallvorstellung <input type="checkbox"/> Diagnostik <input type="checkbox"/> Therapie <input type="checkbox"/> Risikofaktoren <input type="checkbox"/> Differentialdiagnose <input type="checkbox"/> Krankheitslehre <input type="checkbox"/>		
Freitext		
<b>Teaching scripts</b>		
Freitext/Notizen (zu Dauer, Inhalt)		

#### 8.4. Case description transcripts English and German

(Durations in minutes approximately).

Video 0304 P1	Nr 1	Duration 7 min.
<p>German:</p> <p>Ein junger Patient stellt sich vor mit einem respiratorischen Infekt der oberen Atemwege und Schmerzen in der Kniekehle (s. Videoaufnahme 0308). Die Videoaufnahme beginnt mit dem Bericht des Studenten an den LA (Lehrarzt); dieser übernimmt recht schnell. Dann berichtet der Student die Befunde der körperlichen Untersuchung. Daran anschließend die Frage des LA:</p> <p>„Ihre Diagnose?“</p> <p>Der Student beginnt, Anzeichen für eine bakterielle Infektion aufzuzählen und kommt zum Thema antibiotische Therapie. Dann die Frage des LA:</p> <p>LA: „Schlagen wir ihm das</p>	<p>English:</p> <p>A young patient presents with an upper respiratory infection and a painful knee (popliteal fossa) (see video 0308). The videotape begins with the student reporting to the GP (general practitioner). The GP then takes over the consultation process quickly. The student then reports the physical examination findings. Following on from this report, the GP then asks:</p> <p>“Your diagnosis?”</p> <p>The student starts to recall signs for a bacterial infection, which leads to the topic of antibiotic therapy. The GP then asks:</p> <p>GP: “Do we suggest them</p>	

<p>[Antibiotikum] vor, oder schlagen wir ihm das nicht vor?"</p> <p>Der Student ist der Meinung, dass eher nein; der LA stimmt dem zu.</p> <p>LA: „Jetzt ist die Frage...wie viele Tage schreiben wir ihn krank?"</p> <p>Der Student zögert und weicht aus; der Patient habe gesagt, er habe morgen frei.</p> <p>Nun übernimmt der LA vollständig, um die Arbeitsunfähigkeitsbescheinigung auszustellen; er erklärt dabei was er am PC macht.</p> <p>Das Ende des Videos 0304 ist eine Überleitung zum nächsten Video (0308); hier wird das zweite Problem des Patienten angesprochen, nämlich Schmerzen in der Kniekehle.</p> <p>LA: „...dann gehen wir das mal an..."</p> <p>(Nr 1 (Video 0304) und Nr 2 (Video 0308) sind als eine Beobachtungseinheit zu werten, da sie Bestandteile der gleichen</p>	<p>[antibiotics] or not?"</p> <p>The student is of the opinion that one should rather not suggest antibiotics; the GP agrees.</p> <p>GP: "Now the question is...how many days do we write him off sick for?"</p> <p>The student hesitates, and avoids answering directly; instead stating that the patient had the following day off anyway. The GP then takes over the consultation process completely in order to fill out the sick note; he simultaneously explains what he is doing at the computer.</p> <p>Video sequence 0304 leads onto sequence 0308, which deals with the second issue, this being the painful knee.</p> <p>GP: "...now let´s deal with this..."</p> <p>(Nr 1 (Video 0304) and Nr 2 (Video 0308) count as one unit of observation, as they are part of the same consultation).</p>
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Konsultation sind).	
Questions (German)	Questions (English)
1.1 Ihre Diagnose?	1.1 Your diagnosis?
1.2 Schlagen wir ihm das [Antibiotikum] vor, oder schlagen wir ihm das nicht vor?	1.2 Do we suggest them [antibiotics] or not?
1.3 Jetzt ist die Frage...wie viele Tage schreiben wir ihn krank?	1.3 Now the question is...how many days do we write him off sick for?

Video 0308 P1	Nr 1	Duration 5 min.
<p>German:</p> <p>Der junge Patient aus 0304 stellt sich auch vor mit Schmerzen in einer Kniekehle. Diese Aufnahme beginnt damit, dass der Student die Knie des Patienten untersucht und ihn dabei befragt. Die folgende Interaktion zwischen LA und Student hat einen starken Dialogcharakter; wobei der LA diesen Dialog leitet.</p> <p>LA: „Jetzt nochmal den Untersuchungsgang Knie?“</p> <p>Student: „OK“; untersucht und erklärt dem LA simultan sein</p>	<p>English:</p> <p>The young patient from sequence 0304 also presents with a painful popliteal fossa. This sequence begins with the student examining the patients' knees whilst questioning the patient. The following interaction between the GP and the student is similar to a dialogue, led by the GP.</p> <p>GP: "Now the examination of the knee?"</p> <p>Student: "OK"; examines and simultaneously explains what</p>	



<p>Vorgehen.</p> <p>LA: „...das, auf den Erguss hatten Sie auch geguckt?“</p> <p>Student: „...genau...hat ich eigentlich nicht.“ Student untersucht nochmal,</p> <p>LA korrigiert: „Spüren Sie mal im Vergleich.“</p> <p>Student untersucht beide Kniegelenke auf einen retropatellaren Erguss hin, während der LA den Patienten weiter befragt, dann wendet sich der LA an den Studenten.</p> <p>LA: „...was würden Sie sagen?“</p> <p>Student: „...ich finde, dass er keinen...“</p> <p>LA: „...da ist auf jeden Fall kein gravierender Erguss... aber ich finde, wenn man das hier vergleicht, dann sind Sie hier direkt auf dem Festen...und hier, ja nee doch...wir dichten ihm kein Erguss an.“</p> <p>Der Student erklärt dies dem Patienten, der LA übernimmt im Verlauf.</p> <p>LA: „Also die erste Frage ist,</p>	<p>he is doing to the GP.</p> <p>GP: „...the, you also had looked at the effusion?“</p> <p>Student: „...exactly...I hadn't really.“ The student re-examines the knee, the GP corrects: “Feel in comparison.”</p> <p>The student examines both knees for signs of retropatellar effusion, whilst the GP questions the patient. This is followed by the question directed at the student.</p> <p>GP: “...what would you say?“</p> <p>Student: “...I don't think that he has...”</p> <p>GP: “...there is definitely no serious effusion..., however I find that if one compares this here, then you directly have some resistance...and here, well no...we won't attribute an effusion...”</p> <p>The student explains this to the patient, the GP taking over in the process.</p> <p>GP: “So the first question is, do we do something, what do we</p>
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<p>machen wir da, was sagen wir ihm da, ist es was Ernstes, was geben wir ihm da für Tipps?“</p> <p>Der Student fragt, ob es den Patienten stört, ob er deswegen weniger Sport mache. Der LA unterstreicht, dass keine weitere Diagnostik notwendig ist.</p> <p>LA: „Wir beruhigen ihn, wir haben kein Anhalt für was schlimmes Ernstes.“</p> <p>Student: „Wenn Schmerzen weiterbestehen, nochmal vorstellen...“</p> <p>LA: „Wir empfehlen, Sport zu machen, es wird besser, dann sind wir jetzt fertig.“</p>	<p>say to him, is it something serious, what tips do we give him?“</p> <p>The student asks the patient whether he bothered and whether he does less sport as a result. The GP stresses the fact that no further diagnostic tests are necessary.</p> <p>GP: “We reassure him that we have no indication for something serious.”</p> <p>Student: “If the pain persists, present again...”</p> <p>GP: “We recommend sport, it will get better, now we´re finished.”</p>
<p>Questions (German)</p>	<p>Questions (English)</p>
<p>1.4 Jetzt nochmal den Untersuchungsgang Knie?</p> <p>1.5 ...das, auf den Erguss hatten Sie auch geguckt?</p>	<p>1.4 Now the examination of the knee?</p> <p>1.5 ...the, you also had looked at the effusion?</p>

1.6 Spüren Sie mal im Vergleich	1.6 Feel in comparison
1.7 ...was würden Sie sagen?	1.7 What would you say?
1.8 Also die erste Frage ist, machen wir da, was sagen wir ihm da, ist es was ernstes, was geben wir ihm da für Tipps?	1.8 So the first question is, do we, what do we say to him, is it something serious, what tips do we give him?

Video 0309 P1	Nr 2	Duration 10 min.
<p>German:</p> <p>Ein Mädchen, welches vor ca. 2 Tagen von einem Hund in den Daumenballen gebissen worden war, stellt sich in Begleitung der Mutter vor. Die Patientin hat Schmerzen im Bereich des Bisses sowie des Oberarmes der betroffenen Seite.</p> <p>Die Videoaufnahme fängt damit an, dass der Student die Patientin befragt.</p> <p>Student: „...und dann hast du erst mal nichts unternommen...“</p> <p>LA fragt dazwischen, medizinische Fachangestellte</p>		<p>English:</p> <p>A girl who had been bitten by a dog in the base of the thumb approximately two days previously presents, accompanied by her mother. The area surrounding the bite, as well the ipsilateral upper arm, are painful. The video sequence begins with the student questioning the patient.</p> <p>Student: "...and then you didn't do anything to start with..."</p> <p>GP interjects, practice nurse, GP and student discuss amongst themselves, followed</p>

<p>(MFA), LA und Student beraten sich; dann Befragung der Patientin durch den Studenten, der dann zum LA hinblickt:</p> <p>LA: „Hmm, schwierig; fangen wir mit den Schmerzen da [Oberarm] an, womit könnten sie zu tun haben?“</p> <p>Der Student zählt auf: „Schonhaltung, Entzündung ...“</p> <p>LA ergänzt Lymphangitis und Lymphadenitis und bittet die Patientin, sich frei zu machen, um die Axilla zu tasten. Dann wird klar, dass die Patientin in den Oberarm eine Tetanusimpfung erhalten hatte im Rahmen einer Vorstellung in einer anderen Arztpraxis aufgrund des Bisses vor 1-2-Tagen.</p> <p>LA: „Jetzt, wo wir dabei sind, mal tasten.“ Er leitet den Studenten in der Axillaustastung an.</p> <p>LA an Studenten gerichtet: „Was haben wir für Handlungsoptionen? Was für Möglichkeiten überlegen wir uns</p>	<p>by further questioning by the student, who then looks towards GP:</p> <p>GP: “Hmm, difficult; let ´s start with the pain there [upper arm], what could explain it?”</p> <p>The student recalls: “pain relieving posture, inflammation...”</p> <p>The GP adds lymphangitis and lymphadenitis and asks the patient to remove her sweater so as to enable the palpation of the axilla. It then becomes clear that the patient had received a tetanus shot when presenting with the same issue in a different surgery during the preceding 1-2 days.</p> <p>GP: “Now we ´re at it, we can palpate.” He then instructs the student in how to palpate the axilla.</p> <p>The GP asks the student: “What are our options for action? What possibilities do we have? No, before we start with that, we have to look at one more</p>
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<p>da? Nein, bevor wir das angehen, müssen wir noch eine Sache angucken...Schädigung von Strukturen - (an Studenten gewendet) - ist da noch irgendwas?"</p> <p>Student (während er die Hand betrachtet): „...ja die Haut ist natürlich...“</p> <p>LA: „...ja die Haut...“ Er erklärt, dass er eher die Sehnen meine, und leitet den Studenten in die Untersuchung der Sehnen an.</p> <p>LA: „Jetzt Handlungsoptionen, was erwägen wir da?“</p> <p>Daraufhin fragt der Student, ob die Hand dicker geworden sei; die Patientin bejaht dies. Die Optionen Wundrevision in Lokalanästhesie versus Beobachtung werden besprochen.</p> <p>LA: „Wir sollten uns gleich nach dem Hund erkundigen...“</p> <p>Dann empfiehlt der LA die chirurgische Revision, und kommt nochmal auf das Thema Hund:</p> <p>LA: „Nach dem Hund sollten wir</p>	<p>thing...structural damage - (turned toward student)- is there anything else?"</p> <p>Student (whilst looking at the hand): "...yes the skin is of course..."</p> <p>GP: "...yes the skin..." The GP then explains that he really meant the tendons and instructs the student in examining the tendons.</p> <p>GP: "Now our options for action, what do we think of?"</p> <p>The student then asks whether the hand had swollen; the patient confirms this. The options of wound revision under local anesthetic versus observation are discussed.</p> <p>GP: "We should ask about the dog next..."</p> <p>The GP then advises surgical wound revision and reminds that they wanted to enquire about the dog.</p> <p>GP: "We should ask about the dog again."</p> <p>The student then enquires</p>
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<p>nochmal fragen.“ Daraufhin fragt der Student nach Auffälligkeiten im Verhalten des Hundes. Der LA schließt Tollwut in Mitteleuropa aus; die Konsultation wird mit einer Überweisung an einen niedergelassenen Chirurgen beendet.</p>	<p>whether the dog had shown any differences in behaviour. The GP excludes the possibility of rabies in central Europe; the consultation is concluded with the referral to a surgical practice.</p>
<p>Questions (German)</p>	<p>Questions (English)</p>
<p>2.1 Hmm, schwierig; fangen wir mit den Schmerzen da [Oberarm] an, womit könnten sie zu tun haben?  2.2 Jetzt, wo wir dabei sind, mal tasten.  2.3 Was haben wir für Handlungsoptionen? Was für</p>	<p>2.1 Hmm, difficult; let´s start with the pain there [upper arm], what could explain it?  2.2 Now we´re at it, we can palpate.  2.3 What are our options for action? What possibilities do we have?</p>

<p>Möglichkeiten überlegen wir uns da?</p> <p>2.4 Nein, bevor wir das angehen, müssen wir noch eine Sache angucken...Schädigung von Strukturen - (an Studenten gewendet) - ist da noch irgendwas?</p> <p>2.5 Jetzt Handlungsoptionen, was erwägen wir da?</p> <p>2.6 Wir sollten uns gleich nach dem Hund erkundigen...</p> <p>2.7 Nach dem Hund sollten wir nochmal fragen</p>	<p>2.4 No, before we start with that, we have to look at one more thing...structural damage - (turned toward student)- is there anything else?</p> <p>2.5 Now our options for action, what do we think of?</p> <p>2.6 We should ask about the dog next...</p> <p>2.7 We should ask about the dog again</p>
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Video 0310 P1	Nr 3	Duration 21 min.
<p>German:</p> <p>Eine Patientin, die im Rahmen des DMP (disease management program) Diabetes mellitus Typ II einen Termin hat, stellt sich</p>	<p>English:</p> <p>A patient presents with type II diabetes presents for a routine check as part of the diabetes DMP (disease management</p>	

<p>vor. Nachdem der Student sie gesehen hat, gesellt sich der LA dazu. Ab diesem Zeitpunkt beginnt die Videoaufzeichnung. Der Student sitzt vor dem PC und berichtet an den LA; die Patientin trägt unaufgefordert bei. LA und Student schauen sich nun gemeinsam die Füße der Patientin an.</p> <p>LA: „Versuchen Sie mal zu beschreiben, versuchen Sie einfach mal die Situation am linken Fuß zu beschreiben.“</p> <p>Der Student fängt an, Druckstellen zu beschreiben.</p> <p>LA: „...ich mein jetzt mehr die Knochen...von Seiten des Skeletts.“</p> <p>Student fängt an, zögerlich die Zehen und Gewölbe zu beschreiben.</p> <p>LA: „...was ist mit dem Längsgewölbe...?“</p> <p>LA: „Was passiert, wenn die diabetische Polyneuropathie fortschreitet, und es nicht mehr weh tut?“</p>	<p>program). After the student has consulted with the patient, the GP joins the consultation. This is when videotaping starts. The student sits in front of the computer and reports to the GP. The patient adds information without being asked. The GP and student then examine the patient’s feet together.</p> <p>GP: “Try to describe, just try to describe the situation concerning the left foot.”</p> <p>The student starts describing pressure points.</p> <p>GP: “...I mean the bones...from a skeletal point of view.”</p> <p>The student starts to hesitantly describe the toes and the longitudinal arch of the foot.</p> <p>GP: “...what about the longitudinal arch...?”</p> <p>GP: “What happens when the diabetic polyneuropathy develops further, and no pain is felt?”</p> <p>Student: “Diabetic foot syndrome...”</p>
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<p>Student: „Diabetisches Fußsyndrom...“</p> <p>LA: „Und das spezielle?“</p> <p>Student stockt.</p> <p>LA: „Kennen Sie den Fachbegriff? Sonst beschreiben Sie mal, was passiert denn da?“</p> <p>LA nennt dann selbst Charcot-Fuß.</p> <p>Dann berichtet der Student von der aktuellen Medikation der Patientin. Die Patientin fragt bezüglich ihrer HDL/LDL-Werte, ob sie so weitermachen könne ohne Medikation ...</p> <p>LA: „Wir fragen erst mal Herrn G [Student].“</p> <p>Dann diskutiert der LA kardiovaskuläre Risikofaktoren.</p> <p>LA wendet sich an Studenten: „Was nimmt Frau R. [Patientin] ein an Antidiabetika?“</p> <p>Student zögert. LA führt Konsultation fort.</p> <p>LA an Studenten: „Von Ihnen aus, müssen wir da Frau R. noch was fragen?“</p> <p>Student: „Nee“</p>	<p>GP: “And specifically?”</p> <p>The student hesitates.</p> <p>GP: “Do you know the medical term? If not, just describe, what is happening there?”</p> <p>The GP then states the term Charcot’s foot himself.</p> <p>The student then reports the medication the patient is currently taking. The patient enquires whether she can continue without medication concerning her cholesterol values...</p> <p>GP: “We’ll ask Mr G first [student].”</p> <p>The GP then discusses cardiovascular risk factors.</p> <p>GP turns to student: “What antidiabetic medication is Mrs R [patient] on?”</p> <p>The student hesitates; the GP continues consultation.</p> <p>GP asks student: “Do we need to ask Mrs R anything else from your point of view?”</p> <p>Student: “Nope.”</p> <p>The consultation is then brought</p>
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<p>Die Konsultation wird abgeschlossen durch den LA.</p>	<p>to a close by the GP.</p>
<p>Questions (German)</p>	<p>Questions (English)</p>
<p>3.1 Versuchen Sie mal zu beschreiben, versuchen Sie einfach mal die Situation am linken Fuß zu beschreiben</p> <p>3.2 ...ich mein jetzt mehr die Knochen...von Seiten des Skeletts.</p> <p>3.3 ...was ist mit dem Längsgewölbe...?</p> <p>3.4 Was passiert, wenn die diabetische Polyneuropathie fortschreitet, und es nicht mehr weh tut?</p>	<p>3.1 Try to describe, just try to describe the situation concerning the left foot.</p> <p>3.2 ...I mean the bones...from a skeletal point of view.</p> <p>3.3 ...what about the longitudinal arch...?</p> <p>3.4 What happens when the diabetic polyneuropathy develops further, and no pain is felt?</p> <p>3.5 And specifically? (The</p>

<p>3.5 Und das spezielle? (Student stockt). Kennen Sie den Fachbegriff? Sonst beschreiben Sie mal, was passiert denn da?</p> <p>3.6 Wir fragen erst mal Herrn G [Student].</p> <p>3.7 Was nimmt Frau R. [Patientin] ein an Antidiabetika?</p> <p>3.8 Von Ihnen aus, müssen wir da Frau R. noch was Fragen?</p>	<p>student hesitates). Do you know the medical term? If not, just describe, what is happening there?</p> <p>3.6 We ´ll ask Mr G [student] first.</p> <p>3.7 What antidiabetic medication is Mrs R [patient] on?</p> <p>3.8 Do we need to ask Mrs R anything else from your point of view?</p>
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Video 0406 P10	Nr 4	Duration 11 min.
<p>German:</p> <p>Patient mit Schmerzen am Ellenbogen. Die Aufnahme fängt an mit der Schilderung des Patienten. Die Studentin beobachtet die Konsultation zwischen LÄ (Lehrärztin) und Patient.</p> <p>Die LÄ wendet sich an die Studentin: „Tennisellenbogen...</p>		<p>English:</p> <p>A patient presents with elbow pain. The videotape starts with the patient describing the issue. The student observes the consultation between the GP and patient.</p> <p>The GP turns toward the student and enquires: "Tennis elbow...have you ever done any</p>

<p>haben Sie da schon mal irgendwelche Tests gemacht? Wissen Sie, was man machen kann, um das nachzuweisen, irgendwelche Bewegungstests...?“</p> <p>Die Studentin verneint; die LÄ erklärt und demonstriert.</p> <p>LÄ: „Jetzt hat er [der Patient] aber eine andere Problematik, an was würden Sie denn da denken?“</p> <p>Die Studentin schlägt eine Beeinträchtigung des N. ulnaris vor, dies bestätigt der LA.</p> <p>Weiterhin beobachtet die Studentin passiv, während die LÄ untersucht und das weitere Vorgehen erklärt.</p>	<p>tests for this? Do you know what one can do to prove tennis elbow, any motor tests...?“</p> <p>The student does not; the GP then explains and demonstrates.</p> <p>GP: “Now he [the patient] has different problem, what do you think it is?“</p> <p>The student then suggests an affectation of the ulnar nerve, which the GP confirms.</p> <p>The student then observes the rest of the consultation.</p>
<p>Transcript German</p>	<p>Transcript English</p>
<p>4.1 Tennisellenbogen...haben Sie da schon mal irgendwelche Tests gemacht? Wissen Sie, was man machen kann, um das nachzuweisen, irgendwelche Bewegungstests...?“</p>	<p>4.1 Tennis elbow...have you ever done any tests for this? Do you know what one can do to prove tennis elbow, any motor tests...?“</p>

<p>4.2 Jetzt hat er [der Patient] aber eine andere Problematik, an was würden Sie denn da denken?</p>	<p>4.2 Now he [the patient] has different problem, what do you think it is?</p>
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Video 0380 P6	Nr 5	Duration 11 min.
<p>German:</p> <p>Eine Patientin stellt sich vor zur Beantragung einer Kur; zudem besteht ein Hautproblem. Die Studentin hatte vor Beginn der Videoaufnahme konsultiert und beobachtet nun passiv die erneute Konsultation zwischen LÄ und Patientin.</p> <p>Die Patientin berichtet von ihrem Hautproblem der Hände. Die LÄ schaut sich die Hände an, fragt dann die Studentin:</p> <p>LÄ: „Was ist das?“</p> <p>LÄ bestätigt die Antwort der Studentin: allergisches Hautekzem.</p> <p>Nachdem die LÄ eincremen empfiehlt, fragt sie: „Und was für</p>	<p>English:</p> <p>A patient presents to apply for a rehabilitation scheme. A skin problem is also a topic. The student had conducted patient consultation before the video sequence begins, and now observes the repeat consultation lead by the GP.</p> <p>The patient reports having a skin problem on her hands. The GP examines the patient’s hands and asks the student:</p> <p>GP: “What is it?”</p> <p>The GP confirms the student’s answer: allergic eczema.</p> <p>After the GP has advised using hand cream, she then asks: “And what medication?”</p>	

ein Medikament?“ Die Studentin sagt Cortison; die LÄ bestätigt diese Antwort und führt die Konsultation zu Ende; dabei beobachtet die Studentin weiterhin.	The student answers: “Cortisone”. This is confirmed by the GP, who concludes the consultation whilst the student observes.
Questions (German)	Questions (English)
5.1 Was ist das? (Hautbefund)	5.1 What is it? (skin problem)
5.2 Und was für ein Medikament?	5.2 And what medication?

Video 0159 P6	Nr 6	Duration 7 min.
<p>German:</p> <p>Ein Patient mit chronischem Bluthochdruck stellt sich vor. Die Videoaufnahme beginnt damit, dass die Studentin vom Stuhl der LÄ aufsteht, sich die LÄ dort hinsetzt und sich das EKG des Patienten anschaut; dabei ruft sie die Studentin herbei:</p> <p>LÄ: „EKG?“</p> <p>Die Studentin schaut der LÄ über der Schulter während die LÄ befundet.</p> <p>Nachdem der Patient gegangen ist, fragt die LÄ:</p>	<p>English:</p> <p>A patient with chronic hypertension presents. The videotape begins with the student standing up from the GP’s chair and the GP sitting down and looking at the patient’s ECG. The GP summons the student to have a look.</p> <p>GP: “ECG?”</p> <p>The student looks over the GP’s shoulder as the latter analyses the ECG.</p> <p>After the patient has left, the</p>	

LÄ: „Woran sehen Sie hohen Blutdruck?“ vor sich das EKG des Patienten. Dann erklärt die LÄ den Sokolow-Lyon-Index.	GP then asks: GP: “How are you able to identify hypertension?” with the ECG lying in front of her. The GP then explains the Sokolow-Lyon Index.
Questions (German)	Questions (English)
6.1 EKG?	6.1 ECG?
6.2 Woran sehen Sie hohen Blutdruck?	6.2 How are you able to identify hypertension?

Video 0161 P6	Nr 7	Duration 4 min.
<p>German:</p> <p>Beim Patienten wurde gerade ein EKG geschrieben.</p> <p>Die LÄ schaut sich das EKG an und holt die Studentin herbei:</p> <p>LÄ: „Was für ein Rhythmus hat denn der im Prinzip?“</p> <p>Studentin: „Sinus“</p> <p>Die LÄ stimmt zu, befundet weiter; dann Fortsetzung der Konsultation zwischen LÄ und Patient. Währenddessen reinigt die Studentin die EKG-Elektroden und räumt diese auf.</p>	<p>English:</p> <p>An ECG was recorded for the patient present. The GP looks at the ECG and summons the student.</p> <p>GP: “What rhythm does the ECG present in principle?”</p> <p>Student: “Sinus”</p> <p>The GP agrees and conducts the further analysis. Whilst the GP continues the consultation the student cleans the ECG electrodes and clears them away.</p>	

Questions (German)	Questions (English)
7.1 Was für ein Rhythmus hat denn der im Prinzip?	7.1 What rhythm does the ECG present in principle?

Video 0175 P9	Nr 8	Duration 1 min.
<p>German:</p> <p>Eine Patientin mit Bindehautentzündung stellt sich vor. Die Patientin berichtet, der LA schreibt am PC.</p> <p>LA: „Was machen wir da?“</p> <p>Der LA bestätigt die Antwort des Studenten bezüglich antibiotischer Augentropfen.</p> <p>LA an Studenten: „Gucken Sie mal.“</p> <p>Student untersucht den Rachen und kultiert die Lunge aus, wobei der LA mit auskultiert. Danach beobachtet der Student wieder, während die Konsultation durch den LA beendet wird.</p>	<p>English:</p> <p>A patient presents with conjunctivitis. Whilst the patient is reporting, the GP documents the case at the computer.</p> <p>GP: "What do we do here?"</p> <p>The GP confirms the student 's answer concerning antibiotic eye drops.</p> <p>GP to student: "Take a look."</p> <p>The student examines the pharynx and auscultates the lungs, with the GP also auscultating. Afterwards the student observes whilst the GP concludes the consultation.</p>	
Transcript German	Transcript English	
8.1 Was machen wir da?	8.1 What do we do here?	



8.2 Gucken Sie mal.	8.2 Take a look.
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Video 0179 P9	Nr 9	Duration 10 min.
<p>German:</p> <p>Der Patient stellt sich zur beruflichen Tauglichkeitsuntersuchung vor. Der LA befragt den Patienten, der Student sitzt neben dem LA. Der Student beginnt mit der körperlichen Untersuchung. Am Anfang dokumentiert der LA am PC, dann stellt er sich dazu. Als der Student die Knie untersucht, fällt auf, dass ein Ziehen in der Kniekehle beim Anheben des gestreckten Beines auftritt. Der LA fragt:  LA: „Das hinten in den Kniekehlen?“  Student: „Wahrscheinlich verkürzter Bandapparat“  LA: „Verkürzte ischiocrurale Muskulatur“  Der LA übernimmt und erklärt während er dokumentiert.</p>	<p>English:</p> <p>The patient presents requesting a certificate of fitness. The GP interviews the patient; the student sits beside the GP. The student starts with the physical examination. To begin with, the GP documents at the computer, joining the student afterwards.  As the student is examining the knees, tension in the popliteal fossa becomes apparent when the extended leg is lifted. The GP asks the student:  GP: "That back in the popliteal fossa?"  Student: "Probably shortened tendons"  GP: "Shortened ischiocrural muscles."  The GP takes over; explaining whilst he documents the case.</p>	

Questions (German)	Questions (English)
9.1 Das hinten in den Kniekehlen?	9.1 That back in the popliteal fossa?

Video 0180	Nr 10	Time 7 min.
<p>German:</p> <p>Ein Patient stellt sich vor mit einem respiratorischen Infekt und Husten; er berichtet von seinem erkrankten Kind (nicht anwesend): man wisse trotz eines Klinikaufenthaltes nicht, ob es Pseudokrapp oder Keuchhusten hätte.</p> <p>Der Student untersucht den Patienten unaufgefordert.</p> <p>Nachdem er die Lunge auskultiert hat, setzt er sich wieder neben dem LA. Dieser fragt den Patienten, ob das Kind heiser sei. Als dies bejaht wird, meint der LA, dass das Kind eine Kehlkopfentzündung habe.</p> <p>LA wendet sich an den</p>	<p>English:</p> <p>A patient presents with a respiratory infection and cough. He talks about his sick child (not present): it was unknown whether the child was suffering from pseudo croup or whooping cough despite having been to hospital.</p> <p>The student examines the patient without being asked to do so. After he has auscultated the lungs, he returns to his seat beside the GP. The latter then asks the patient, whether his child is hoarse. This is confirmed by the patient, which leads to the GP's conclusion that the child has laryngitis.</p>	

<p>Studenten:</p> <p>LA: „Die Differentialdiagnose der Kehlkopfentzündung bei Kindern?“</p> <p>Der Student erinnert: „Epiglottitis, was ein Notfall ist.“</p> <p>LA: „Was ist anders?“</p> <p>Student: „Kein bellender Husten.“</p> <p>LA stimmt zu und führt die Konsultation, in der das Für und Wider einer Arbeitsunfähigkeitsbescheinigung mit dem Patienten diskutiert werden, fort.</p>	<p>The GP turns towards the student:</p> <p>GP: “The differential of laryngitis in children?”</p> <p>The student recalls: “Epiglottitis, which is an emergency.”</p> <p>GP: “What is different?”</p> <p>Student: “No barking cough.”</p> <p>GP agrees and continues the consultation, in which the pros and cons of a sick note are discussed with the patient.</p>
Questions (German)	Questions (English)
10.1 Die Differentialdiagnose der Kehlkopfentzündung bei Kindern?	10.1 The differential diagnosis of laryngitis in children?
10.2 Was ist anders?	10.2 What is different?

Video 0181 P9	Nr 11	Duration 18 min.
<p>German:</p> <p>Eine Patientin kommt zur Sonographie des Abdomens, um</p>	<p>English:</p> <p>A patient presents for an abdominal sonogram. The GP</p>	

<p>sicherzugehen, dass alles in Ordnung ist. Der LA bittet sie, sich auf die Patientenliege zu legen. Dann wendet er sich an den Studenten:</p> <p>LA: „Wenn Sie wollen, können Sie sich mal versuchen“</p> <p>Student wendet ein, er wisse nicht, wie viel Zeit sie hätten. LA schallt dann selbst.</p> <p>Nachher, während die Patientin noch anwesend ist, schauen sich LA und Student die Bilder am PC nochmal an. Der LA richtet sich an den Studenten:</p> <p>LA: „Diese Polypen sollte man auf jeden Fall; haben Sie einen Vorschlag? Die Gallenblasenpolypen, meine ich.“</p> <p>Keine eindeutige Antwort des Studenten.</p> <p>LA empfiehlt dann die Kontrolle der Polypen in drei Monaten.</p>	<p>asks the patient to lie down on the examination table. Then he turns to the student:</p> <p>GP: “You can try if you like.”</p> <p>The student argues that he is unsure of how much time they had. The GP then conducts the sonogram himself. Afterwards, while the patient is still present, the GP and student look at the ultrasound images on the computer. The GP turns to the student:</p> <p>GP: “These polyps should definitely be; do have you have a suggestion? I mean the gall bladder polyps.”</p> <p>The student doesn’t give a coherent answer.</p> <p>The GP advises controlling the polyps in three months.</p>
<p>Questions (German)</p>	<p>Questions (English)</p>
<p>11.1 Wenn Sie wollen, können Sie sich mal versuchen.</p>	<p>11.1 If you want, you can try.</p>

<p>11.2 Diese Polypen sollte man auf jeden Fall; haben Sie einen Vorschlag? Die Gallenblasenpolypen, meine ich.</p>	<p>11.2 These polyps should definitely be; do have you have a suggestion? I mean the gall bladder polyps.</p>
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Video 0182 P9	Nr 12	Duration 2 min.
<p>German: LA inzidiert eine entzündete Talgdrüse. Dabei fragt er den Studenten: LA: „An was denkt man als Erstes, wenn man so was sieht, an was für eine Grunderkrankung?“</p>		<p>English: The GP incizes an inflamed sebaceous gland and asks the student: GP: “What are one´s first thoughts when one sees something like this, what underlying disease?“</p>
Questions (German)		Questions (English)
<p>12.1 An was denkt man als Erstes, wenn man so was sieht, an was für eine Grunderkrankung?</p>		<p>12.1 What are one´s first thoughts when one sees something like this, what underlying disease?</p>

Video 0408 P10	Nr 13	Duration 5 min.
<p>German: Eine Patientin stellt sich vor mit</p>		<p>English: A patient presents with a</p>

<p>einem gemischten respiratorischen und gastrointestinalen Infekt. Die Aufnahme beginnt damit, dass die Studentin an die LÄ berichtet. Danach übernimmt die LA die Konsultation. Nachdem sie Empfehlungen ausgesprochen hat, wendet sie sich an die Studentin:</p> <p>LÄ: „Sonst noch ein Vorschlag, was man noch machen könnte?“</p> <p>Die LÄ gibt zu, alles schon vorgegriffen zu haben; die Studentin betont nochmal die Wichtigkeit des Ausruhens.</p>	<p>combined respiratory and gastrointestinal infection. The videotape starts with the student reporting to the GP. Afterwards the GP takes over the consultation. After voicing advise, the GP turns to the student and asks:</p> <p>GP: "Any other suggestion what else one could do?"</p> <p>The GP then admits having already said everything. The student stresses the importance of rest.</p>
Questions (German)	Questions (English)
13.1 Sonst noch ein Vorschlag, was man noch machen könnte?	13.1 Any other suggestion, what else one could do?

Video 0410 P10	Nr 14	Duration 14 min.
<p>German:</p> <p>Der Patient ist ein Rentner mit einem Taubheitsgefühl eines Oberschenkels.</p> <p>Die Aufnahme fängt damit an,</p>	<p>English:</p> <p>The patient is an old age pensioner with a feeling of numbness in one of his thighs.</p> <p>The video starts with the</p>	

<p>dass der Patient aufzählt, was er braucht: eine Überweisung und ein Rezept. Dann schildert er sein eigentliches Problem, nämlich ein seit ca. einer Woche bestehendes Taubheitsgefühl eines Oberschenkels.</p> <p>Nachdem der Patient berichtet und die LÄ dokumentiert hat, wendet sich letztere an die Studentin, die neben ihr sitzt, mit der Frage:</p> <p>LÄ: „Was würde Ihnen dazu einfallen, oder was würden Sie jetzt weiter machen?“</p> <p>Die Studentin schlägt etwas Bandscheiben-bezogenes vor. Die LÄ stimmt zu und bittet den Patienten, sich auszuziehen. Die Studentin überlegt weiter. Die LÄ erklärt, dass die Symptomatik eher zu einem nervalen Hautast passe und eher untypisch für eine Bandscheibenerkrankung sei.</p>	<p>patient listing what he needs: a referral and a prescription. Then he describes his actual issue, namely the numbness of a thigh which has lasted approx. one week. After the patient has spoken and the GP has completed her notes, she turns to the student who is sitting beside her, and asks:</p> <p>GP: “What would you think of, or what would you do now?”</p> <p>The student suggests intervertebral disc related problems. The GP agrees and asks the patient to remove his trousers. The student continues to ponder the case. The GP explains that the symptoms most likely match a cutaneous nerve branch and would be rather atypical are for disease of an intervertebral disc.</p>
<p>Questions (German)</p>	<p>Questions (English)</p>

14.1 Was würde Ihnen dazu einfallen, oder was würden Sie jetzt weitermachen?	14.1 What would you think of, or what would you do now?
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Video 0384 P6	Nr 15	Duration 2 min.
<p>German:</p> <p>Eine Patientin stellt sich mit Abgeschlagenheit, Husten und Halsschmerzen vor.</p> <p>Die Patientin berichtet, während die Studentin sitzt und zuhört.</p> <p>Die LÄ untersucht Rachen und Ohren, dann fragt sie die Studentin:</p> <p>LÄ: „Hatten Sie sie schon abgehört?“</p> <p>Studentin: „Ja“</p> <p>LA: „War irgendwas?“</p> <p>Die LÄ auskultiert selbst, während die Studentin sie beobachtet.</p> <p>Die Patientin kommt dann auf Luftnot in der Vergangenheit sowie ihrer Schilddrüsenkontrolle zu sprechen.</p> <p>Die LÄ tastet Schilddrüse der Patientin, fragt dann Studentin:</p>	<p>English:</p> <p>A patient presents with fatigue, a cough, and a sore throat. The patient reports, while the student sits and listens. The GP examines the patient’s pharynx and ears, then asks the student:</p> <p>GP: “Had you already auscultated her?”</p> <p>Student: “Yes”</p> <p>GP: “Was there anything?”</p> <p>The GP then auscultates the patient herself whilst the student observes. The patient then mentions dyspnea in the past and her thyroid control appointment. The GP palpates the patient’s thyroid, then asks the student:</p> <p>GP: “Would you like to?” The student then also palpates the</p>	



LÄ: „Wollen Sie mal?“ Die Studentin tastet dann auch die Schilddrüse der Patientin.	patient´s thyroid.
Questions (German)	Questions (English)
15.1 Hatten Sie sie schon abgehört?	15.1 Had you already auscultated her?
15.2 War irgendwas?	15.2 Was there anything?
15.3 Wollen Sie mal? [die Schilddrüse abtasten]	15.3 Would you like to? [palpate the thyroid]

Video 0385 P6	Nr 16	Duration 2 min.
<p>German:</p> <p>Ein Patient stellt sich mit einer Interkostalneuralgie vor.</p> <p>Die LÄ kommt herein, die Studentin will gerade den Patienten untersuchen.</p> <p>LÄ: „Sagen Sie mal kurz, worum es geht?“</p> <p>Die Studentin berichtet, dass der Patient Schmerzen unter der Rippe habe, vor allem beim Atmen.</p> <p>LÄ: „Untersuchen Sie mal weiter,</p>	<p>English:</p> <p>A patient with presents with intercostal neuralgia.</p> <p>The GP enters the room as the student is about to examine the patient.</p> <p>GP: “Just briefly, can you say what this is about?”</p> <p>The student reports that the patient is experiencing pain underneath a rib, especially noticeable when breathing.</p> <p>GP: “Continue examining, I´ll</p>	

<p>ich gucke zu.“</p> <p>Die Studentin untersucht, die LÄ kommentiert, leitet an, befragt den Patienten selbst, und übernimmt die Untersuchung.</p> <p>LÄ: „Was meinen Sie was er hat, hier, mit dem Schmerz?“ LÄ deutet auf den Rücken des Patienten.</p> <p>Die LÄ bestätigt den Verdacht der Studentin, dass der Patient unter einer Interkostalneuralgie leide.</p> <p>Die LÄ schließt die Konsultation ab, während die Studentin beobachtet.</p>	<p>observe.“</p> <p>The student examines the patient, the GP comments, instructs, questions the patient, and then takes over the physical examination.</p> <p>GP: “What do you think he has, here, with the pain?” The GP gestures towards the patient’s back.</p> <p>The GP then confirms the student’s suspicion that the patient is suffering from intercostal neuralgia.</p> <p>The GP concludes the consultation whilst the student observes.</p>
<p>Questions (German)</p>	<p>Questions (English)</p>
<p>16.1 Sagen Sie mal kurz worum es geht?</p> <p>16.2 Untersuchen Sie mal weiter, ich gucke zu.</p> <p>16.3 Was meinen Sie was er hat, hier, mit dem Schmerz?</p>	<p>16.1 Just briefly, can you say what this is about?</p> <p>16.2 Continue examining, I’ll observe.</p> <p>16.3 What do you think he has here, with the pain?</p>

Video 0386 P6	Nr 17	Duration 1 min.
<p>German:</p> <p>Eine Patientin stellt sich vor mit Schnupfen, zudem braucht sie Rezepte und möchte eine Laborkontrolle von Blut und Urin. Die LÄ kommt herein; die Studentin sitzt am PC, die Patientin ist auch schon da.</p> <p>LÄ an Studentin:</p> <p>LÄ: „Worum geht’s denn? Ich weiß nicht, wo Sie gerade waren.“</p> <p>Die Studentin antwortet, sie habe nur die Laborwerte angeguckt...Die LÄ übernimmt die Konsultation, während die Studentin beobachtet.</p> <p>LÄ an Studentin:</p> <p>LÄ: „Hatten Sie ihr Blutdruck schon gemessen?“</p> <p>Studentin: „Ja, 140/80“.</p> <p>Die Studentin beobachtet wieder, bis sie am Ende den Auftrag bekommt, der Patientin Blut abzunehmen:</p> <p>LÄ: „OK, dann nehmen Sie ihr Blut ab.“</p>	<p>English:</p> <p>A patient presents with a cold as well as needing prescriptions and wanting a blood and urine test.</p> <p>The GP enters the consultation room. The student is sitting in front of the computer and the patient is also already present.</p> <p>GP to student:</p> <p>GP: “What is this about? I don ´t know where you are right now.”</p> <p>The student replies that she was only looking at the lab results. The GP takes over the consultation whilst the student observes.</p> <p>GP to student:</p> <p>GP: “Had you already measured her blood pressure?”</p> <p>Student: “Yes, 140/80.”</p> <p>The student continues to observe until the end, when she is assigned the task of taking a blood sample:</p> <p>GP: “OK, then take a blood</p>	

	sample.”
Questions (German)	Questions (English)
17.1 Worum geht’s denn? Ich weiß nicht, wo Sie gerade waren.	17.1 What is this about? I don´t know where you are right now.
17.2 Hatten Sie ihr Blutdruck schon gemessen?	17.2 Had you already measured her blood pressure?
17.3 OK, dann nehmen Sie ihr Blut ab.	17.3 OK, then take a blood sample.

Video 0388 P6	Nr 18	Duration 3 min.
<p>German:</p> <p>Eine Patientin stellt sich mit Bauchschmerzen und Heuschnupfen vor. Die Studentin, die vor der Videoaufnahme konsultiert hatte, beobachtet nun, wie die LÄ konsultiert. Die LÄ fragt dann:</p> <p>LÄ: „War bei der Untersuchung was Besonderes?“</p> <p>Die Studentin berichtet von Loslassschmerz im linken Oberbauch. Die LÄ untersucht die</p>	<p>English:</p> <p>A patient presents with abdominal pain and hay fever. The student, having already consulted the patient before the videotaping, now observes the GP doing the same. The GP then asks:</p> <p>GP: “Was there anything abnormal in the physical examination?”</p> <p>The student reports pain on pressure release in the left</p>	

Patientin nochmal und konsultiert weiter, während die Studentin beobachtet.	upper abdominal quadrant. The GP examines the patient again and continues the consultation whilst the student observes.
Questions (German)	Questions (English)
18.1 War bei der Untersuchung was Besonderes?	18.1 Was there anything abnormal in the physical examination?

Video 0395 P6	Nr 19	Duration 1 min.
<p>German:</p> <p>Ein Patient stellt sich mit Rückenschmerzen vor.</p> <p>Die LÄ sitzt am PC, während die Studentin beobachtet. Die LÄ fragt, ob die Studentin schon das Formular schon aufgemacht habe; die Studentin zeigt auf das Formular am Bildschirm.</p> <p>Die LÄ untersucht dann den Rücken des Patienten und fragt währenddessen:</p> <p>LÄ: „Blutdruck und so hatten Sie schon gemacht?“</p> <p>Studentin: „Ja.“</p>	<p>English:</p> <p>A patient presents with back pain. The GP is sitting in front of the computer whilst the student observes. The GP enquires whether the student has already opened the form. The student points to the form on the computer screen. The GP examines the patient's back and asks the student:</p> <p>GP: "You've already done blood pressure and so on?"</p> <p>Student: "Yes."</p> <p>The GP auscultates the heart;</p>	

Die LÄ führt eine Auskultation des Herzens durch; die Studentin auskultiert unaufgefordert simultan. Die Studentin beobachtet weiter, während der Patient von seiner familiären Situation berichtet.	the student auscultates simultaneously without being asked to do so. The student continues to observe while the patient reports on his family situation.
Questions (German)	Questions (English)
19.1 Blutdruck und so hatten Sie schon gemacht?	19.1 You´ve already done blood pressure and so on?

Video 0397 P6	Nr 20	Duration 2min.
<p>German:</p> <p>Ein Patient stellt sich mit einer Erkältung vor.</p> <p>Die LÄ betritt den Raum, und fragt was ist; der Patient sagt, er sei erkältet.</p> <p>LÄ fragt die Studentin:</p> <p>LÄ: „Sie haben schon geguckt?“ [Otoskopisch]</p> <p>Studentin: „Ja.“</p> <p>LÄ: „Und??“</p> <p>Studentin: „Nicht so ein guter Durchblick.“</p> <p>Daraufhin untersucht die LÄ die</p>	<p>English:</p> <p>A Patient presents with a cold. The GP enters the room and asks what the issue is. The patient answers that he has a cold.</p> <p>The GP asks the student:</p> <p>GP: “You´ve already looked?” (with an otoscope)</p> <p>Student: “Yes.”</p> <p>GP: “And??”</p> <p>Student: “Not so easy to see.”</p> <p>Whereupon the GP examines the patient´s ears herself. The</p>	

Ohren des Patienten selbst. Die Studentin beobachtet die restliche Konsultation.	student observes the remaining consultation.
Questions (German)	Questions (English)
20.1 Sie haben schon geguckt?	20.1 You´ve already looked?
20.2 Und??	20.2 And??

Video 0165 P6	Nr 21	Duration 2 min.
<p>German:</p> <p>Ein Patient stellt sich vor für eine Kontrolle seiner Marcumar-Therapie.</p> <p>Die Videoaufnahme beginnt damit, dass die Studentin den INR Wert 1,9 angibt. Daraufhin reagiert die LÄ:</p> <p>LÄ: „Lassen wir das so oder ändern wir was?“</p> <p>Studentin: „...ein bisschen höher kanns schon, normalerweise zwischen 2 und 3...“</p> <p>LÄ: „Ja, was machen wir denn?“</p> <p>Studentin und LÄ schauen sich gemeinsam den Marcumarausweis an. Die Studentin macht einen Vorschlag</p>	<p>English:</p> <p>A patient presents for control of his warfarin medication. The video sequence starts with the student stating the INR as 1.9. The GP then responds:</p> <p>GP: "Do we leave it or change it?"</p> <p>Student: "...it can be a bit higher, normally between 2 and 3..."</p> <p>GP: "Yes, what do we then?"</p> <p>The student and GP look at the warfarin card together. The student makes a suggestion concerning the dose. The GP agrees and concludes the consultation.</p>	

zur Dosis. Die LÄ stimmt zu und führt die Konsultation zu Ende.	
Questions (German)	Questions (English)
21.1 Lassen wir das so oder ändern wir was?	21.1 Do we leave it or change it?
21.2 Ja, was machen wir denn?	21.2 Yes, what do we then?

Video 0171 P6	Nr 22	Duration 1 min.
<p>German:</p> <p>Ein Patient stellt sich mit Diabetes mellitus Typ II und Schluckbeschwerden vor. Die LÄ kommt herein, setzt sich an den PC und fragt die Studentin:</p> <p>LÄ: „So, und ihr Blutdruck war?“</p> <p>Die Studentin misst gerade den Blutdruck und gibt die Werte an (120/70). Die Studentin beobachtet weiter, während die LÄ konsultiert. Dann fragt die LÄ:</p> <p>LÄ: „Hatten Sie schon nach den Füßen geguckt?“</p>	<p>English:</p> <p>A patient presents with type II diabetes and swallowing difficulties. The GP enters the room, sits down in front of the computer and asks the student:</p> <p>GP: "Right, and her blood pressure was?"</p> <p>The student measures the patient's blood pressure and gives the result (120/70), then observes the GP consulting the patient.</p> <p>The GP then asks:</p> <p>GP: "Had you already looked at</p>	



<p>Studentin: „Ja.“</p> <p>Die LÄ wirft einen fragenden Blick.</p> <p>Studentin: „War gut.“</p> <p>Die LÄ führt die Konsultation zu Ende.</p>	<p>the feet?“</p> <p>Student: “Yes.”</p> <p>The GP gives an enquiring look.</p> <p>Student: “Was good.”</p> <p>The GP concludes the consultation.</p>
Questions (German)	Questions (English)
<p>22.1 So, und ihr Blutdruck war?</p> <p>22.2 Hatten Sie schon nach den Füßen geguckt?</p>	<p>22.1 Right, and her blood pressure was?</p> <p>22.2 Had you already looked at the feet?</p>

## 8.5. Ethikvotum/ethics review

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Az.: Studie 206/11

Marburg, den 01.02.2012

**N/ KKS Marburg**

**Studie:** „Das Blockpraktikum Allgemeinmedizin: eine ethnografische Studie“.

Eingereichte Unterlagen:

1. Ihre Stellungnahme vom 10.01.2012.
2. korrigierter Ethikantrag.
3. Dokumentationsbogen zur Datenerhebung (Beobachtungseinheit Studierende/Arzt)
4. Erhebungsbogen für Kenndaten (Praxis und Studierende).
5. Informationsblatt und Studieneinwilligung Ärzte.
6. Informationsblatt und Studieneinwilligung Blockpraktikumsstudierende.
7. Informationsblatt und Studieneinwilligung Patienten (Feldbeobachtung).
8. Informationsblatt und Studieneinwilligung Patienten (Videoaufzeichnung).
- 9.

Sehr geehrter Herr Dr. Bösner,  
sehr geehrter Herr Professor Donner-Banzhoff,

vielen Dank für die Wiedervorlage der Unterlagen zur o. g. Studie. Auf ihrer Sitzung am 25.01.2012 hat sich die Ethikkommission des Fachbereichs Medizin der Philipps-Universität Marburg nochmals eingehend mit Ihrem Forschungsvorhaben beschäftigt. Nach Referat und ausführlicher Diskussion kommt die Ethikkommission zu dem Ergebnis, dass grundsätzlich keine berufsethischen oder berufsrechtlichen Bedenken gegen die Durchführung der Studie bestehen.

Damit schließt die Ethikkommission des Fachbereichs Medizin der Philipps-Universität Marburg ihr Gutachten mit einem

***positiven Ethikkommissionsvotum***

ab.

Entsprechend der ausschließlich beratenden Funktion der Ethik-Kommission betrifft dieses Votum nur die ethische Beurteilung der Konzeption, der vorgesehenen Methoden, der Durchführung und Überwachung des betreffenden Projektes sowie der beabsichtigten Patientenaufklärung. Die

**Sekretariat : Frau Raiss Montag – Donnerstag 8.00 – 12.00 Uhr, Freitag 8.00 – 11.00 Uhr  
Frau Backes Montag – Donnerstag 14.00 – 16.00 Uhr**

Kommissionsmitglieder:  Prof. Dr. med. R. Berger,  Prof. Dr. jur. G. Freund,  Prof. Monika Böhm,  Prof. Dr. med. J.-C. Krieg,  Prof. Dr. M. Koch,  Prof. Dr. med. Czubayko,  Prof. Dr. med. G. Richter (Vorsitzender),  Prof. Dr. rer. nat. H. Schäfer,  Prof. Dr. med. Uwe Wagner (stellvertretender Vorsitzender),  Prof. Dr. med. R. Maier,  Prof. Dr. med. N. Donner-Banzhoff,  Dr. rer. nat. Nina Timmesfeld,  Prof. Dr. med. A. Neubauer,  PD Dr. B. Tackenberg,  Bettina Nieth,  Dr. Thomas Neubert

ärztliche und juristische Verantwortung verbleibt jedoch uneingeschränkt beim Projektleiter und seinen Mitarbeitern.

Bitte geben Sie uns jede Änderung in der Protokolldurchführung bekannt. Es muss dann geklärt werden, ob das Votum der Ethik-Kommission noch Gültigkeit hat.

Über alle schwerwiegenden oder unerwarteten unerwünschten Ereignisse, die während der Studie auftreten und die Sicherheit der Studienteilnehmer oder die Durchführung der Studie beeinträchtigen könnten, muss der Vorsitzende der Ethik-Kommission unterrichtet werden.

Im Rahmen ihrer Beratungsaufgaben und unter Wahrnehmung der Schutzfunktion gegenüber den klinischen Forschern möchte Sie die Ethikkommission auf die „Vereinbarung über die Durchführung von klinischen Studien am Universitätsklinikum Giessen und Marburg“ vom 28.08.2009 aufmerksam machen. Diese Vereinbarung sieht vor, dass der Geschäftsführung der UKGM GmbH vor Beginn jeder klinischen Studie die Studienunterlagen vorzulegen sind. Die Einreichung der gemäß der Vereinbarung geforderten Unterlagen an die UKGM GmbH erfolgt über das Koordinierungszentrum für klinische Studien Marburg (KKS); die Checkliste und die Formulare finden Sie unter [www.kks.uni-marburg.de](http://www.kks.uni-marburg.de).

Die Ethik-Kommission des Fachbereichs Humanmedizin der Philipps-Universität Marburg arbeitet gemäß den nationalen gesetzlichen Bestimmungen und den ICH-GCP-Richtlinien.

Außerdem benötigt die Ethik-Kommission einen Bericht nach Abschluss der Studie.

Mit freundlichen kollegialen Grüßen  
für die Ethik-Kommission des  
Fachbereichs Humanmedizin  
der Philipps-Universität Marburg

Prof. Dr. med. G. Richter  
(Vorsitzender Ethikkommission)

## **8.6. Publications associated with the presented dissertation**

### **8.6.1. Journal articles**

**Duncan, Gertrude Florence;** Roth, Lisa Marie; Donner-Banzhoff, Norbert; Boesner, Stefan. Teaching points-do they occur and what do they contain? An observation study concerning the general practice rotation. BMC Medical Education 2016. (Duncan et al. 2016)

Bösner, Stefan; Roth, Lisa Marie; **Duncan, Gertrude Florence;** Donner-Banzhoff, Norbert. Verification and feedback for medical students. An observational study during general practice rotations. Postgraduate medical journal 2017. (Bösner et al. 2017)

### **8.6.2. Congress contributions**

AMEE 2013

**Duncan G,** Roth LM, Bösner S, Donner-Banzhoff N. The general practice and family medicine rotation — how involved are students in patient consultation? *AMEE 2013, Prag.* (Poster)

Roth LM, **Duncan G**, Donner-Banzhoff N, Bösner S. Occurrence of feedback in a German family medicine rotation. *AMEE 2013, Prag*

DEGAM 2013

**Duncan G**, Roth LM, Bösner S, Donner-Banzhoff N. Blockpraktikum Allgemeinmedizin: Einbeziehung der Studenten in die Konsultation und Charakterisierung der teaching points. Vortrag beim 47. Kongress der Deutschen Gesellschaft für Allgemeinmedizin (*DEGAM*), 12.-14.9. 2013. München. (Presentation)

Roth LM, **Duncan G**, Donner-Banzhoff N, Bösner S. Feedback und Kontrolle von Anamnese und Befunden durch Lehrärzte im Blockpraktikum Allgemeinmedizin. Vortrag beim 47. Kongress der Deutschen Gesellschaft für *Allgemeinmedizin (DEGAM)*, 12.-14.9. 2013. München.

WONCA 2013

Bösner S, **Duncan G.**, Roth L, Donner-Banzhoff N. The general practice and family medicine rotation - Occurrence and content of teaching points made by general practitioners. *WONCA World 2013, Prag*. (Presentation)

Bösner S, Roth L, **Duncan G.**, Donner-Banzhoff N. The general practice and family medicine rotation - Verification of student findings by the teaching physician. *WONCA World 2013, Prag.*

## **8.7. Tabellarischer Lebenslauf**

Der Lebenslauf (Seiten 165-166) enthält persönliche Daten und wurde deshalb vor Drucklegung entfernt.





## **8.8. Verzeichnis der akademischen Lehrer/-innen**

Meine akademischen Lehrenden waren in Marburg die Damen und Herren Bartsch, Baum, Becker, Bien, Bösner, Bohlander, Brehm, Burchert, Cetin, Czubayko, Daut, Donner-Banzhoff, Fuchs-Winkelmann, Görg, Gress, Grzeschik, Hertl, Hoyer, Kinscherf, Klose, König, Koolmann, Kruse, Lill, Lohoff, Maier, Maisch, Moll, Moosdorf, Mueller, Mutters, Neff, Neubauer, Nimsky, Ortel, Oliver, Pagenstecher, Plant, Preisig-Müller, Renz, Richter, Rosenow, Röhm, Ruchholtz, Schäfer, Schieffer, Schmidt, Seitz, Sekundo, Vogelmeier, Wagner, Waldegger, Werner und Wulf.

## **8.9. Danksagung**

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Ich danke auch meiner Familie und meinem Freundeskreis für das fortwährende Interesse und die Ermutigungen!

## **8.10. Ehrenwörtliche Erklärung**

Die ehrenwörtliche Erklärung wurde vor Drucklegung entfernt.

