

## 20. Grazer Konferenz

Wien | 31. März - 2. April 2016

Medical and Soft Skills:  
Teaching and Learning



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**Conference Venue:**

Veterinärmedizinische Universität Wien  
Veterinärplatz 1, Wien, Austria  
Festsaalgebäude

**Organisers:** Veterinärmedizinische Universität Wien  
Österreichische Gesellschaft für Hochschuldidaktik

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## 2 Programmübersicht - Program Overview

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9:00	Registration	
10:30	Begrüßung/Welcome	Hammerschmid, Winter, Stein
11:00	Lecture	Ehlers
11:30	Lecture	Stucki
12:00	Lecture	Dilly
12:30	Lunch	
14:00	Workshops	
15:30	Coffee	
16:00	Field Reports	
18:00	Posterparty	Stein (Moderation)
Freitag - Friday 1. April 2016		
Topic: Medien in der Medizinischen Ausbildung Media in Medical Education		
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9:45	Lecture	Fux
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11:00	Workshops	
12:30	Lunch	
15:00	Lecture	Leschnik, Hladschik-Kermer
15:30	Coffee	
16:00	Workshops	
19:00	Conference Dinner	
Samstag - Saturday 2. April 2016		
Topic: Bilden wir berufsbezogen aus? (In German Language)		
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9:30	Lecture	Winter
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10:30	Round Table	
12:00	Abschluß/Closing Remarks	Winter, Stein
12:30	End of Conference	



### 3 Workshops

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A... “VetSIM” (Skills Lab)

B... großes Sitzungszimmer/large Conference Room

C... Festsaalenerweiterung/Extension Ceremonial Hall

Workshop 1a, 31. 3. 2016, 14:00

### **Skills training - what is needed to survive in the job?**

Jan B. Ehlers

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The aim of this workshop is to create a list of skills that are needed in the first days of starting a job in (veterinary) medicine. In the discussion we are going to focus as on practical skills as on social and 21<sup>st</sup> century skills. The questions to be answered will be:

- Which skills and competencies are needed during the first days and which can be gained on the job?
- Which skills and competencies are needed by all graduates and which match a special focus?
- How can a university prepare the students to get started in the job?

Workshop 1b, 31. 3. 2016, 14:00

## **Erstellen und validieren einer Checkliste für eine OSCE-Station** **Hands-on establishment a checklist for an OSCE-station**

Peter Stucki

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Grundlage eines zuverlässigen OSCEs (objective structured clinical examination) sind die Checklisten für die Prüfungsstationen, aufgrund derer sämtliche Studierenden in möglichst identischer Weise beurteilt werden müssen. Voraussetzung sind eindeutige Kriterien, die von allen Examinatoren gleich verstanden und angewandt werden können. Die Checklisten werden für die Validierung in Probe-Prüfungen mit Studierenden überprüft.

Im workshop erarbeiten die Teilnehmenden anhand eines Beispiels aus dem Alltag eine Checkliste. Eine im Konsens verabschiedete gemeinsame Checkliste wird anschließend anhand eines Videos überprüft. In diesem Prozess erfahren die Teilnehmenden, wie sich Unsicherheiten bei der Herstellung einer geeigneten Checkliste vermeiden lassen.

### **English Version:**

Validated checklists are precondition to an OSCE (objective structured clinical examination) of good quality. They have to be applied by all examiners in an identical way. Criteria must be distinct and clearly written preventing any ambiguity. At the vetsuisse-faculty, checklists are being tested in mock-exams, where several experts observe and judge on several students.

In this workshop participants will write a checklist for an every-day skill. A consensus-defined checklist will then be tested with the help of a video.

Participants experience the process of establishing and validating a checklist and learn how to get around the pitfalls of the process.

*Workshop held in German language*

Workshop 1c, 31. 3. 2016, 14:00

### **Formative Assessment of Clinical Skills in Veterinary Medicine**

Marc Dilly

Clinical Skills Lab, University of Veterinary Medicine Hannover

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In the workshop we will share experiences running OSCEs for formative assessment of clinical skills. The workshop will cover the whole process from the initial planning, to preparing and running a formative OSCE. We will provide practical tips for resourcing the examinations, managing feedback and training staff.



Workshop 2a, 1. 4. 2016, 11:00

## **Digital Didactics in Higher Education - how do we survive with Social Media generation?"**

Ismo Ripatti

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As we all agree the digitalization is reforming all in our living environment. This small group session shall reveal the issues of social media in good and in challenging situations reflected on high school and university education. The session is based on brief introduction on the topic in the form of existing user statistics, practical reports from Finnish and Swedish educational institutes. Developments and trends like possibilities, strengths and threads like weaknesses in learning societies, open learning environments and the good and bad of sk. social media shall be highlighted. The format of the session is talk and moderated discussion of individual experience and arguing confronting attitudes on the modern trends and ongoing changes in digital native youngsters, our students; their brain function changes using digital assets, new methods in their learning versus our understanding of the need of control, measurement and setting the limits of acceptable level for cognitive maturity and achieving all practical skills to perform in real life duty and to earn a unified level of university degree of our profession.

One great hazard with the digital societies is the commercialization, profiling of users, their habits, phishing of individual data and transferring this against compensation. The data security and individual identity protection are the main threads – that google analytics has introduced to the digital field.

Do have your smartphones and lap top pcs or tablets ready. We shall have a possibility to test some of the digital perspective on ourselves. We shall use the Sky Mirror of vetmed in Vienna – the address is vet250.at. All in a very secure and safe way – for all of us.

All precise technical introduction and guidance at the beginning of the session. This session is one of the must participate during our grazer conference 2016.

Workshop 2b, 1. 4. 2016, 11:00

## Skills Training and Peer Group Education

Matthäus Grasl

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**Introduction:** Peer-assisted learning (PAL) is: “people from related social groupings, not being professional teachers, support each other to learn by teaching”. Success and attractivity of PAL are justified by cognitive, affective social and organizational factors. All PAL participants may extend, modify, rebuild their knowledge and skills, develop collective understanding, study and solidify core skills, generalize specific concepts, give and receive feedback and reinforcement. Both tutors and tutees get an increased self-confidence and metacognition.

**A practical example of PAL:** Adapted peer-assisted PEYTON-Method for sustainability of student’s skill to exercise indirect mirror technique of the Ear-Nose-Throat (ENT)area. (M. Grasl, MD, MME; M. Hanisch; K. Kremser PHD)

**Introduction:** Trainees are to be trained before they use skills on patients. Peyton’s four-step approach is designed for a 1:1 teacher: student ratio. The aim of the study was to develop and evaluate a modification for teaching groups of up to 30 students by one teacher.

**Methods:** Students of the 5th year of the Medical Curriculum in Vienna have to pass the ENT clinical module within  $2\frac{1}{2}$  weeks. They have to learn the indirect mirror technique. 275 students in 12 groups of 25 to 30 participants were included in the study. Modification of Peyton’s four steps was: 1. only one teacher, 2. intensive use of peer-assisted teaching 3. intensive theoretical knowledge before 4. ongoing assessment 5. emphasis on communication with patients. Results: All students could be transferred to patients contact without hesitation – after repetition and final assessment in a small group of 6 to 7 students.

**Discussion:** This modified Peyton’s approach has shown to be practicable, well accepted by the students, however is carried out with an enormous demand on the single teacher.

**Work order:** Two or three groups are defined and each of them gets the instruction to look first in their own curriculum where PAL is used and how it works. Presentation of the compiled approaches: each group in the forum. Feedback and discussion.

Workshop 2c, 1. 4. 2016, 11:00

## **Interactive teaching and learning**

Karl Kremser<sup>1,2</sup>, Herbert Plass<sup>1,2</sup>

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Peer-teaching has always been important in medical education, and there is a substantial body of evidence for the potential peer-teaching they have encountered, and share practical strategies and approaches for addressing them. Interactive teaching/learning are well known to foster learning during in-class activities.

Feedback is probably the most used interactive technique in teaching. How should it be done?

Guided peer teaching – as a combination of interactive learning and explaining – has always been important in medical education.

We will then show three well-established didactic methods with high interactivity and discuss our experience with them:

- Problem Based Learning
- Team Based Learning
- Audience Response System in general, and Interactive Seminar with 600 Students simultaneously specifically.

Then the participants will report about interactive didactic methods and their success stories.

These reports are followed by an open discussion about advantages and disadvantages of the methods presented.

Participants of the workshop will learn about designing an in-class activity using peer teaching and interactivity with high numbers of students in the classroom and discuss their own experience with these strategies.

Workshop 3a, 1. 4. 2016, 16:00

**"Clinical Encounter Cards": a method for short feedback during clinical education**

Florian Buchner

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**Duration:** 90 min

**Target group:** Clinical teachers: Interns, residents, seniors, faculty

**Content and aim:** Feedback from teachers to students during clinical education is necessary and highly effective, but during daily clinical work there is always a lack of feedback. This workshop offers, beside a short input of basic knowledge, the training of a short, structured feedback to students to be used during the clinical routine. „Clinical Encounter Cards“ designed as a tool for students to initiate the feedback themselves will be presented and discussed.

**Learning outcomes:** Teachers are able to ...

- explain criteria for effective feedback.
- describe the structure of short feedback
- offer specific feedback
- know the structure and function of a “Clinical Encounter Card”

Workshop 3b, 1. 4. 2016, 16:00

**“What can I do, Maxi seems to be serious ill?” – Improve your communication skills in interaction with standardized owners of ill animals.**

Birgit Hladschik-Kermer<sup>1</sup>, Michael Leschnik<sup>2</sup>

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<sup>2</sup> University Veterinary Medicine, Vienna, Austria

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Experimental methods and feedback are most effective to improve communication skills in medicine. Having a time limited talk to an emotional (exciting, agitated, uncertain or anxious) animal owner is a challenging situation even for experienced veterinary practitioners.

Training and teaching communication skills at the Veterinary University Vienna has now reached an advanced level including professional actors supporting the training students. The training is highly structured, learning outcomes and tasks for five different communication situations are defined.

Students are prepared by documents describing the set up situation (location, history and test results of the animal) but do not know anything about the personal characteristics of the referred client.

The actors are specifically trained by a professional. So they can interact with the students according to their learning goals. Instruction courses for teachers were implemented.

Each training session is clearly structured. Consultations between students and actors are videotaped.

After the interaction with the actor, the student who played the role of the veterinarian reflects his performance, while watching the video. In the meanwhile the actor and the group prepare their feedback.

Feedback, as a main didactic element is given in a standardized way. First the student, who held the conversation reflects his performance according to the learning goals. Then the actor gives his feedback from the view of the owner of the ill animal. In conclusion the group feedback is given.

This workshop will focus on professional, empathic, and structured communication in an emotional situation and on the possible ways to give a structured and value-free but constructive feedback to improve the trainees performance

*Workshop held in German language*

Workshop 3c, 1. 4. 2016, 16:00

### **Jerry just died – high level Cardio-Pulmonary-cerebral-resuscitation (CPCR)**

Elena Russold

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This workshop is a hands-on training of Cardio-pulmonary-cerebral - resuscitation (CPCR) on a dog (dummie). A team of at least five trainees works together with a tutor.

After a short introduction into CPCR in the dog and into the workshop itself, the trainees are taught to perform gold-standard CPCR beginning with a “basic complication” that occurs rather frequently in daily clinical practice. To facilitate the involvement in the exercise a dummy is used. After each resuscitation the decisions that have been made, their reasoning and their timing are reflected by the tutor and analyzed together with the team. This reflective approach strongly aids learning and can be further supported by a second team of students that act as observers and support the reflection phase. This social interaction and the support by peers is an integral part of the training process and helps to accelerate team building as the team will not only learn the correct way of performing CPCR but also recognize that this can only be achieved successfully as a team. This process can further be supported by the tutor through artificially introduced disturbances of the process, e.g.: missing drugs, materials, sudden change in vital parameters.

In repeated cycles the degree of difficulty can be changed and more complex medical complications can be introduced. By means of the virtual monitoring system I-Simulate the scenario and condition of the patient can be controlled by the tutor. Thus the trainees can be guided towards more difficult and more challenging emergencies, teaching them gold-standard CPCR under ever more challenging conditions. The two groups of students will exchange roles between repeated runs, so that observers become actors and vice versa. Introduction of a video recording for later analysis can further support the reflective discussion after each exercise.







## 4 Lectures, Report, Panel Discussion

Alle Veranstaltungen finden im Festsaal statt  
All events will take place in the Ceremonial Hall

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Pilz	Samstag/Saturday	9:00	27
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Lecture, 31. 3. 2016, 11:00

## **Skills Training - What is Needed to Survive in the Job?**

Jan P. Ehlers

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Most students of (veterinary) medicine are looking forward to the first days in the job but the nearer they come the more nervous they get. The aim of the universities is, to guide the students to get all the needed competencies.

Regarding the RECOMMENDATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 23 April 2008 on the establishment of the European Qualifications Framework for lifelong learning “*‘Competence’ means the proven ability to use knowledge, skills and personal, social and/or methodological abilities, in work or study situations and in professional and personal development. In the context of the European Qualifications Framework, competence is described in terms of responsibility and autonomy.*” Universities therefore describe competencies as “knowledge, skills and attitudes” in their curricula. By using the “constructive alignment” learning objectives, learning/ teaching and the assessment methods should be geared to each other.

Studies have shown that more effort could be spent on the training of clinical and communicative skills. Several universities have established clinical skills labs or clinical blocks to guarantee this kind of training with simulators or real patients.

As we live in time of change from an industrial society to an information society other skills, so called 21<sup>st</sup> century skills are as important. These were described to show what kind of competencies are important to be successful in a globalized world where conceptual and metacognitive knowledge are important (e.g. learning and innovation, information-, media- and technology literacy, interprofessionalism, interculturality, communication, citizenship).

As physicians and veterinarians are more at the risk of cynicism, mental pressure and burnout than the average of the population it seems important to train strategies (e.g. resilience, mindfulness) to cope with these problems. For the curriculum development of academic studies, it seems useful not only to focus on the specialized training for a job but also on the personality development of the students to give them the opportunity to gain responsibility and autonomy and have a good start in their jobs.

Lecture, 31. 3. 2016, 11:30

## **Validierung von Checklisten für den Einsatz in objective structured clinical examinations, OSCEs**

### **Validating checklists for OSCEs at the Vetsuisse-faculty**

Peter Stucki, Julia Gerber

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The legal framework for veterinary education in Switzerland is provided by the Federal Law on academic medical professions (LPmed). Learning outcomes are defined as competencies a veterinary graduate has to acquire. Based on LPmed the curriculum of the Vetsuisse-faculty of the Universities of Bern and Zürich had been remodeled from scratch starting in 2002: aside from interdisciplinary teaching in topic (organ)-centered blocks in the first 3 years (bachelor) tracking has been introduced from year 4 on to the end of studies (master). Students can select from 6 tracks: feed-animals, horses, companion animals, veterinary public health, pathobiology and research. The students pass their last (5th) year in clinical rotations and pathology at the two locations of the faculty.

In order to prepare students for their work in their 5th year a skills-lab has been established in 2015 where they acquire basic skills. This summer students will be examined for the first time in an OSCE (objective structured clinical examinations) with 12 stations.

In a OSCE-pilot checklists of two skills-stations were validated with teaching staff and students. Presently, all checklists are being validated in the same manner. In this presentation the process of validating checklists is demonstrated.

Lecture, 31. 3. 2016, 12:00

## **Formative Assessment of Clinical Skills in Veterinary Medicine**

Marc Dilly

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Using OSCEs for Formative Assessment of Clinical Skills in Veterinary Education  
Marc Dilly, Simon Engelskirchen, Susan Kopke, Andrea Tipold University of Veterinary Medicine, Germany

Over the last years different adjustments of legislation have led to considerable changes in European veterinary education. Hereby, with regard to preparing students for the practical field of veterinary profession a focus was set on competence based learning outcomes within the academic training framework. Competence based teaching, learning and assessing is an essential aspect of the numerous curricular reforms enacted. The European Association of Establishments for Veterinary Education (EAEVE) evaluates and accredits its members to give assurance to the public, the veterinary students and the veterinary establishments. Among adequate knowledge and profession-inherent attitudes EAEVE's objectives especially comprise practical skills. In order to assess practical skills the objective structured clinical examination (OSCE) is an appropriate assessment format in undergraduate and postgraduate medical education. Depending on educational purposes the OSCE can be developed and applied as a summative assessment tool for testing or licensing minimum accepted standards, or as a formative assessment tool to provide immediate feedback.

To establish a transition between tightly organised studies and following career the University of Veterinary Medicine Hannover (TiHo) realised the "Practical Year", comprising a twelve-month orientation phase during the 9th and 10th semester, which is followed by the final state examination. During that year students have to pass a minimum of a ten-week traineeship at one of the university's clinical or paraclinical institutes. This traineeship is designed to involve students into university's clinical and scientific working routine. Currently, in collaboration with two clinics, the Clinical Skills Lab of the TiHo is routinely running two formative OSCE programs as part of the traineeship during the "Practical Year":

The first OSCE program was introduced in October 2013 and developed as part of the surgical education in the Clinic for Swine and Small Ruminants. Hereby, a traineeship is offered three times a year giving 36 students the opportunity to participate. To prepare these students for their surgical interventions as well as to lighten a proper performance in the operating theatre for clinic staff, a mandatory specific skills lab training including the (mini-)OSCE was implemented. While being instructed by skills lab and clinic staff students practice basic surgical skills. The following (mini-)OSCE covers six stations by focusing on scrubbing, knotting and suturing ability *in vitro*.

In February 2014 the second OSCE program was introduced in collaboration with the Clinic for Small Animals and developed to provide students with feedback about their clinical performance after the ten-week traineeship. Five times a year a maximum of 100 students rotate every week between different fields of clinical specialization (e.g. internal medicine, surgery etc.). Before starting the traineeship, students receive a one-week skills lab training to prepare them for clinical working in the different fields of specialization. The following OSCE covers 15 stations assessing the competence of clinical skills by using low and medium fidelity models. Particularly by providing immediate feedback through subsequent group debriefing and individual written response both OSCE programs primarily aim at aligning student's subjective perceived competence and increasing student's clinical, practical and personal skills.

This conference lecture aims at sharing some of our experiences made in organising and administrating OSCEs, which we gained during the development of the two formative OSCE programs at the TiHo.

Lecture, 1. 4. 2016, 09:00

## **Neue Medien in der medizinischen Ausbildung**

Peter Pokieser

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Integrating case material and tutorials into radiologic education of medical students, requires to consider the principles of modern medical education. Peer reviewed case collections are available in the internet and allow to present excellent multimedia case examples to train clinical reasoning at all levels, from interdisciplinary clinical basics up to differentiated clinical work up of complex conditions to be integrated into learning settings for advanced students. The personal experience of the author started with radiologic eLearning and moved to interdisciplinary case and web based blended learning for students and in postgraduate or mixed settings.

The current evidence of educational research votes for the “involved teacher”, who interacts with students personally, especially in clinical medicine. To combine own case materials with well known national or international resources represents a good basis to construct a local course. The so called digital natives are very knowledgeable to find resources themselves. In the opposite to the former learner types, who had difficulties to access review articles and scientific evidence, modern students have good skills to learn theoretical background from online sources or books. They are especially interested to learn experiences of clinical specialists by interactive examples. Often underestimated, but of utmost importance are the needs of teachers. “Work related teaching”, an important topic of educational research, points to the practical benefits of “fresh” cases to be presented to participants of case based learning activities. Integrating own cases, can provide better clinical information and a kind of dedication, which is much appreciated by most learners. This lecture will emphasize how to create different designs of case presentations with considerations and discussion about best use of time and resources, including a look to the upcoming direction towards interdisciplinary education, parallel to interdisciplinary clinical medicine. Some examples will be shared and discussed, as well as the relation of institutional projects between innovation and sustainability.

Lecture, 1. 4. 2016, 09:45

## **The Audience Response System – interactive teaching and learning with the audience quiz**

Daniela A. Fux

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It is well known that “only listening” promotes the learning process marginally. Nevertheless, teacher-centered lectures are still classical elements in undergraduate education. The Audience Response System (ARS) represents an efficient tool to actively integrate the auditory into this traditional way of knowledge transfer.

The ARS is an electronic polling system that enables students to answer questions via push-button in an anonymous and collective manner. The usage of the ARS leads to a high rate of attention and participation, and enhances the interaction of lecturers and undergraduates during seminars and courses. By stimulating active thinking and knowledge application, as well as by creating peer-teaching situations, the ARS helps to increase the learning outcome of traditionally given lectures. Vice-versa, by displaying a live feedback on opinions and knowledge, the ARS supports lecturers to assess student’s competencies, realize deficits and uncertainties.

This lecture will give an overview of different ARS and their opportunities in promoting interactive teaching.

Lecture, 1. 4. 2016, 15:00

## **Teaching and learning communication skills at the Veterinary University of Vienna. Why? Who? How? and First outcomes!**

Michael Leschnik<sup>1</sup>, Birgit Hladschik-Kermer<sup>2</sup>

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Veterinary medicine is historically attributed to knowledge of diagnosis and therapy in animal disease. Communication skills for veterinary practitioners are also known to be fundamentally important but have not yet been implicated to a veterinary curriculum.

Starting in 2014, teaching and learning communication skills were included into the curriculum of the Veterinary University Vienna. In the 3rd semester students are lectured about communication techniques, and how to give a relevant and concrete feedback. Checklists are provided for taking a medical history as well as for communication of examination results, and therapeutic options.

Five times a tutorial is provided for student groups of 10, to train communication skills taking a medical history from a client's animal, supported by an instructor who provides specific case-descriptions. A student takes over the role of the client and another one performs the veterinarian. The remaining students and the instructor observe the communication situation and prepare a feedback presented to the 'veterinarian' student. Personal comments and experiences are documented by each student.

Before the first training session and after the last one, students were asked to fill in a questionnaire to evaluate the communication training in the 3rd semester. Answers were given on a linear-analogue scale (1-5). 15 items were asking for self-evaluation of educational objective related communicative competences in both questionnaires. The questionnaire after the 5th session was extended by 10 items for quantitative and 4 items for qualitative evaluation of the training course.

161 students completed the questionnaire and data were prepared for statistical analysis (Wilcoxon test for comparing data before and after the training, effect size by Cohens' d for mean value differences). Significance was defined as  $<0.05$ . Statistical analysis revealed a significant improvement for item 1-14, whereas item 15 reflecting previous knowledge was not significant ( $p=0.166$ ). Effect size was strong ( $d > 0.8$ ) for 9 items: communication is learnable and useful, provided documents were informative, ability to schedule communication and to cope with clients emotion appropriately, ability to self-reflect own emotions and behaviour, ability to give structured and constructive feedback, knowledge of own strong and weak aspects in client communication, self-assessment of individual preparation on the training sessions. Quantitative analysis of the training evaluation revealed mean values of 4.44 - 4.93. Qualitative analysis revealed a 5 times higher number of positive statements compared to suggestions for



improvement. In the 6th semester communication training is supported by professional actors which act as the client. Verbal feedback is given to the acting student and a video is provided for self-reflection of the performed talk.

Communication training is very well accepted by veterinary students and improves soft skills substantially.

Lecture, 2. 4. 2016, 9:00

## **Welche Aspekte sollen verstärkt in der Ausbildung vorkommen?**

Sigrid Pilz

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Die Herausforderungen der künftigen Gesundheitsversorgung werden in der Langzeitbetreuung chronisch Kranker liegen. Die Krankheitslasten (Herz, Rheuma, Krebs, Diabetes, Schlaganfall, COPD u.a.) erleben einen starken Zuwachs.

- Die Ausbildung der Gesundheitsberufe ist ungeachtet dieser Prognosen nach wie vor an der Akutversorgung orientiert.
- Die traditionellen Ausbildungsorte sind die Spitäler
- Gelernt und gearbeitet wird vorrangig in monoprofessionellen Silos

Gefordert ist ein Strukturwandel hin zu einer an den künftigen Herausforderungen orientierten Ausbildung in der Medizin

- Verstärkung der Praxisorientierung – mehr Lernerfahrungen in den Feldern, wo der berufliche Schwerpunkt gesetzt wird.
- Interprofessionelle Ausbildung in Gesundheitswissenschaften mit neuen Lehr- und Lernkonzepten und Abbau der Hierarchien unter den Berufsgruppen
- Verbesserung der Zusammenarbeit mit Pflege und anderen Gesundheitsberufen – künftighin wird die Pflege in der Versorgung chronisch Kranker und im Public-Health Bereich eine wichtigere Rolle spielen (Langzeitbetreuung von Krebs- oder Diabeteskranken, Wundversorgung, Demenz, in Gemeinden und Schulen, Migration u.a.)
- Einbindung der PatientInnen als Akteure ihres Gesundheits- und Krankheitsverhaltens – weg von der Bevormundung „den“ Patient gibt es nicht: die Ausbildung muss auf sehr gesundheitskompetente Menschen auf der einen Seite und auf gesundheits-illiterate Menschen auf der anderen Seite vorbereiten
- Eine neue Orientierung und ein geänderter Blick ist notwendig: weg vom Fokus auf die Erkrankung, hin zur Person mit der Erkrankung.
- Der traditionell naturwissenschaftliche Blick soll durch eine systemische Betrachtung des Patienten erweitert werden ( Bildungshintergrund, Kultur, soziale und individuelle Situation)
- Behandlung erschöpft sich künftig weniger in der Intervention, im Quick-fix, sondern wird vielmehr zum Prozess (Prävention, Diagnose, Therapie, Rehabilitation), dieser Prozess erfordert Teams, unterschiedliche Kompetenzen und Interdisziplinarität
- Es werden Kompetenzen gebraucht, für die derzeit noch zu wenig ausgebildet wird: Patientenorientierung, Vorbereitung auf die geänderte Arzt-Patientenbeziehung – der „ermächtigte“ Patient will nicht bevormundet werden

- Zukunftsfähige Gesundheitsberufsbildungssysteme setzen nicht in erster Linie auf die Ausbildung von hochspezialisierten ExpertInnen, sondern auf interdisziplinäre Teamarbeit, lebenslanges Lernen, Erweiterung der kommunikativen Kompetenzen und sorgsames Management im System.
- Arzt sein ist künftig keine „Kunst“, sondern eine professionelle Dienstleistung, die sich an Standards und Leitlinien zu orientieren hat. Transparenz wird unabdingbar sein
- Medizinisches Wissen ist künftig aus vielen Quellen beziehbar – es gibt seriöse und unseriöse Konkurrenz (Watson bis Dr. Google) Gesundheit ist in der modernen Gesellschaft nicht länger „Schicksal“, sondern ein Konsumprodukt. Auf Wettbewerb, Performancemessungen und internationale Konkurrenz muss vorbereitet werden.
- Die Ausbildung ist zu sehr auf nationale Bildungsstrukturen fixiert. Mehr internationale Kooperation ist gefordert.

Lecture, 2. 4. 2016, 9:30

## **Input aus der Praxis betreffend Skills & Diseases in der Veterinärmedizin**

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Im Zuge der Erstellung des neuen Studienplans für das Diplomstudium Veterinärmedizin wurde von den ExpertInnen an der Vetmeduni Vienna sämtlichen Tierkrankheiten, Zoonosen und Fertigkeiten aller Tiergruppen ein Level zugeordnet, das die AbsolventInnen am Ende des Studiums erreicht haben sollten. Level 1 entspricht „gehört zu haben“, Level 2 „gesehen haben“ und Level 3 bedeutet „selbständig durchführen können“. Um sicherzustellen, dass die AbsolventInnen optimal auf den Praxisalltag vorbereitet sind, wurde der erstellte Lehrzielkatalog in einem weiteren Optimierungsschritt auf die Anforderungen im Berufsleben zugeschnitten. Dazu wurde an der Vetmeduni Vienna eine anonyme Onlinebefragung von österreichischen TierärztInnen durchgeführt. Die TierärztInnen wurden gebeten, die im Lehrzielkatalog enthaltenen Tierkrankheiten/Zoonosen hinsichtlich des Vorkommens in der Praxis und der Lehrziel-Relevanz einzuschätzen. Außerdem wurden die Fertigkeiten hinsichtlich der Lehrziel-Relevanz eingeschätzt.

Zu Beginn des Onlinefragebogens wurden die TierärztInnen nach ihrer Tiergruppen-Spezialisierung gefragt (bis zu zwei Tiergruppen konnten gewählt werden), und bewerteten im weiteren Verlauf nur jene Krankheiten/Zoonosen, die für ihre gewählten Tiergruppen von Relevanz waren. Die Fertigkeiten wurden von allen TierärztInnen hingegen tierartenübergreifend bewertet.

Insgesamt folgten 447 TierärztInnen dem Link, davon wurde von 187 Teilnehmenden der Fragebogen komplett ausgefüllt. Von den 187 TierärztInnen schätzten jeweils 142 TierärztInnen die Tierkrankheiten/Zoonosen von jeweils einer Tiergruppe und 45 TierärztInnen die Tierkrankheiten/Zoonosen von zwei Tiergruppen ein. Ca. 80 % der teilnehmenden TierärztInnen wiesen bereits mehr als 10 Jahre Praxiserfahrung auf.

Mit dieser Befragung konnten verschiedene Fertigkeiten ausfindig gemacht werden, von denen 90 % der praktizierenden TierärztInnen meinten, dass es nicht nötig ist, dass die AbsolventInnen diese zuverlässig und selbständig durchführen können. Ebenso gaben mindestens 90 % der befragten TierärztInnen an, dass bestimmte Tierkrankheiten weniger als 10 Mal pro Jahr in deren Praxis vorkommen.

Diese Ergebnisse dienen nun zur weiteren Optimierung und Straffung des Lehrzielkatalogs, wobei besonders bei den Tierkrankheiten nun berücksichtigt werden muss, ob es sich bei den selten bis nicht auftretenden Krankheiten um anzeigepflichtige Tierseuchen handelt.

Round Table, 2. 4. 2016, 10:30

## **Round Table – Bilden wir berufsbezogen aus?**

### **Petra Winter**

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Der 2014 beschlossene und veröffentlichte Studienplan für das Diplomstudium Veterinärmedizin an der Vetmeduni Vienna berücksichtigt die beruflichen Anforderungen der AbsolventInnen.

Die definierten Lernziele und Lernergebnisse, das sogenannte Qualifikationsprofil sind auf veterinärmedizinische und gesellschaftliche Anforderungen ausgerichtet. Aufgrund des ständigen Wissenszuwachses beinhaltet das Qualifikationsprofil neben dem spezifisch veterinärmedizinischen Wissen und dazugehöriger Fertigkeiten, auch generelle Kompetenzen wie Wissensmanagement, wissenschaftliche Fähigkeiten, problemorientiertes Denken, lebenslanges Lernen sowie Kommunikation.

Die Lehrinhalte orientieren sich an den Anforderungen im täglichen Berufsleben und sind relevant für die zukünftige Tätigkeit. Daraus ergeben sich breite, interdisziplinär gestaltete Lehrinhalte für das veterinärmedizinische Fachwissen, die eine Zusammenführung einzelner Disziplinen zu Lehrmodulen erfordern. Dafür werden erfahrungsorientierte Elemente in der Lehre eingesetzt. Das sind Lehrmethoden, die es den Studierenden ermöglichen, Wissen innerhalb einer realitätsnahen, unmittelbaren und relevanten Lernumgebung zu gewinnen und anzuwenden. So garantieren neue Lehrveranstaltungen wie „Klinische Demonstrationen“ frühe realitätsnahe klinische Erfahrungen: Ab dem dritten bis zum achten Semester werden hier wöchentlich klinische Fälle vorgestellt und diskutiert, wodurch entdeckendes und forschendes Lernen und problemorientiertes Lernen gefördert werden sollen. Diese frühe Verknüpfung mit klinischen Lehrveranstaltungen und Lehrinhalten durch die Verbindung der Vorklinik mit der Klinik ermöglicht einen frühen Bezug zur Klinik und zum eigentlichen Berufsziel.

Zusätzlich erfordern die ständigen neuen Erkenntnisse und die Technologieentwicklung die Fähigkeit, sich flexibel und eigenständig neues Wissen anzueignen, dieses zu bewerten und anzuwenden. Dazu muss akademisches Training Bestandteil des Curriculums sein, das neben der Einführung der Studierenden in die wissenschaftliche Gemeinschaft den Zugang zu wissenschaftlicher Literatur und die Vermittlung von Forschungserfahrung beinhalten soll.

Das höchste Ziel der veterinärmedizinischen Ausbildung ist aber die Vorbereitung der AbsolventInnen auf den täglichen, dynamischen Berufsalltag und auf die Anforderungen des Arbeitsmarktes. Gut ausgebildete nicht-veterinärmedizinische Fähigkeiten wie Kommunikation, Betriebswirtschaft, Führungskompetenzen, Organisation und Zeitmanagement sind ebenso Teil eines erfolgreichen Berufsleben wie spezifisch veterinärmedizinische Kompetenzen. Für die Ausbildung dieser nicht-veterinärmedizinischen Kompetenzen wurden eigene Lehrmodule geschaffen, welche ebenfalls unter der Methode des Student Centered Learning Einzug in das Curriculum fanden.

## **Sigrid Pilz**

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- Die Ausbildung stärker an den Anforderungen der Praxis orientieren.
- Rollenbilder hinterfragen – die Hierarchie im Gesundheitswesen entspricht einem veralteten Verständnis von Medizin
- Teamorientierung und Interdisziplinarität durch gemeinsame Ausbildungsbausteine mit anderen Gesundheitsberufen einüben
- Die veränderte Rolle der PatientInnen in der Ausbildung berücksichtigen (Einbeziehung in die Behandlungsentscheidung; Wahrnehmung der Eigenverantwortung; der chronisch kranke als Experte in eigener Sache; Stärkung des Systemwissens zur Nutzung des Gesundheitswesens u.a.)
- Kommunikative Kompetenzen ausbilden; insbesondere hinsichtlich der Aufklärung der Patienten über Risiken einer Behandlung
- Vorbereitung auf die spezifischen Anforderungen in der Behandlung vulnerabler Patientengruppen
- Gesundheitsstatistik und Risikokommunikation verstehen lernen! Auch FachärztInnen haben Probleme Risikostatistiken richtig zu interpretieren! (Beispiel: Nutzen der Mammographie, PSA Test)

## Anita Rieder

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Weltweit werden 100 Milliarden Dollar jährlich in die Ausbildung investiert. Dieses entspricht nur etwa 2% der Gesundheitskosten für eine sehr „labour-intensive“ und „talent-driven industry“. Die steigenden Kosten für Medical Education sind weltweit in allen Ländern ein herausforderndes Thema [1]. Seit dem 1900 haben sich in verschiedenen Reformschritten die Ausbildungen von „science-based“ zu „problem-based“ zu „systems-based“ gewandelt [1], der derzeitige Schritt der im Bereich Medical Education gesetzt wird geht in Richtung „workplace-based“ (workplace curriculum development) [2].

Um den Gesamtanforderungsprofil gerecht zu werden und sich den Gesamtanforderungen weiter zu nähern setzt das Humanmedizin-Curriculum der MedUni Wien in seinem Qualifikationsprofil auf Wissen und Verständnis, Klinischen Fähigkeiten und Fertigkeiten, Kommunikativen Kompetenzen, Ärztlicher Haltung, Berufsrelevanten Kompetenzen, wie wissenschaftlichen Kompetenzen, Sozialen und organisatorischen Kompetenzen und Bildungskompetenz [3]. Diesem wird in einem integrierten Curriculum inkludierend ein 5. Studienjahr mit klinischen Praktika und Kleingruppenseminaren und einem 6. Studienjahr als klinisch-praktisches Jahr (48 Wochen) Rechnung getragen, insgesamt bestrebt mit den CanMeds-Rollen zu hinterlegen[4].

Wir haben verschiedenen Anforderungen zu entsprechen, jedoch ein gemeinsames gesundheits- und gesellschaftspolitisches Ziel zu erreichen: die Gesundheitsversorgung zu gewährleisten und einen optimalen Outcome für die Patientinnen und Patienten und für die Bevölkerung durch entsprechende Qualitätsstandards in Ausbildung, Weiterbildung und Forschung.

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## Weiter Teilnehmer des Round Table:

- |                    |  |
|--------------------|--|
| Isabella Stainitz, | Student, Medical University Vienna, Vienna, Austria    |
| Max Winkler,       | Student, Veterinary University Vienna, Vienna, Austria |
| Kassandra Eibel,   | Student, Veterinary University Vienna, Vienna, Austria |





## 5 Posters

Posterparty: Donnerstag, 31. 3. 2016, 18:00

Die Poster können Donnerstag zwischen 09:00 und 12:45 Uhr aufgehängt werden und müssen bis Freitag 14:30 Uhr entfernt sein!

Posterparty: Thursday, 31. 3. 2016, 18:00

Please mount your posters on Thursday between 09:00 and 12:45 and remove them at the latest by Friday 14:30!

Poster 1	<b>Duijn et. al.:</b> Students' perceptions of meaningful feedback on task-related expertise development in the clinical workplace	p. 37
Poster 2	<b>Enko, Kriegshäuser:</b> Innovative blended learning strategies in medical science education	p. 39
Poster 3	<b>Hohenberger et. al.:</b> Extension of the traumatology curriculum for dental students	p. 43
Poster 4	<b>Kapocsi et. al.:</b> Students' Motivation to Study Medicine of German and Hungarian Students at the Medical Faculty of the University Szeged	p. 45
Poster 5	<b>Kargl et. al.:</b> Too many errors in the initial interpretation of pediatric skeletal radiographs - development of a tailored training program	p. 47
Poster 6	<b>Kleinsorgen, Schaper:</b> The Competence Centre for E-Learning, Didactics and Educational Research in Veterinary Medicine (KELDAT)	p. 51
Poster 7	<b>Linke et. al.:</b> Interdisciplinary Case Conferences compact Podcast by Students for Students.	p. 55
Poster 8	<b>Luk et. al.:</b> PROPAIDEUTIKÓS - a board game that helps medical students gain theoretical background for practical skills learning	p. 57
Poster 9	<b>Mandoki et. al.:</b> Entrustable professional activities in competency-based veterinary education	p. 59
Poster 10	<b>Marković et. al.:</b> Retention Rate of Basic Abdominal Ultrasound Examination Skills by Clinical Peer Tutors	p. 63
Poster 11	<b>Paechter et. al.:</b> Integration of lecture podcasts, learning materials and lecture attendance in university students	p. 65
Poster 12	<b>Pavič:</b> A bottom up approach of identifying problematic curriculum topics	p. 69
Poster 13	<b>Petrovič, Sobočan:</b> Students and educators view on e-learning and e-learning platforms	p. 71

Posterparty: Donnerstag, 31. 3. 2016, 18:00

Posterparty: Thursday, 31. 3. 2016, 18:00

- |           |   |       |
|-----------|---|-------|
| Poster 14 | <b>Preusche et. al.:</b> Checking personal competencies in veterinary students: contrasting self-evaluations of students' competencies to theoretically defined ideal competence levels | p. 75 |
| Poster 15 | <b>Schieder et. al.:</b> Self-Experience as didactic tool in teaching equine lameness evaluation  | p. 77 |
| Poster 16 | <b>Sobočan, Zalika:</b> Foreign language virtual patient repositories are a well accepted teaching tool for undergraduate medical education   | p. 81 |
| Poster 17 | <b>Turk et. al.:</b> Problem based learning with virtual patients improves the Diagnostic Thinking Ability: Students Memory Structure   | p. 83 |
| Poster 18 | <b>Wöhlke et. al.:</b> Lecture recording with Opencast in veterinary education  | p. 85 |

**Poster-Prize:**

- |               |           |
|---------------|-----------|
| First Prize:  | Poster #9 |
| Second Prize: | Poster #7 |
| Third Prize:  | Poster #8 |



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Veterinary Education

## Students' perceptions of meaningful feedback on task-related expertise development in the clinical workplace

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### Background

Receiving meaningful feedback is a frequently voiced desire of students in health care rotations. Providing high-quality feedback in the clinical workplace is difficult for supervisors.

Aim: Obtain insight in what students perceive as meaningful feedback in performance situations in the clinical workplace.

### Methods

An explorative qualitative multi-centered study:

Three focus groups with undergraduate students, in the clinical phase

- Faculty of Veterinary Medicine, Utrecht, The Netherlands (FVMU)

- Szent Istvan University, Budapest, Hungary (SIU)

- University Medical Center, Utrecht, The Netherlands (UMCU)

Two guiding questions were used:

1. *How should meaningful feedback on your professional development, in the clinical workplace look like?*

and

2. *Which information sources should or could provide this feedback?*

### Analysis

To cluster the participants' comments five key categories or patterns of feedback seeking, as described by Ashford were used (see Table 1).

### Take home message

This study points out that how performance-relevant information is preferred by students in assessment situations depends on contextual differences in the learning environment.

### Results

Meaningful feedback is...	FVMU	SIU	UMCU
<b>Source</b>			
• feedback from a self-reflective feedback provider	X		
• feedback from a person with sufficient task-related expertise	X	X	X
• feedback from a credible person	X	X	X
• feedback from someone with longitudinal insight in students' development (follow up)	X	X	X
• feedback from a trustworthy person	X		X
<b>Method</b>			
• personal feedback instead of feedback to a group	X	X	
• feedback provision in a safe learning environment	X	X	X
• feedback in a one-to-one situation	X		
• verbally provided feedback directly documented by the feedback provider			X
• feedback in dialog with argumentation	X	X	X
• feedback aimed at both positive and negative aspects	X	X	X
<b>Topic</b>			
• feedback with clear instructions to improve skills/ knowledge	X	X	X
• feedback (from a supervisor) about student's ability to act unsupervised	X	X	X
• feedback also focused on more generic skills, such as communication and collaboration	X		X
• constructive feedback focused on improvement (follow up), aimed for the next time	X	X	X
• feedback specific and concretely formulated for the task	X	X	X
• feedback not derived from students' self-reflection on the task	X	X	X
<b>Timing</b>			
• feedback directly provided	X	X	X
• feedback based on direct observation		X	X
• feedback based on sufficient observation	X		X
• occasionally the provision of unsolicited feedback	X		
<b>Frequency</b>			
• feedback on multiple occasions from the same supervisor (follow up)	X		X

Table 1: Meaningful feedback as perceived by the participants clustered into the five key aspects or patterns of feedback seeking behaviour

### Conclusion

Feedback is considered as an important factor enhancing students' motivation. According to our study in the different, medical and veterinary education, and the different institutes the perceptions of the students on 'what is meaningful feedback and where does it comes from' is quite similar.

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WATCHME



Poster 1

**Students' perceptions of meaningful feedback on task-related expertise development in the clinical workplace**

Chantal C.M.A. Duijn<sup>1</sup>, Lisanne.S. Welink<sup>2</sup>, Herold.J.G. Bok<sup>1</sup>, Olle. ten Cate<sup>2</sup>,  
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**Background** Receiving adequate feedback while in the clinical workplace is probably the most frequently voiced desire of students in undergraduate health care rotations. Especially in competency-based education, students require high-quality performance-relevant information. In learning environments such as the clinical workplace, this is often difficult for supervisors. To illuminate what high-quality feedback is for students in performance situations, we aimed to obtain in-depth insight in students' desires of high-quality performance-relevant feedback information in the clinical workplace.

**Methods** In a qualitative multi-centered study we aimed to identify what high-quality feedback is for students in performance situations at the clinical workplace. Focus groups were conducted among medical and veterinary students of Utrecht University (the Netherlands) and veterinary students at Szent Istvan University (Hungary). The data were analyzed using a qualitative technique

**Results** A list of 22 items resulted from open and axial coding of data from three focus groups and a total of 32 participating student with experience of clinical education, grouped in five categories as proposed by Ashford et al. Students across groups considered feedback from clinician supervisors, peers, nurses, patients, family of the patient, paramedics or the patient owners all useful. Most desirable modes of feedback identified were being from a credible, trustworthy supervisor knowing the student well, delivered in a safe environment stressing both strengths and points for improvement. The feedback should be provided immediately upon the observed activity, refer to the ability to act unsupervised, include instructions and anticipate follow-up observation.

**Discussion** We were struck by the similarity of feedback wishes across institutions, disciplines and countries, but cannot exclude that more disparity exist in yet different contexts. Two of the institutions are currently designing EPA-based workplace curricula. A follow-up study in curricula with EPAs and entrustment decisions in place may reveal yet other student views

## Innovative blended learning strategies in medical science education

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- **Introduction:** The concept of blended learning (BL) has become an emerging paradigm as a method for students training in medical science. In the last years the definition of BL as a simple blend of e-learning courses and classroom training has changed to more complex strategies and programs, which incorporate a wide variety of learning activities. BL strategies vary according to the medical sub-discipline.
- **Blended learning strategies and methods:** Using fully designed virtual patients as preparation for skills laboratory training is one example of an innovative blended learning approach. The clinical case examples focus on laboratory procedures using interactive images, questions, and video clips (1). Another example of an innovative BL program is the implementation of a standardised bedside ultrasound (BUS) curriculum for medical students. The teaching focuses on four cognitive and psychomotor learning domains: image interpretation, image acquisition, BUS instrumentation knowledge, and procedural guidance (2). Another strategy to improve the academic performance and student satisfaction in the basic surgery clerkship is the incorporation of blended online curricula (BOCs). Thereby a rotation model is established, in which students rotate through the combined online and in-person curricula components and which is determined by the tutor (3). The implementation of an interactive blended system to teach geriatric medicine in medical schools is another example of teaching concepts in medical education. On the one side the suggested strategy consists of interactive learning, on the other side it allows more exposure to patients, frequent interaction with a multidisciplinary team, and it provides regular feedback (4).
- **Discussion:** The overall acceptance of BL strategies and programs is high among students and tutors (1). In several studies, the implementation of interactive BL curricula were shown to improve the cognitive and basic clinical skills of medical students (1, 2, 3). Moreover, it may be a beneficial approach to motivate the medical students' interest in particular medical sub-specialities (i.e. geriatric medicine) (4). The BL programs in medical science education offers valuable tools, which may supplement or replace traditional lecture-and-text-book-based teaching and learning strategies. They provide students learning contents in a way that they can then translate to novel situations in their academic clinical careers, which is the hallmark of effective learning (5).
- **Conclusions:** BL has the potential to improve medical science education. Medical schools may consider routinely incorporating BL teaching programs into their clinical rotation curricula in order to promote effective learning and the motivation of medical students in particular sub-specialities.

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## Poster 2

### **Innovative blended learning strategies in medical science education**

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**Introduction:** The concept of blended learning (BL) has become an emerging paradigm as a method for students training in medical science. In the last years the definition of BL as a simple blend of e-learning courses and classroom training has changed to more complex strategies and programs, which incorporate a wide variety of learning activities. BL strategies vary according to the medical sub-discipline.

**Blended learning strategies and methods:** Using fully designed virtual patients as preparation for skills laboratory training is one example of an innovative blended learning approach. The clinical case examples focus on laboratory procedures using interactive images, questions, and video clips [1]. Another example of an innovative BL program is the implementation of a standardised bedside ultrasound (BUS) curriculum for medical students. The teaching focuses on four cognitive and psychomotor learning domains: image interpretation, image acquisition, BUS instrumentation knowledge, and procedural guidance [2]. Another strategy to improve the academic performance and the student satisfaction in the basic surgery clerkship is the incorporation of blended online curricula (BOCs). Thereby a rotation model is established, in which students rotate through the combined online and in-person curricula components and which is determined by the tutor [3]. The implementation of an interactive blended system to teach geriatric medicine in medical schools is another example of teaching concepts in medical education. On the one side the suggested strategy consists of interactive learning, on the other side it allows more exposure to patients, frequent interaction with a multidisciplinary team, and it provides regular feedback [4].

**Discussion:** The overall acceptance of BL strategies and programs is high among students and tutors [1]. In several studies, the implementation of interactive BL curricula improved the cognitive and basic clinical skills of medical students [1, 2, 3]. Moreover, it may be a beneficial approach to motivate the medical students' interest in particular medical sub-specialities (i.e. geriatric medicine) [4]. The BL programs in medical science education offers valuable tools, which may supplement or replace traditional lecture-and-text-book-based teaching and learning strategies. They provide students learning contents in a way that they can then translate to novel situations in their academic clinical careers, which is the hallmark of effective learning [5].


**Conclusions:** BL has the potential to improve medical science education. Medical schools may consider routinely incorporating BL teaching programs into their clinical rotation curricula in order to promote effective learning and the motivation of medical students in particular sub-specialities.

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Landeskrankenhaus -  
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Medical University of Graz

## Extension of the traumatology curriculum for dental students

Gloria Hohenberger<sup>1</sup>, Renate Krassnig<sup>1</sup>, Paul Puchwein<sup>1</sup>, Simone Manhal<sup>2</sup>, Franz Josef Seibert<sup>1</sup>

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### Introduction

All dental students at the Medical University of Graz have to successfully complete the module "Z19 – musculoskeletal system" in the course of their basic education. Therefore, the curriculum includes the basic principles of traumatology, diseases and congenital malformations of the locomotor system. Up to now, the module did not include information about injuries to the maxilla, mandible and the teeth. The aim of our study was to investigate, whether the students would appreciate additional facts on these topics.

### Methods

During the winter semester 2015, the lectures "basic and specific traumatology" were supplemented with the following issues: fractures of the midface and the mandible, luxation of the temporomandibular joint and fractures and dislocations of the teeth. The symptomatology, diagnostics and conservative/operative therapy of these subitems were illustrated. After the lecture, the 13 participating students completed an evaluation.

### Results

Seven commentaries involved the supplemented topic.

14% stated that the specific part should be maintained

29% wished it had been more particular

86% found it interesting/good

### Discussion

Students' evaluation of the extended lecture revealed positive results.

### Conclusion

The specific part about traumatology of the midface, mandible, the temporomandibular joint and the teeth will be maintained and eventually expanded with case reports.

## Poster 3

### Extension of the traumatology curriculum for dental students

Gloria Hohenberger<sup>1</sup>, Renate Krassnig<sup>1</sup>, Paul Puchwein<sup>1</sup>, Simone Manhal<sup>2</sup>, Franz Josef Seibert<sup>1</sup>

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**Students' Motivation to Study Medicine of German and Hungarian Students at the Medical Faculty of the University Szeged**

Erzsébet Kapocsi, Gergely Tari, Virág Sárközy; Annabella Obál; Katalin Barabás, Oguz Kelemen  
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**Introduction:**

The attractiveness of the medical profession in our days seems to be decreasing. An erosion of medical professionalism as well as the changing image of the medical profession in the society require an examination: how a new generation of physicians understand medicine as profession and further what types of motives drive students to start the medical school. The factors that influence medical students' career choice are complex and diverse. Values, altruistic motives, career plans and subjective life visions of work and family play an important role in decision making.

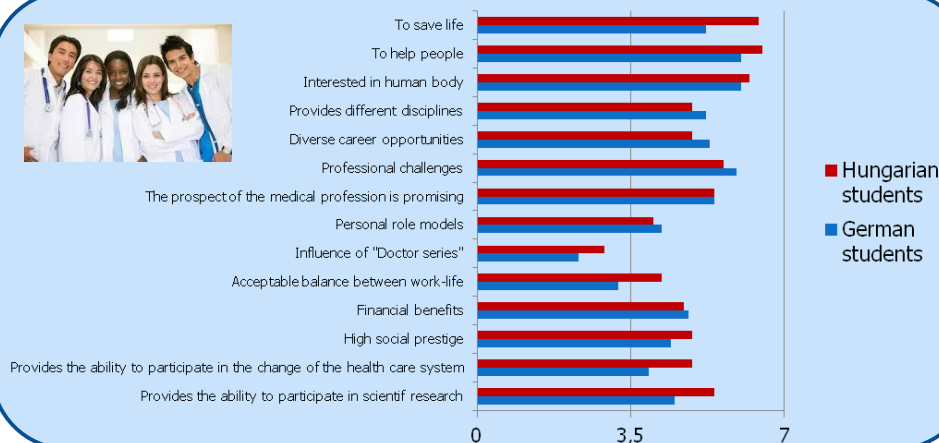
**Background and Objectives:**

Hungarian medical students in their first semester, German medical students in their second semester were asked about their motivations and preferences for choosing medical profession. The aim of this study was to investigate simultaneously the views of students of the Hungarian and of the German course and explore similarities or differences in career choice.

**Methods**

In the academic years 2013/14, 2014/15 and 2015/16 German and Hungarian students completed a self-administered written questionnaire anonymously. Various subjects were submitted for selection and every statement could be rated on a 7-point scale (1 = not important; 7 = important). The data were analyzed statistically.

German course: n = 257; Average age: 21 years; 124 women (48%), 112 men (44%), not specified: 21 (% 8)  
 Hungarian course: n = 178; Average age: 19 years; 107 women (60%), 69 men (39%), not specified: 2 (1%).


**Results and conclusions**

Responses showed, that the altruistic motive (helping others, saving life) as well as the interest in the human body were the most important reasons for studying medicine. For the majority of the students also the career prospects (professional challenges, diverse career opportunities) are important. Good earning potential, high social status, good work-life balance are emphatic, but not decisive. Personal role models and influence of Doctor series play a subordinate role. For the Hungarian students the abilities such as „to participate in change in the health care” as well as „to search for new therapeutic options” are more important than for the German students.

**References**

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Poster 4

**Students' Motivation to Study Medicine of German and Hungarian Students at the Medical Faculty of the University Szeged**

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## Too many errors in the initial interpretation of pediatric skeletal radiographs

### - development of a tailored training program

Simon Kargl<sup>1</sup>, Sebastian Luczynski<sup>1</sup>, Thomas Moritz<sup>2</sup>, Wolfgang Pumberger<sup>1</sup>

1. Department of Pediatric Surgery, Kepler University Hospital Linz  
2. Department of Pediatric Radiology, Kepler University Hospital Linz

#### Introduction

Diagnostic errors in interpretation of skeletal radiography may create unnecessary morbidity, patient uncertainty and costs. In the pediatric emergency department trauma radiographs are often primarily interpreted by physicians in training not by experienced radiologists resulting in higher error rates [1,2].

We present our strategy to reduce the number of diagnostic errors in the initial interpretation of pediatric skeletal radiography in the emergency department.

#### Methods

From October 2014 to June 2015 data of all trauma patients with initially misdiagnosed skeletal radiographs was prospectively collected in a large pediatric referral hospital. We documented site of injury, initial diagnosis and corrected diagnosis as well as clinical significance and therapeutic consequences of diagnostic errors.

Based on these findings we developed a tailored training program.

#### Results

In 125 of 2316 trauma patients aged from one to seventeen years skeletal radiographs were misdiagnosed. In 112 cases junior doctors, in 7 cases residents and in 6 cases pediatric surgery consultants had diagnostic errors that were corrected the next day. 62 patients were diagnosed false negative (missed fracture) and 63 false positive (overdiagnosis). The error rates of specific anatomic regions are listed in table 1. The most frequently missed fracture was supracondylar elbow fracture (n=12). No morbidity resulted from delay of correct diagnosis. After definition and analysis of diagnostic errors we developed an image-oriented learning-tool. An Internet based research revealed that existing tools only partly covered our problematic issues.

Our target group consists of junior doctors staying for three to six month at our department of pediatric surgery. The intended outcome is a reduction of diagnostic errors in initial interpretation of pediatric skeletal radiography.

We chose a case based, image-oriented, quiz-type module. According to the results of our study we focused on elbow, wrist and finger radiographs. 80 pediatric skeletal radiographies from our study were selected for the module. Of those 12 x-rays presented normal findings. The radiography plus a short medical history is presented and the correct diagnosis has to be entered. For competition purposes we added a high score documenting the number of correct diagnosed radiographies. Besides training of correct radiography interpretation we addressed the following issues with multiple-choice questions: What kind of radiography is needed? What findings do I suspect? What if the imaging is normal?

After an introducing lecture on pediatric traumatology, junior doctors are given access to the learning tool and encouraged to use it regularly.

To evaluate the success of our efforts, we plan to repeat our study from October 2016 to June 2017.

#### Error rate

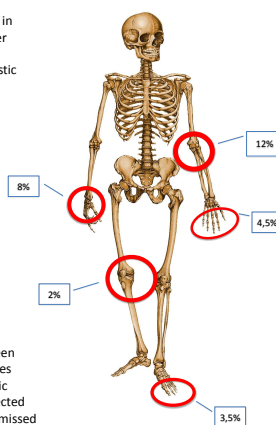


Table 1 Error rate in selected regions

	Total cases of radiographs	Misdiagnosis	Error rate
Elbow	166	20	12%
Wrists	302	25	8%
Fingers	762	35	4,5%
Metacarpus	142	6	4,2%
Toes	228	8	3,5%
Knee	196	4	2,0%
Midfoot	316	6	1,9%
Ankles	328	6	1,8%
Skull	1888	4	0,2%

#### Conclusion

Precise problem analysis allows development of a tailored learning program. A quiz-type learning tool seems to be ideally suited to practice correct interpretation of skeletal radiography.

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- Klein EJ, Koenig M, Diekema DS, Winters W. Discordant radiograph interpretation between emergency physicians and radiologists in a pediatric emergency department. Pediatr Emerg Care. 1999;15(4):245-8.

Poster 5

# **Too many errors in the initial interpretation of pediatric skeletal radiographs - development of a tailored training program**

Simon Kargl<sup>1</sup>, Sebastian Luczynski<sup>1</sup>, Thomas Moritz<sup>2</sup>, Wolfgang Pumberger<sup>1</sup>

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Table 1: Error rate in selected regions from October 2014 to June 2015

After definition and analysis of diagnostic errors we developed an image-oriented learning-tool. An Internet based research revealed that existing tools only partly covered our problematic issues. Our target group consists of junior doctors staying for three to six month at our department of pediatric surgery. The intended outcome is a

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We chose a case based, image-oriented, quiz-type module. According to the results of our study we focused on elbow, wrist and finger radiographs. 80 pediatric skeletal radiographies from our study were selected for the module. Of those 12 x-rays presented normal findings. The radiography plus a short medical history is presented and the correct diagnosis has to be entered. For competition purposes we added a high score documenting the number of correct diagnosed radiographies. Besides training of correct radiography interpretation we addressed the following issues with multiple-choice questions: What kind of radiography is needed? What findings do I suspect? What if the imaging is normal?

After an introducing lecture on pediatric traumatology, junior doctors are given access to the learning tool and encouraged to use it regularly.

To evaluate the success of our efforts, we plan to repeat our study from October 2016 to June 2017.

**Conclusion:** Precise problem analysis allows development of a tailored learning program. A quiz-type learning tool seems to be ideally suited to practice correct interpretation of skeletal radiography.

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## The Competence Centre for E-Learning, Didactics and Educational Research in Veterinary Medicine (KELDAT)

Christin Kleinsorgen<sup>1</sup>, Elisabeth Schaper<sup>1</sup>

<sup>1</sup> Competence Centre for E-Learning, Didactics and Educational Research in Veterinary Medicine  
University of Veterinary Medicine Hannover, Foundation, Germany

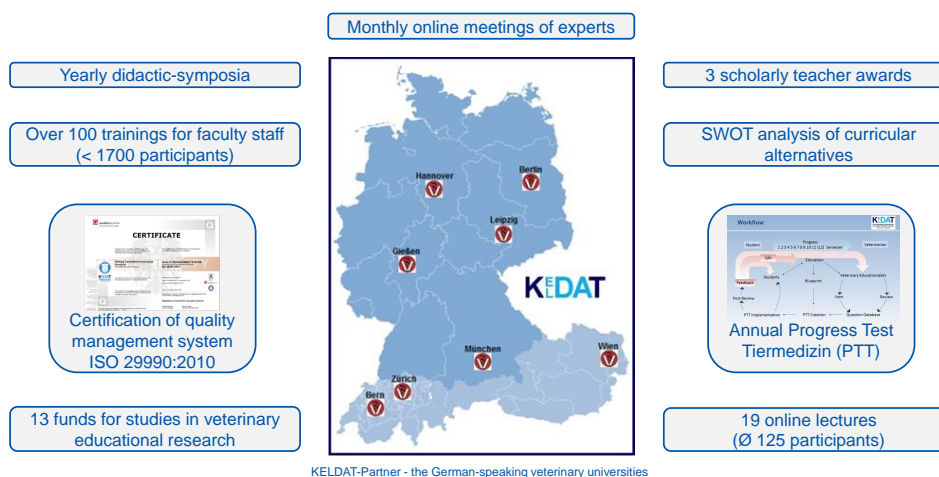


### The Competence Centre for E-Learning, Didactics and Educational Research in Veterinary Medicine (KELDAT) aims to improve the quality of veterinary education.

In 2012 the Competence Centre was established. KELDAT pursues the following objectives:

- Investigating and evaluating the status quo of the various forms and alternatives of studies and curriculum design in veterinary education.
- Accelerating the development of veterinary didactics through educational research.
- Offering didactic consultancy and trainings for lecturers at the participating universities based on the results of educational research.
- Establishing cooperation in the field of teaching and quality management, especially e-learning.

Particularly the pooling of resources and expertise of the participating institutions provides needed requirements to meet these objectives.



The established network offers the possibility to share and improve the veterinary education jointly and provides feedback and support for involved faculties.

The beneficial experiences of the collaboration in the Competence Centre and the continuation of this cooperation will promote future projects, which aim to improve the quality of teaching and learning in veterinary medicine.

#### Acknowledgement

The Competence Centre for E-Learning, Didactics and Educational Research in Veterinary Medicine (KELDAT) was established in 2012 and is funded by the Foundation Volkswagen and Mercator. KELDAT is a co-operation of all German speaking institutions for veterinary education in Germany, Austria and Switzerland.



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Universität Zürich

u<sup>b</sup>  
UNIVERSITÄT  
BREMEN

Poster 6

## The Competence Centre for E-Learning, Didactics and Educational Research in Veterinary Medicine (KELDAT)

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### Introduction

The Competence Centre for E-Learning, Didactics and Educational Research in Veterinary Medicine (KELDAT), funded by the Foundations Volkswagen and Mercator as part of the funding initiative “Bologna - The Future of Teaching”, is a joint project of all the German-speaking veterinary educational institutions, who agreed to use possible synergies in order to achieve a comprehensive and sustainable quality improvement of teaching in veterinary education and training.

**Methods** Since the foundation in October 2012 KELDAT pursues the following objectives: - Investigating and evaluating the status quo of the various forms and alternatives of studies and curriculum design in veterinary education. - Accelerating the development of veterinary didactics through educational research. - Offering didactic consultancy and trainings for lecturers at the participating universities based on the results of educational research. - Establishing cooperation in the field of teaching and quality management, especially e-learning. Particularly the pooling of resources and expertise of the participating institutions provides needed requirements to meet these objectives.

**Results** Continuous exchange of information and experiences is held via monthly online meetings of experts involved from all veterinary universities. 13 scientific studies in veterinary educational research were promoted, 3 prizes for educational research were procured and 3 didactic symposia were organized. A SWOT-analysis of curricular alternatives was conducted. A yearly progress test in veterinary medicine (PTT: Progress Test Tiermedizin) was implemented. The process of creation, assessment and analysis of the PTT was managed using the administration platform Q[kju:]-online as common question-database in cooperation with the Institute for Quality Management in Teaching and Training IQuL GmbH. More than 100 trainings for faculty staff with approximately 1700 participants were performed. 19 online lectures in Adobe Connect about extraordinary veterinary topics were held, of which 17 lectures were

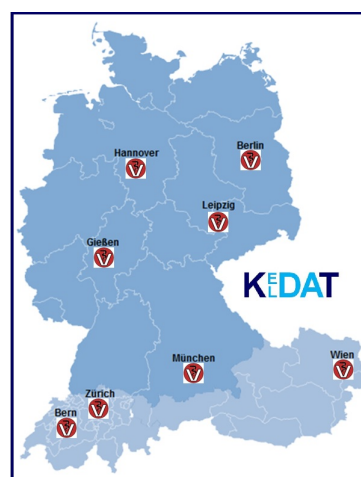


Figure 1: Partners of KELDAT  
- the German-speaking veterinary universities

recorded and made available online. The quality management system was successfully certified complying with the requirements of standard ISO 29990:2010.

**Conclusion** Even though there are only 7 German-speaking veterinary faculties, the ways of working and teaching differ greatly. The established network offers the possibility to share and improve the veterinary education jointly and provides feedback and support for involved faculties. The Competence Centre for E-Learning, Didactics and Educational Research in veterinary medicine leads by example and cooperation remains even after the funding period. The participating universities have signed a concept for sustainability in order to ensure the continued existence of KELDAT. The beneficial experiences of the collaboration in the Competence Centre and the continuation of this cooperation will promote future projects, which aim to improve the quality of teaching and learning in veterinary medicine.

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# Interdisciplinary Case Conferences *compact*

## Podcast by Students for Students

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<sup>1</sup> Department of Radiology, Medical University of Vienna  
<sup>2</sup> Department for Medical Education, Medical University of Vienna



### Objectives

Consolidation of knowledge acquired in the course "Interdisciplinary Case Conferences" in form of a podcast produced by students. The clinical subjects are chosen based on a blueprint (Table 1).

This pilot project of podcasting as an e-learning format started in February 2016.

### Innovation

- Quick access & easy to use
- Availability on mobile devices
- Modern use of electronic media
- Summarized repetition of a practice-oriented case

### Personal Benefits

#### in a nutshell

Each episode contains a clinical case report, an overview of clinical symptoms, diagnostics and therapy, and does not exceed the maximum length of 15 minutes.

#### on the go

Podcasts can be listened to virtually anywhere—at home, on the go, while being physically active. This helps to move knowledge acquisition from a stationary activity to one which can take place even while freely active or in motion.

#### interactive

Since only listening to an audio recording can be seen as a passive action, follow-up quizzes are accessible for every student to consolidate the newly acquired knowledge.

### Work Process and Quality Management

1. Students attending the lecture suggest valuable topics for the creation of a podcast episode. Check, whether the topic fits on the didactic blueprint
2. Podcast tutors compile a manuscript
3. Manuscript is sent to University for first check
4. Recording and editing of audio production
5. The production is sent to the original lecturer for review
6. Re-editing with respect to comments of original lecturer
7. Final version sent to Medical University. Request for release approval
8. Publication on podcast web site

### Acknowledgements

First of all, we would like to express our gratitude toward our colleagues for their collaboration and encouraging feedback. We are also highly grateful for the support we received from the Guido Holzkecht Society. Nevertheless, we thank the numerous members of the Podcast Community on sendegate.de for detailed help.

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The authors report no conflict of interest.

Presented at Graz Conference 2016

### Blueprint

Clinical Discipline	Clinic & Communication	(operative) Diagnostics	Therapy & Prevention	Reflexion, Professionalism & Patient safety
Internal Medicine				General Practice
Surgery			Polytrauma	
Emergency				
Paediatrics		Bronchiectasis		
Gynaecology		Polyhydramnios		
Dermatology				
Neurology				
Psychiatry				
Ear-Nose-Throat				
Ophthalmology				

Table 1: Didactic Blueprint

### Numbers

Survey for the course "Interdisciplinary Case Conferences". (Preliminary results.)  
n = 47 (7.28% of 646 students) (21 female, 26 male)

I find the podcast reasonable to consolidate the learning objectives taught in the lecture...

yes 32 (71.11%)  
no 13 (28.89%)

While on the go (or during physical exercise), I listen to spoken word (audio-books / podcasts / radio documentaries)...

yes 16 (34.78%)  
no 30 (65.22%)

#### Episode specific data

	#1 General Practice	#2 Bronchiectasis
Downloads	388	408
Submissions to follow-up quiz	37 (5.73% of 646 students)	59 (9.13% of 646 students)

Table 2: Downloads of podcast episodes within the first 4 weeks after publishing

### Roadmap

- Implementation of achievements on moodle after completing quizzes (LVL1: novice ... LVL9: expert)
- Quick feedback per episode (Topic informative? Episode well edited?)
- Further evaluation of usage statistics and quiz results

### Take Home

Positive reception by students and lecturer

#### Benefits for tutors

- peer teaching
- intensive involvement in a variety of clinical subjects
- acquisition of numerous didactic as well as technical skills

Poster 7

**Interdisciplinary Case Conferences compact Podcast by Students for Students.**

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**Introduction:** In order to keep students motivated, the use of digital media seems unavoidable. Audio podcasts have proven to be an adequate e-learning format. Merging recordings from lectures with radio-documentary-like features, allows for a well-structured program and continuous quality. Podcasts can be listened to virtually anywhere — at home, on the go, while being physically active. This helps to move knowledge acquisition from a stationary activity to one which can take place even while freely active or in motion.

Since in February 2016, podcast episodes based on the course “Interdisciplinary Case Conferences” are being produced as an extension of the course. Each episode contains a clinical case report, an overview of clinical symptoms, diagnostic and therapy, and does not exceed the maximum length of 15 minutes.

Since only listening to an audio recording can be seen as a passive action, follow-up quizzes are accessible for every student to consolidate the newly acquired knowledge.

**Method:** Students attending the lecture suggest valuable topics for the creation of a podcast episode. As all lectures of the course “Interdisciplinary Case Conferences” are recorded, accessing lecture material for further production is easy. The podcast team first checks whether the topic fits on the didactic blueprint and then compiles a manuscript. The manuscript is sent to the original lecture speaker for review. After that, the podcast team records, edits and publishes the episode.

**Results:** Within the first four weeks after publication, every episode has been downloaded about 400 times and about 100 students took the follow-up quiz. A survey for evaluation of the course “Interdisciplinary Case Conferences” revealed: About 70% of the students reported to see podcasts as “reasonable to consolidate the learning objectives taught in the lecture”; About 35% of the students listen to spoken word while being physically active or on the go. (Survey not yet closed. Preliminary results.)



# PROPAIDEUTIKÓS

The board game that helps medical  
students gain theoretical background  
for practical skills learning



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## INTRODUCTION

For the last five years, a peer-teaching based subject Selected topics and Novelties in Propaedeutics has been offered to year-3 medical students at Faculty of Medicine, University of Maribor. During this subject, different practical skills (PS) are taught: venipuncture, blood pressure measurement, rectal examination, intramuscular and subcutaneous injection, arterial puncture, intravenous cannulation and urinary catheterization. Beside the performance of PS, the students have to possess some theoretical knowledge about these skills. In order to improve their knowledge in an entertaining way, we developed a board game.

## METHODS

Propaedeutikós is a game, throughout which the player answers a series of open-type questions regarding PS. We carried out a prospective study at the Clinical Skills Laboratory at our facility in March 2016. The study included 20 students, which were randomly divided into two groups – the test group and the control group. In the beginning, all students took a 10-question multiple-choice test with predefined number of correct answers. After the test, both groups were asked to study the related subjects in the textbook over the next 4 days. In addition, the test group played a game of Propaedeutikós. Afterwards both groups took the final test. Statistical analysis was performed using SPSS Statistics program. Statistical significance was set at  $p < 0.05$ .



Figure 1: PROPAIDEUTIKÓS, the board game

## RESULTS

The mean score on the first test was  $6.0 \pm 1.3/10$  for the control group and  $6.6 \pm 1.5/10$  for the test group. The mean score on the final test was  $6.6 \pm 1.3/10$  for the control group and  $8.7 \pm 1.2/10$  for the test group.

Mann-Whitney test for independent samples showed statistically significant difference between both groups for the final test ( $p=0.004$ ), but not for the first test ( $p=0.295$ ). Related samples Wilcoxon signed rank test showed statistically significant increase in test score for the test group ( $p=0.027$ ), but not for the control group ( $p=0.142$ ).

	Test group		Control group	
	First test	Final test	First test	Final test
Number of participants	9	9	11	11
Mean score	6.6/10	8.7/10	6.0/10	6.6/10
Standard deviation	1.5	1.2	1.3	1.3
Minimum	4.0	7.0	4.0	5.0
Maximum	9.0	10.0	9.0	9.0

Table 1: Comparison of the results in both groups

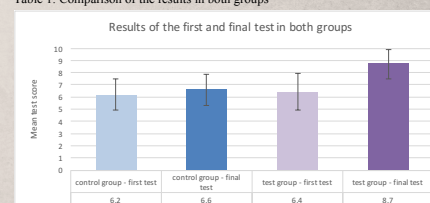


Figure 2: Results of the first and final test in both groups

## DISCUSSION

According to our results, students in the test group performed significantly better than students in the control group. However, the small improvement in the results of the control group may be due to the fact that students did not take enough time to prepare for the final test.

## CONCLUSION

Propaedeutikós proved to be a way to improve the theoretical knowledge of students and could be used as an additional tool in peer teaching. Contrary to the traditional learning of theory students enjoyed the learning process through the game. This could explain why their results were significantly better than those of the control group.

Poster 8

**PROPAIDEUTIKÓS - a board game that helps medical students gain theoretical background for practical skills learning**

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For the last five years, a peer-teaching based subject Selected Topics and Novelties in Propaedeutics is offered to year-3 medical students at Faculty of Medicine, University of Maribor, during which different practical skills (PS) are taught. Beside the performance of PS, students have to possess some theoretical knowledge about these skills. In order to improve their knowledge in an entertaining way, we developed a board game.

Propaideutikós is a game, throughout which the player answers a series of open-type questions regarding PS [1]. The right answer allows the player to move forward on the board and earn different colours of trophies. The five colours of trophies represent different categories of questions (RED: venepuncture and blood pressure measurement; YELLOW: urinary catheterization, arterial puncture and rectal examination; GREEN: infusion set-up and ultrasound examination of the abdomen; BLUE: intramuscular and subcutaneous injection; TURQUOISE: cardiopulmonary resuscitation and intravenous cannulation). The goal of the game is to earn two trophies of each colour and get to the finish line. In this way, we ensure that students cover theoretical background of every clinical skill that is taught during the subject.

Studies have found out that knowledge gained through game-based learning can be compared to traditional ways of learning. What is more, the educational experience is more entertaining for students and the interactivity and teamwork involved in the board game improve communication skills and cooperation between students [2]. Active learning was also shown to improve student examination performance especially when used in small groups [3].

Using games as a teaching method in medicine appears to be an effective way to facilitate learning theoretical knowledge about PS. In our presentation, we will describe the principles of Propaideutikós board game and present the first results of its use and students' satisfaction with it.

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## The development of Entrustable professional activities in competency-based Farm Animal Health education

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### Background

The goal of veterinary education is to train students to competently practice the core tasks of the profession at the time of graduation.

Entrustable Professional Activities (EPAs) could increase transparency in the workplace regarding students' abilities and competencies, and help to ensure safe and quality patient care.

### Methods

At first, four veterinary education experts compiled a list of EPAs relevant for Farm Animal Health.

Secondly, a Delphi procedure was used to validate a framework of EPAs amongst (educational) veterinarians in the Netherlands and in Hungary.

To be included in the framework the EPAs were rated as relevant by at least 80% of the panel members.

### Results

The Delphi procedure resulted in a list of 35 EPAs for assessing students' expertise development (see Figure 1). Examples of these EPAs are:

- Integrate information from the interview, the general expression and the physical examination to construct a reasoned and prioritized differential diagnosis,
- Manage and facilitate pain relief,
- Managing a patient or herd with a respiratory problem.

### Discussion

The 35 EPAs describe the core activities for the Farm Animal Health track at SIU and FVMU.

They clarify the core activities that students need to develop in order to allow high-quality patient care.

### Conclusion

The EPAs can be employed in the (undergraduate) training programs, and provide insight in students' performance on the clinical workplace.

Further research should focus on how EPAs should optimally be implemented to enhance competency development and making entrustment decisions.



Figure 1: Find the EPA's for veterinary medicine "Managing a....."



### Take home message

EPAs could be used to bridge the gap between a competency based approach and daily clinical practice.

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WATCHME



Poster 9

## **Entrustable professional activities in competency-based veterinary education**

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**Introduction:** The goal of medical education for the students is to be able to competently practice the core tasks by the end of their study. Direct assessment and demonstration of students' skill during clerkships are therefore important targets. Obtaining a correct impression of students' readiness for clinical practice is important for medical supervisors. Entrustable Professional Activities (EPAs) could increase transparency, for supervisors and students themselves, in the workplace regarding students' abilities and competencies, and help to ensure safe and quality patient care. Therefore, training programs based on EPAs are being explored and developed, across the world and across specialties.

While EPAs have primarily been applied to medical education, we have argued for their applicability to veterinary medical education. The aim of this study is to develop EPAs for veterinary medicine and explore their feasibility in veterinary clerkships. We therefore conducted a Delphi study, to explore expert opinion on the draft versions of the veterinary EPAs. The use of EPAs may bridge a potential gap between the theory of competency-based education and clinical practice.

**Methods:** For this study, a group of four veterinarians, all working at the Faculty of Veterinary Medicine (Utrecht University), compiled a list of EPAs with a clear description. The EPAs were based on the professional activities which a farm animal veterinarian has to deal with during practice work.

Delphi procedures were conducted to validate a framework of EPAs amongst veterinary (education) experts in the Netherlands and in Hungary. The EPAs were rated as relevant or very relevant (4-5) by at least 80% of the panel members to be included in the framework.

**Results:** The Delphi procedure resulted in a list of 35 EPAs for assessing students' competency development. Examples of these EPAs are: 'History taking, general impression and general examination' and 'Pain relief' and 'Managing a respiration problem'.

**Discussion:** We described the methodology we used to identify and develop detailed descriptions of 35 EPAs that are core for veterinary medicine. These EPAs clarify the developmentally appropriate activities that students can perform to allow their engagement in the clinical workplace. The participants of the Delphi procedure readily

accepted the constructs and content of the EPAs.

**Conclusions:** The EPAs will be employed in the undergraduate training program, with the focus on the practicability to give insight in students' performance on the clinical workplace. Further research should focus on how EPAs could be implemented for enhancing competency development and making entrustment decisions.



## Retention of Knowledge of Basic Abdominal Ultrasound Examination performed by Clinical Peer Tutors



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### BACKGROUND

A basic abdominal ultrasound (BAUS) examination is one of the most difficult skills taught in PTs' led subject Selected topics and novelties in propaedeutics (STNP). The aim of our evaluation was to define the retention rate BAUS examination skills of PTs from their objective structured clinical examination (OSCE) in STNP as students until their clinical skills training as PTs at least 9 months later. The results could help us structure PTs trainings and define aspects of teaching, on which more emphasis should be made.

### METHODS

Using our standard checklist for BAUS, we assessed 9 PTs before and after PTs training of BAUS examination. Beforehand, none of them knew that they would be assessed. We compared these scores with scores they obtained in OSCE at STNP. Nonparametric Wilcoxon test was performed ( $p < 0.05$ ). They were also given a questionnaire, where they marked how many hours of ultrasound (US) training they had during their study.

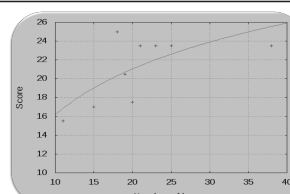
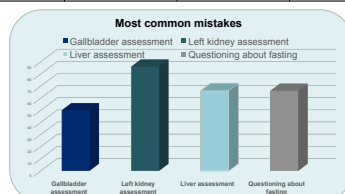
### RESULTS

Parameter	OSCE at subject propaedeutics	Before PT training	After PT training
Mean score [points]	24.6±1.0/25	21.1±3.3/25	24.6±1.0/25
Percent	98 %	86 %	98 %
Time [seconds]	617±82/720	657±73/720	630±46/720

We assessed tutors from 4<sup>th</sup>, 5<sup>th</sup> and 6<sup>th</sup> year of study. Mean scores considering time passed from OSCE at SP:

- 9 months ago 23,5±2,8 points,
- 21 months ago 23,3±4,2 points
- 33 months ago 20,3±2,8 points.

PTs that had more than 20 hours of previous US training (n=4) achieved higher points than PTs that had 20 hours or less training (n=5) (23.5±0.0 vs. 19.1±3.4 points;  $p=0.038$ ).



### CONCLUSION

- PTs retention of BAUS examination knowledge is high.
- An emphasis should be made on examination of gallbladder, liver and kidneys.
- The knowledge of protocol pales with time.
- Additional work with US improves the retention of knowledge, so PTs should be given as many opportunities as possible to train their skills.

If we want PTs to be **good and skilled teachers**, the training should have an important emphasis on BAUS.

We should bear in mind that

**retention of BAUS examination knowledge is falling irrespectively of the score on OSCE**, so additional US hours are necessary for the refreshment of the gained knowledge.

Poster 10

## **Retention Rate of Basic Abdominal Ultrasound Examination Skills by Clinical Peer Tutors**

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**Introduction:** A basic abdominal ultrasound (BAUS) examination is one of the most difficult skills taught in PTs' led subject Selected topics and novelties in propaedeutics (STNP). The aim of our evaluation was to define the retention rate BAUS examination skills of PTs from their objective structured clinical examination (OSCE) in STNP until their clinical skills training as PTs at least 9 months later. The results could help us structure PTs trainings and define aspects of teaching, on which more emphasis should be made.

**Methods:** Using our standard checklist for BAUS, we assessed 9 PTs before and after PTs training of BAUS examination. Beforehand, none of them knew that they would be assessed. We compared these scores with scores they obtained in OSCE at STNP. Paired t-test was performed ( $p < 0.05$ ). They were given a questionnaire, where they marked how many hours of ultrasound (US) training they had during their study.

**Results:** Mean OSCE score in STNP was  $24.6 \pm 1.0/25$  points with mean completion time of  $617 \pm 82/720$  s. Mean score before PTs training was  $21.1 \pm 3.3/25$  points with mean time  $657 \pm 73/720$  s. Most common mistakes were assessment of gallbladder (50% correct), visualization of liver in subcostal, intercostal and epigastric area (67% correct) and left kidney visualization (86% correct). Only 67% of PTs asked a model for how long had he fasted. Mean score after PTs training was  $24.6 \pm 1.0/25$  with mean time  $630 \pm 46/720$  s. Retention rate fell from 98% at previous OSCE to 84% ( $p = 0.031$ ) before PTs training and rose to 98% ( $p = 0.031$ ) after PTs training. PTs that had more than 20 hours of previous US training ( $n = 4$ ) achieved higher points than PTs that had 20 hours or less training ( $n = 5$ ) ( $23.5 \pm 0.0$  vs.  $19.1 \pm 3.4$  points;  $p = 0.038$ ).

**Discussion:** According to our results, PTs retention rate of BAUS examination is high. However, since the retention rate is falling with time, it is important to repeat the performance of BAUS with an emphasis on examination of gallbladder, liver and kidneys. The knowledge of protocol also pales with time, which can be seen from most common mistakes. Additional work with US improves the retention rate, so PTs should be given as many opportunities as possible to train their skills.

**Conclusion:** If we want PTs to be good and skilled teachers, their training should have an important emphasis on BAUS. We should bear in mind, that retention rate of BAUS examination is falling irrespectively of the OSCE score, so additional US hours are necessary for the refreshment of the gained knowledge.


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## Integration of lecture podcasts, learning materials and lecture attendance in university students

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 and Karin Schmid-Zaludek <sup>b\*</sup>
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### Introduction

Lecture podcasts are regarded as an efficient means to pass on learning contents to students, especially in large classes. Podcasts offer more opportunities for self-regulated learning, such as **flexibility when, where, and at what pace to learn**. Current research however, could not yet clarify whether learning with (exclusive or additional) podcast lectures really results in higher achievement.

The current study focuses on how university students **integrate** lecture podcasts and additional learning materials to face-to-face lectures in a realistic educational scenario, with the attempts to find differences between learners and different patterns of integration in relation to academic achievement.

### Method

781 students (594 females); mean age of 22.95 years ( $SD = 4.08$ ,  $R=18-51$ ); students were recruited from undergraduate lectures (once weekly, lasting for one semester); **podcasted lecture, presentations' slides & additional learning materials** were provided downloaded from online site or Moodle platform written examination at the end of the semester questionnaire on their **learning strategy**:

- lecture attendance
- use of materials and podcasts
- time invested for learning
- cognitive learning strategies
- satisfaction related to academic performance

### Results

latent class analysis (LCA) identified 4 groups of learners:

- group 1:** focus on the use of podcasts and additionally provided learning materials (35.60%),
- group 2:** strong focus on podcasts (37.90%),
- group 3:** focus on the additionally provided learning materials (10.37%)
- group 4:** little use of either lectures, podcasts, or additional materials (16.13%).

### Conclusion

- majority of students relied on lecture podcasts for exam preparation; especially group1 was very successful and satisfied
- **academic achievements speak in favor of delivering learning contents as lecture podcasts and additional learning material, but also suggest to find means of support for students with a lower motivation and/or less efficient study skills.**

individual differences between learners have to be taken into account; especially in mass lectures, where interaction is not possible

Table 1

group	Focus on							
	1 podcasts and materials		2 podcasts-		3 materials and lectures		4 overall minimal use	
	M	SD	M	SD	M	SD	M	SD
academic achievement (z-score)	0.15	0.89	0.08	0.96	-0.22	1.09	-0.39	1.08
satisfaction (1 = low to 6 = high)	5.13	1.02	5.02	0.98	4.72	1.19	4.58	1.12

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## Poster 11

### Integration of lecture podcasts, learning materials and lecture attendance in university students

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**Introduction:** Lecture podcasts are usually distributed to learners who would otherwise have no access to them, but also to students on-site for playback on personal computers, notebooks, or other mobile devices [1]. Lecture podcasts are regarded as an efficient means to pass on learning contents to students, especially in large classes [2]. In contrast to traditional frontal lectures, podcasts offer more opportunities for self-regulated learning, such as flexibility when, where, and at what pace to learn or repeat material. Current research however, could not yet clarify whether learning with (exclusive or additional) podcast lectures really results in higher achievement [4, 5]. Achievement is mediated by various factors, ranging from learner's skills and abilities, cognitive demands of the material to individual preferences for integrating specific media. Against this background the current study focuses on how university students integrate lecture podcasts and additional learning materials to face-to-face lectures in a realistic educational scenario, with the attempts to find differences between learners and different patterns of integration in relation to academic achievement.

**Method:** A total of 781 students (594 females) with a mean age of 22.95 years (SD = 4.08, R=18-51) participated in the study. The students were enrolled during undergraduate lectures lasting one semester. Each lecture was recorded onto video and podcasted, including the presentations' slides and additional learning materials. The podcasts could be downloaded from an online site or from the Moodle platforms of the lectures. In each course students had to take a written examination at the end of the semester and were asked to fill in a questionnaire on their learning strategy (lecture attendance, use of materials and podcasts, time invested for learning, cognitive learning strategies and satisfaction). Academic performance was concluded from the points achieved in the written exam. A latent class analysis (LCA) was carried out to identify groups of students differing with regard to integration patterns [3].

**Results:** LCA identified four groups of learners: group 1 with a focus on the use of podcasts and additionally provided learning materials (35.60%), group 2 with a strong focus on podcasts (37.90%), group 3 with a focus on the additionally provided learning materials (10.37%), and group 4 who made very little use of either lectures, podcasts, or additional materials (16.13%). Hence a large majority of students relied on lecture podcasts for exam preparation. Group 1 was very successful in the exam and also sat-



ified with the lecture as a whole. Considering the learners' achievements (Table 1) the given results clearly speak in favor of delivering learning contents as lecture podcasts and other representations to take individual differences between learners into account – at least in mass lectures.

Table 1: Descriptive statistics for achievement and satisfaction

group	1		2		3		4	
	focus on							
	podcasts and materials		podcasts		materials and lectures		overall minimal use	
variable	M	SD	M	SD	M	SD	M	SD
academic achievement (z-score)	0.15	0.89	0.08	0.96	-0.22	1.09	-0.39	1.08
satisfaction (1=low to 6=high)	5.13	1.02	5.02	0.98	4.72	1.19	4.58	1.12

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## A bottom up approach of identifying problematic curriculum topics



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### Introduction

Learning outcomes are an important measure of implementation of curriculum set goals and teaching quality and should therefore be assessed by a variety of evaluation tools. We researched student self-assessment of their practical skills as a way of identifying problematic curriculum topics, providing feedback and evaluating the need for or success of implementation of a competency based curriculum

### Methods

Seventy-two students from the 3<sup>rd</sup>-5<sup>th</sup> year of medical school at the Faculty of Medicine, University of Maribor, Slovenia were asked to evaluate their knowledge on 95 specific practical skills encompassing three subjects. The survey evaluated their self-perceived knowledge and the location or teaching method by which they have gained the specified competence (purely theoretical knowledge, during a mandatory or elective rotation, on an exchange or during voluntary work in the ward). The evaluated practical skills were taken out of the knowledge and skills catalogue, which is a part of the schools curriculum. The skills were defined identically as in the schools learning outcome curriculum enabling quicker and easier comparison of students self-assessed level of competence with the knowledge level required by the catalogue. Discrepancies between the required knowledge levels and self-assessed competences pointed us towards practical skills, which are not executed or emphasized enough during the process of education.

### Results

72 student completed the survey, which showed which skills are not executed or emphasized enough during the students' education. Figure 1 presents a general overview of results by larger groups of skills which were evaluated.

### Discussion

Student self-evaluation of their knowledge is an useful way of gaining feedback on the quality and possible gaps in the process of education. It is an easily implementable tool to identify strengths and weaknesses of a particular course and to better understand students' perceived competency after completing the course.

### Conclusion

Student self-assessment of their competencies is an easy to implement way of identifying problematic curricular topics.

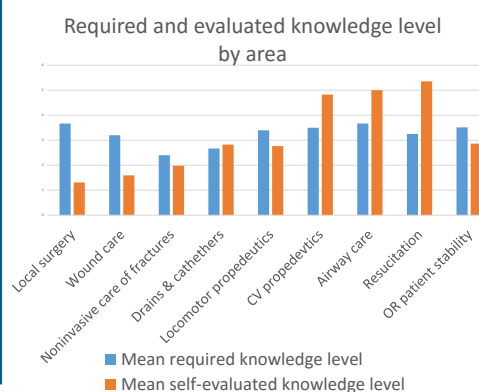


Figure 1: Comparison of students self-assessed knowledge levels in comparison to required levels.

## Poster 12

### **A bottom up approach of identifying problematic curriculum topics**

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**Introduction:** Learning outcomes are an important measure of implementation of curriculum set goals and teaching quality and should therefore be assessed by a variety of evaluation tools. We researched student self-assessment of their practical skills as a way of identifying problematic curriculum topics, providing feedback and evaluating the need for or success of implementation of a competency based curriculum.

**Methods:** Seventy-two students from the 3rd-5th year of medical school at the Faculty of Medicine, University of Maribor, Slovenia were asked to evaluate their knowledge on 95 specific practical skills encompassing three subjects. The survey evaluated their self-perceived knowledge and the location or teaching method by which they have gained the specified competence (purely theoretical knowledge, during a mandatory or elective rotation, on an exchange or during voluntary work in the ward). The evaluated practical skills were taken out of the knowledge and skills catalogue, which is a part of the schools curriculum. The skills were defined identically as in the schools learning outcome curriculum enabling quicker and easier comparison of students self-assessed level of competence with the knowledge level required by the catalogue. Discrepancies between the required knowledge levels and self-assessed competences pointed us towards practical skills, which are not executed or emphasized enough during the process of education.

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**Conclusion:** Student self-assessment of their competencies is an easy to implement way of identifying problematic curricular topics.

## Students and educators view on e-learning and e-learning platforms

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### Introduction

Electronic learning (e-learning) has become more and more evident and incorporated in the field of medicine. To improve its efficacy and quality, feedback not only from students but from educators themselves has to be taken into consideration. Our study focused on student and educators perceptions of e-learning platforms designed to provide a system to create personalized learning environments. The study is based predominantly on Moodle an e-learning platform used at the University of Maribor.

### Methods

A multiple open-type questions questionnaire was distributed among students and educators at the Faculty of Medicine, University of Maribor, Slovenia. It focused on their views on the advantages, disadvantages, implementation and possible improvements of computer assisted learning and e-learning platforms in general.

### Results

Nine educators and 20 students completed the questionnaire. Six out of nine educators are incorporating some sort of e-learning currently in their educational process. They had a more favorable opinion on e-learning in contrast to those educators which had not used e-learning. All nine educators view Moodle and e-learning as very positive method with little disadvantages. The main advantages they mention are: 1) it is easy to use, 2) it has a wide range of applications and 3) allows a smoother interaction between students and educators. Student opinions were categorized into two groups - pre-clinical (1st and 2nd year medical students) and clinical students. Pre-clinical students represented 55 % and clinical students 45 % of respondents. The biggest differences were that pre-clinical students think: 1) the content on Moodle makes it easier to follow lectures and 2) it helps them prepare for exams. Both groups saw advantages in: 1) availability, 2) its accessibility and 3) up-to-date content. The disadvantages mentioned were: 1) impersonal attitude and 2) its current limited use.

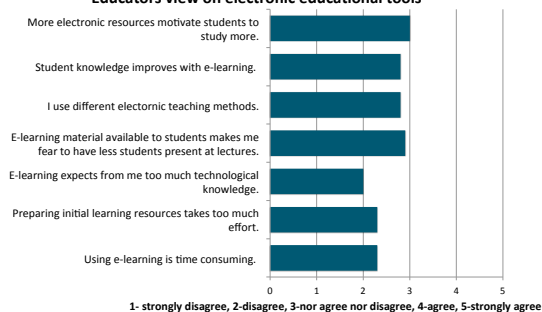
### Discussion

Generally there is a positive attitude towards e-learning and Moodle in general. Educators already using e-learning methods have a more positive opinion towards internet based learning methods than those who do not use them. Both parties agree mutual advantages, but also highlight an impersonal attitude as their main disadvantage. Among students, a more positive attitude towards e-learning in general was received from pre-clinical students using Moodle more frequently.

### Conclusion

Our study points out that educators are satisfied and maintain a positive attitude towards e-learning after implementing it as part of the curriculum. Due to the win-win atmosphere presented in this study concerning e-learning further curricular changes should definitely include e-learning components in their changes.

Educators view on electronic educational tools



## Poster 13

### Students and educators view on e-learning and e-learning platforms

Rene Petrovič, Monika Sobočan

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**Introduction** Electronic learning (e-learning) has become more and more evident and incorporated in the field of medicine. To improve its efficacy and quality, feedback not only from students but from educators themselves has to be taken into consideration. Our study focused on student and educators perceptions of e-learning platforms designed to provide a system to create personalized learning environments. The study is based predominantly on Moodle an e-learning platform used at the University of Maribor.

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The main advantages they mention are:

- 1) it is easy to use,
- 2) it has a wide range of applications and
- 3) allows a smoother interaction between students and educators.

Student opinions were categorized into two groups - pre-clinical (1st and 2nd year medical students) and clinical students. Pre-clinical students represented 55 % and clinical students 45 % of respondents.

The biggest differences were that pre-clinical students think:

- 1) the content on Moodle makes it easier to follow lectures and
- 2) it helps them prepare for exams.

Both groups saw advantages in:

- 1) availability,
- 2) its accessibility and
- 3) up-to-date content.

The disadvantages mentioned were:

- 1) impersonal attitude and
- 2) its current limited use.

**Discussion** Generally there is a positive attitude towards e-learning and Moodle in general. Educators already using e-learning methods have a more positive opinion towards internet based learning methods than those who do not use them. Both parties agree mutual advantages, but also highlight an impersonal attitude as their main disadvantage. Among students, a more positive attitude towards e-learning in general was received from pre-clinical students using Moodle more frequently.

**Conclusion** Our study points out that educators are satisfied and maintain a positive attitude towards e-learning after implementing it as part of the curriculum. Due to the win-win atmosphere presented in this study concerning e-learning further curricular changes should definitely include e-learning components in their changes.





# Checking personal competences in veterinary students: contrasting self-evaluations of students' competences to theoretically defined ideal competence levels



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## Introduction

Competence Check :

- developed 2013 at Vetmeduni Vienna [1,2]
- online screening tool for monitoring (cf. figure 1)
  - the students' competences
  - the teaching process

Figure 1: Example question

Please appraise the following PERSONAL COMPETENCES regarding the following aspects:

Adequate communication with the pet owners regarding diagnosis and treatment options

On which level do you appraise your KNOWLEDGE? On which level is KNOWLEDGE taught during the studies?

On which level do you appraise your SKILLS? On which level are SKILLS taught during the studies?

Actual study data

- in five different competence areas (cf. figure 2)



- evaluating the outcome of curricular changes of a "new" competence-based curriculum (started in 2014)

- Self- and external ratings

Actual study data

## Methods

- March 2015, students of "old", content-based curriculum
- self-ratings of students' competencies in relation to theoretically defined "ideal" levels of relevant competences
- in dimensions "knowledge" and "skills"
- at two time points (middle and end of studies):
  - N<sub>6<sup>th</sup> sem</sub> = 126; N<sub>10<sup>th</sup> sem</sub> = 101
  - response rate: r<sub>6<sup>th</sup> sem</sub> = 65.6%; r<sub>10<sup>th</sup> sem</sub> = 61.2%

## Results (cf. figure 3)

- 6<sup>th</sup> semester students (out)reach defined ideal levels:
  - dimension "knowledge": in 8 (out of 11) personal competences
  - dimension "skills": in 7 personal competences
- 10<sup>th</sup> semester students reach higher levels, but (out)reach fewer defined ideal levels:
  - dimension "knowledge": in 5 (out of 11) personal competences
  - dimension "skills": in 4 personal competences

## Discussion

- students perceive an increasing growth of personal competencies during their studies
- still gap between "ideal" and "real" competences
  - "new" competence-based curriculum aims to close the gap, e.g. by implementing communication skills courses

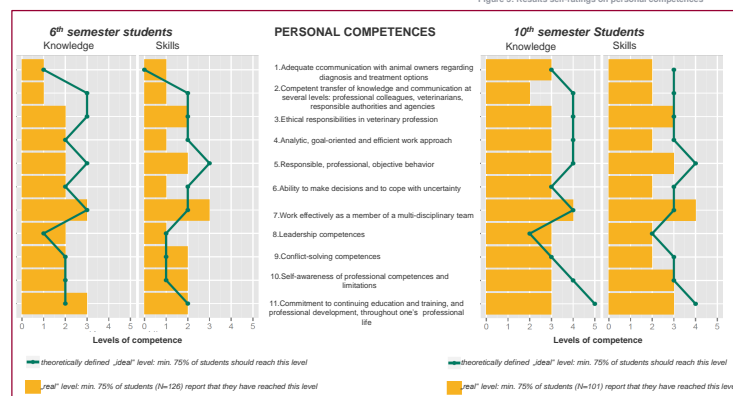
## Conclusions

- Competence Check allows aligning students' perceived competences to ideal levels of competences
- In 2016, data from 6<sup>th</sup> semester students can be used to evaluate the teaching process in the new competence based curriculum, results will inform
  - rectorate/senate to make evidence-based decisions
  - lecturers/instructors to enhance teaching-quality
  - students about their individual competence profile

## Outlook

- Alignment: teaching process – competences in all five competence areas
- Curriculum evaluation: What was taught?
- Ratings from students, teachers, instructors

Figure 3: Results self-ratings on personal competences



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Poster 14

**Checking personal competencies in veterinary students: contrasting self-evaluations of students' competencies to theoretically defined ideal competence levels**

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**Introduction:** The Competence Check, i.e. an online screening tool that allows continuous monitoring of the teaching process and the students' competencies, was developed at the University of Veterinary Medicine Vienna in 2013 to meet the challenge of evaluating the outcome of curricular changes of a competence-based curriculum in regard to relevant competence areas, such as "personal competence", which subsumes 11 specified personal competencies (e.g., "communication with animal owners regarding diagnosis and treatment options").

**Methods:** One cornerstone of evaluation by the Competence Check is relating self-ratings of students' competencies to ideal levels of relevant competencies on the two dimensions "knowledge" and "skills" at two time points (6th and 10th semester of studies). In March 2015, N=227 students of the "old", content-based curriculum ( $N_{6^{th} semester} = 126$ ;  $N_{10^{th} semester} = 101$ ) volunteered to fill out the Competence Check and evaluated their personal competencies (response rate:  $rr_{6^{th} semester} = 65.6 \%$ ,  $rr_{10^{th} semester} = 61.2 \%$ ).

**Results:** From the students' point of view, 6th semester students (out)reach the defined ideal levels in 8 (out of 11) personal competencies for the dimension "knowledge", and in 7 for the dimension "skills". For the 10th semester students, the gap between (higher) self-rated achieved personal competencies and the (even higher) defined levels seems to broaden: the amount of reached levels decreases to 5 (out of 11) for the dimension "knowledge" and 4 for the dimension "skills".

**Discussion:** Positively, students perceive an increasing growth of their personal competencies during their studies. However, there is room for improvement in regard to the theoretically defined levels of personal competencies. The new curriculum aims to close this gap, e.g. by implementing communication skills courses.

**Conclusions:** The Competency Check allows aligning students' perceived competencies to ideal levels of competencies. In 2016, data from the cohort of 6th semester students can be used for the first time to evaluate the teaching process in the new competence based curriculum and such to inform the rectorate/senate to make evidence-based decisions, lecturers/instructors to enhance their teaching-quality, and students about their individual competence profile.

# Self-Experience as didactic tool in teaching equine lameness evaluation



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This study is part of a study that is currently submitted for possible publication in the Journal of Veterinary Medical Education

## ■ Introduction

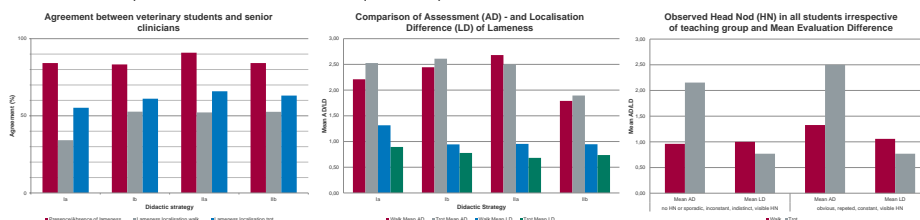
- Equine lameness evaluation (LE) is an important first day skill for graduates working in equine practice, but teaching lameness evaluation can be a challenging task especially in mild degree appearance
- Currently there is little evidence for the efficacy of different didactic methods of lameness recognition
- Many lameness evaluators and lameness evaluation instructors nod their own heads in the rhythm of the horse (consciously or subconsciously)
- The aim of the study was to investigate the effect of two self-experience techniques (simultaneous head nod (HN) during LE and imitation of lameness (IL) during LE instructions) on short-term learning outcomes in clinical education of mild degree supporting forelimb lameness evaluation**

## ■ Material & Methods

- 78 (72 female, 6 male; age: 19-35y) undergraduate veterinary students (VS) of varying equestrian/veterinary experience, before their clinical study period, undergoing a theoretical and practical standard course "induction to LE" including three videos and two live horses;
- 4 didactic groups: Ia: standard course +HN, Ib: standard course only, IIa: standard course +HN +IL, IIb: standard course +IL
- Lameness grading used 0 (sound) to 5 (non-weightbearing) based on textbook<sup>1</sup>, walk and trot graded separately
- For testing, two sound or mildly forelimb lame horses (graded as 0-2/5) that were new to the VS, were walked and trotted in hand on straight line. Lameness was assessed by each VS and by two senior clinicians (SC), the evaluation difference between VS and SC was documented as localisation difference (same limb identified as lame?) and assessment difference (same degree of lameness given?)
- Statistical analysis: X<sup>2</sup>-Test, ANOVA, post Hoc- Test; (p < 0,001)

## ■ Results

- Presence of lameness correctly identified in more than 80% of comparisons of students with senior clinicians
- No significant evaluation differences between groups
- Localization difference smaller in trot than in walk, assessment difference smaller in walk than in trot (except for IIa: standard course +HN +IL)
- Sporadic head nodding occurred in groups without specific instruction of students to nod (Ib, IIb), but less than in groups instructed to head nod (Ia, IIa)
- Previous exposure to lameness evaluation or equestrian experience of VS does not influence evaluation difference



## ■ Discussion:

- Individual transfer of teaching instructions for head nodding to real life LE incomplete, possibly due to head nodding being a natural response to rhythmical movements
- Self experience/activity as one of the 3 major learning channels did not produce significant benefits, different from other areas<sup>2</sup>
- Results possibly influenced by low numbers of students, although the numbers of students was similar or higher than in previous studies<sup>3,4</sup> and only mildly lame horses examined corresponding to prepublished data reporting low inter-observer agreement in evaluation of mild degree lameness<sup>5</sup>
- Grading is subjective and not very reliable in mildly lame horses<sup>5</sup>– this is also shown by the assessment difference, lameness localization more consistent between VS and SC than grading of mild supporting forelimb lameness<sup>6</sup>. Self experience with species transfer as yet undescribed, for instructions to student dancers use science and somatics/self experience approach for understanding body movement<sup>7</sup>
- More research necessary

## ■ Conclusion:

- Simultaneous head nodding occurs with and without specific instructions for HN and specific instructions for HN did not prove to be advantageous for teaching lameness evaluation

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## Poster 15

### Self-Experience as didactic tool in teaching equine lameness evaluation

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Equine lameness evaluation is an important first day skill and can be a challenging task for teaching especially in mildly lame horses.

Acoustic and visual input in conjunction with acting are the three major learning channels for acquiring new information[1]. Acting e.g. self-experience has not been reported as didactic tool in teaching lameness evaluation (LE).

Therefore two self-experience techniques (simultaneous head nod (HN) during LE and imitation of lameness (IL) during LE instructions) have been investigated. 78 undergraduate veterinary students (72 female, 6 male, aged 19-35y) prior to their clinical study period participated in the underlying study. After undergoing a theoretical and practical standard course in LE students were divided in 4 different didactic strategies: Ia: standard course+HN, Ib: standard course only, IIa: standard course+HN+IL, IIb: standard course+IL. A numeric grading scale (0 sound-5 non-weightbearing)[2] was used for LE, walk and trot were graded separately.

For testing the learning outcome of each didactic strategy two different sound or mildly forelimb lame horses were evaluated for lameness in walk and trot by VS and two senior clinicians (SC). The evaluation difference between VS and SC was documented as localisation difference of side of lameness and assessment difference of degree of lameness.

Presence of lameness was assessed with over 80% agreement between VS and SC in all 4 groups. There were no significant evaluation differences between didactic strategies. Localisation difference was smaller in trot than in walk, assessment difference was smaller in walk than in trot. Sporadic HN could be observed in all 4 groups, but more head nodding was seen in groups instructed to head nod. Previous equestrian or veterinary experience in LE showed no effect on evaluation difference. Simultaneous head nodding occurs with and without specific instructions for HN and specific instructions for HN did not prove to be advantageous for teaching lameness evaluation.

No beneficial effect on learning progress by IL could be detected. Self-experience with species transfer is as yet undescribed, however instructions to student dancers use science and somatics/self-experience approaches for understanding body movement[3]. Further research is necessary to evaluate a possible influence of self-experience in LE.

### **Acknowledgments:**

This study is part of a study that is currently submitted for possible publication in the Journal of Veterinary Medical Education.

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## Foreign language virtual patient repositories are a well accepted teaching tool for undergraduate medical education

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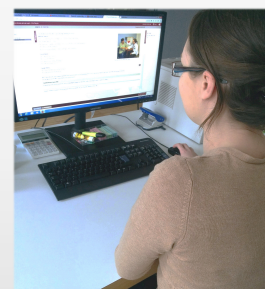
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**Introduction:** Virtual patients (VPs) are a well established educational method of computer assisted learning. With VPs students can learn about clinical decision making and determine the diagnostics and treatment of their virtual patients. However, the possibility to develop their own virtual patient repositories (in their language of instruction), seems to be reserved for wealthy medical school with a large enough student base. The development of virtual patients is a time intensive and costly subject. Therefore the question arises whether it is a feasible possibility to use foreign language VP repositories for the undergraduate curriculum?

**Discussion:** Through our qualitative data there was a consensus among students that foreign VPs allow students clinical learning and learning of diagnostic thinking. Although there might be population and incidence differences these can be corrected with tutor discussions.

**Methods:** Fourth year medical students studied during their Family Medicine Course 4 VP cases using the repository MedU (designed by an US consortium for US students). The attitudes of students towards virtual patients were then gathered using the qualitative method of focus groups. Data was transcribed and coded using the grounded theory-based coding method (open coding).



**Results:** Students identified that foreign language VPs can present an obstacle to some students with poor English levels but in general present an enrichment in vocabulary and culture awareness. Especially there was enthusiasm regarding learning about different health systems and behaviors.

**Conclusions:** Foreign VP repositories are a feasible option for universities which do not wish to develop own repositories. With the right approach they can be an enrichment to the student's horizons and knowledge.

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**Foreign language virtual patient repositories are a well accepted teaching tool for undergraduate medical education**

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## Problem based learning with virtual patients improves the Diagnostic Thinking Ability: Students Memory Structure



**Turk Neja<sup>1</sup>, Sobočan Monika<sup>1,2</sup>, Pečovnik Balon Breda<sup>1</sup>**

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### Theoretical background:

Problem based learning (PBL) is long established as a method of teaching in medical education. However, to link the theoretical nature of PBL designed for classroom education with clinical practice is still a challenge. A solution to this challenge could be education with virtual patients. This method replaces linear PBL cases (predetermined scenario) with virtual patients with the so-called "decision-PBL (D-PBL)". Using a method of D-PBL, virtual patients enable students to make decisions about the diagnostic procedures and treatment of their patient. Current studies indicate D-PBL positively impacts on learning outcomes and hypothesis have been made it improves clinical reasoning. We explore in this study the improvement of clinical reasoning when using virtual patients.

### Results:

Both groups improved during the semester in clinical thinking. The students using virtual patients had a mean score of 83.64 (prior) vs. 90.41 (after) in "Flexibility of thinking", as depicted in Figure 4, and 81.53 (prior) vs. 91.83 (after) in "Memory Structure"(Figure 3). In the control group, using paper based PBL, the mean improvement was lower: 81 (prior) vs. 86.125 (after) in "Flexibility of thinking" (Figure 2) and 79.05 (prior) vs. 84.18 (after) in "Memory Structure" (Figure 1).

### Methodology:

Thirty-four 3<sup>rd</sup> year medical students (with little prior clinical experience) participated in the study in 2 groups. One group used virtual patients during their PBL-classes and the other group used paper-based PBL cases to study cardiology and gastroenterology. At the beginning and end of their semester students were given the Diagnostic Thinking Inventory questionnaire (DTI). We measured the improvement of DTI measurement components, the "flexibility in thinking" and "memory structure", which indicate an improvement in clinical reasoning.

Figure 1: Memory structure: control group

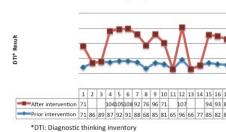


Figure 2: Flexibility in thinking: control group

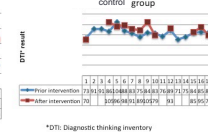


Figure 3: Memory structure: experimental group

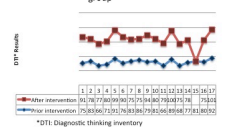
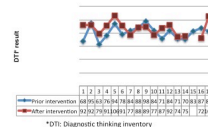


Figure 4: Flexibility in thinking: experimental group



**Discussion:** Our study shows a significant improvement in memory structure when using virtual patients compared to paper based PBL. While it is expected students advance in both fields, the more significant increase in "Memory Structure" when using virtual patients is a beneficial outcome for students. Therefore in order to increase clinical reasoning among medical students using virtual patients is a viable option.

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## Problem based learning with virtual patients improves the Diagnostic Thinking Ability: Students Memory Structure

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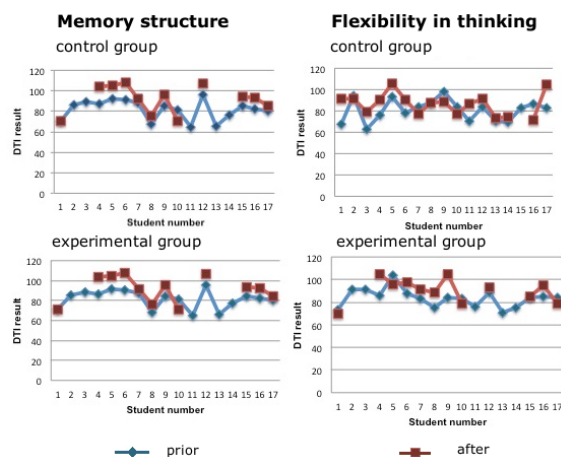
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**Discussion:** Our study shows a significant improvement in memory structure when using virtual patients compared to paper based PBL. While it is expected students advance in both fields, the more significant increase in “Memory Structure” when using virtual patients is a beneficial outcome for students. Therefore in order to increase clinical reasoning among medical students using virtual patients is a viable option.



# Lecture recording with Opencast in veterinary education

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## Introduction

The University of Veterinary Medicine Hannover, Foundation (TiHo Hannover) started the project AMeViTH (Automated multichannel video recording at the University of Veterinary Medicine Hannover) in cooperation with the association ELAN e.V. (E-Learning Academic Network), funded by the Ministry for Science and Culture of Lower Saxony in 2015.

➤ Aim: improving the quality of learning and teaching in veterinary medical education

- increased flexibility in time management (students with children, working students)
- possibility to recapitulate lectures in an individual speed
  - understanding and repetition
  - exam preparation



Figure 1: The selected lecture hall of the TiHo Hannover (Source: TiHo Hannover)

## Methods



Figure 2: Extron SMP 351 processor (Source: Extron Electronics)

### Technical implementation I

- Evaluation of the technical equipment of different lecture halls
- Installation of an Extron SMP 351 processor, a streaming media processor for capturing and distributing live AV sources and presentations

### Technical implementation II

- Setting up the virtual machines
- Integration of the SMP 351 processor in the TiHo intranet
- Installation of Opencast, a free, open source video management software to support the management of educational audio and video content

## Results

- Installation of the Extron SMP 351 processor and Opencast have been finished successfully
- First lectures were recorded and made available for the students (figure 3)



Figure 3: Screenshot of a lecture recording with Opencast (Source: TiHo Hannover)

## Work in Progress

- Establishing lecture recordings in higher education courses
- Implementation of a mobile solution for recordings in clinical or laboratory settings in the future (figure 4)



Figure 4: Mobile solution for recordings (E3 bag) (Source: virtUOS University of Osnabrück)

## Take home message

Learning clinical skills can be supported by lecture recordings in a significant way because procedures can be demonstrated and recapitulated as often as the students like.

**References:**  
Greweling, C., Rolf, R. & Meyer, D. (2014). Automatisierte Vorlesungsaufzeichnungen mit Opencast Matterhorn an der Universität Osnabrück. Wissenswertes zum praktischen Einsatz des Systems, die technische Infrastruktur und mögliche Fallstricke. In: O. Zawacki-Richter, D. Kergel, N. Kleinfeld, P. Muckel, J. Stöter & K. Brinkmann (Hrsg.), Teaching Trends 2014. Offen für neue Wege: Digitale Medien in der Hochschule (S. 203-215) Münster: Waxmann.

Poster 18

## Lecture recording with Opencast in veterinary education

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**Introduction:** Opencast (Matterhorn) is a free, open source video management software to support the management of educational audio and video content. The software is an all in one solution from lecture recording about editing recorded videos to supply students with educational videos (<http://www.opencast.org/>). One positive aspect of Opencast: lecturers don't need any special technical instruction or must spend additional time for lecture recording because with Opencast recordings can be scheduled and start automatically (Greweling, et al., 2014).

The University of Veterinary Medicine Hannover, Foundation (TiHo Hannover) started the project AMeViTH (Automated multichannel video recording at the University of Veterinary Medicine Hannover) in cooperation with the association ELAN e.V. (E-Learning Academic Network), funded by the Ministry for Science and Culture of Lower Saxony in 2015.

**Methods:** After evaluation of the technical equipment of different lecture halls, one auditorium of the TiHo Hannover was selected, the existing technology has been extended and an Extron SMP 351 processor, a streaming media processor for capturing and distributing live AV sources and presentations was installed. In cooperation with co-workers from the University of Osnabrück (virtUOS) and the TiHo-IDS (Central information and data processing service) virtual machines needed for the installation of Opencast were set up and the SMP 351 processor was integrated in the TiHo intranet.

**Results:** The Extron SMP 351 processor and Opencast have been successfully installed. The first lectures and presentations were recorded at the TiHo Hannover (Fig. 1) and made available for learning purposes.

**Discussion:** For students lecture recording offers many advantages. Not only the positive aspect of increased flexibility in time management (students with children, working students), but also the possibility to recapitulate lectures in an individual speed in order to clarify yet not understood parts of the live presentation or to prepare for examinations. Further plans are to establish lecture recordings in higher education courses and to implement a mobile solution for recordings in clinical or laboratory settings. These new technologies provide great potential to improve the quality of learning and teaching in veterinary medical education.

**Conclusions:** Learning clinical skills can be supported by lecture recordings in a sig-

nificant way because procedures can be demonstrated and recapitulated as often as the students like.

### References:

Greweling, C., Rolf, R. & Meyer, D. (2014). Automatisierte Vorlesungsaufzeichnungen mit Opencast Matterhorn an der Universität Osnabrück. Wissenswertes zum praktischen Einsatz des Systems, die technische Infrastruktur und mögliche Fallstricke. In: O. Zawacki-Richter, D. Kergel, N. Kleinfeld, P. Muckel, J. Stöter & K. Brinkmann (Hrsg.), Teaching Trends 2014. Offen für neue Wege: Digitale Medien in der Hochschule (S. 203-215) Münster: Waxmann.



Figure 1: Screenshot of a lecture recording with Opencast



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