



## Editorial

For the IML, as probably for the colleagues the university in general, 2021 was a year consolidating into the new normal.

**Text:** Prof. Dr. phil. Sissel Guttormsen Schär, 24.06.2022

2021

For the IML, as probably for the colleagues the university in general, 2021 was a year consolidating into the new normal. Well-installed for home-office and used to new routines, Zoom, mails, digital exchange, etc., work returned into a new rhythm. For families with children, daily child-care and schools were mostly reliable again, and when children or pets appeared in zoom meetings, they were heartily welcomed. Last but not least, less time for commuting definitely has some advantages.

Throughout the year and particularly, by the end of the year, assuming an end of lockdowns and less strict home-office regulations, submerged issues started to surface, mostly related to the question: How are we doing really? What did we learn and win from remote working, what got lost during the home-office time, what do we need to work efficiently and with satisfaction? In pre-Covid times, the office biotopes were never really questioned, the after-work beer, small apéro events to celebrate whatever deemed important, were a natural and important part of work. Also, the spontaneous communication with colleagues next door, networking in and around meetings, were taken for granted. And suddenly none of this was a part of working life anymore. How did this matter?

From the perspectives of the well-being of our teams, there are many issues still pressing. Those who started working in IML in the pandemic time had a hard time to get to know everybody and the team culture. The gap between pre- and (almost) post covid, is still a journey with many unknown elements. The transition back to office, to yet another new normal, has only started. Still, at our university, beyond new home office regulations, the longitudinal effects of the changing work environments seem yet to be a marginal issue.

From the perspective of our activities, the second pandemic year was mastered well. We can look back on processes almost running as normal again, successful, developments, projects and research.

- It was encouraging to see how our eTools were needed and welcomed. The availability of our software suite for assessment and eLearning tools were highly appreciated, the development progressing well and new applications successfully implemented thanks to the commitment of our teams and engaged cooperation between our departments. For the first time we ran electronic home exams with students' own computers, offered communication trainings online, and elearning material and instructional videos were

truly asked for. It was really challenge to adapt technology according to new needs in such a short time, but also really instructive.

- We started two new large SNF projects dedicated to central medical education issues: How to prepare physicians to better cope with stressful communication; and how to implement post covid teaching, preserving useful digitalisation experiences. Other (inter-)national projects are progressing well, enriching knowledge acquisition at the IML and beyond.
- We also welcomed three new PhD Candidates to our team.
- Excellence in Medical Education was honoured to the head of the AAE department, Sören Huwendiek, with a full faculty membership.
- Last but not least, we were able to deliver the international annual meeting of the «Association of medical education» online with our colleagues in Zürich and Luzern, after having to cancel this event in 2020.

Such and other merits are highlighted with particular «stories» in our annual report.

All the different tasks and people make up that what IML is. The balancing between needed productivity and available resources, on the one hand, and personal wellbeing, health, and social interaction on the other hand, is a remaining challenge. In the IML this is on our agenda, in this context, I encourage that this issue – «back to a new normal» - should be more prominent and differentiated addressed in the wider context of our work.

Sissel Guttormsen, June 2022





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# Main Highlights

The most important highlights that occupied us in 2021.

17.05.2022

2021

Assessment

Service

Development

Examic

Research

Teaching

Usability

## Excellence in Medical Education

We look back to 2021 with great thankfulness that the merits of excellent team members have been rewarded: Sören Huwendiek was the first to be granted membership in our Faculty of Medicine due to excellence in medical education. The university appointed Christoph Berendonk a lectureship at the Faculty of Medicine. Thanks to both of you for your dedicated work.

## GMA 2021 - Annual Conference

Innovative teaching, learning and collaboration across disciplines is more important than ever in healthcare. This is where the theme of the conference of the «Association for Medical Education (GMA)» came in: **Innovating Together 2021 - Learning in Healthcare**. With contributions and key-note events, new developments, requirements and solutions were to illuminate the interplay between teaching and practice. It is really great what has been jointly created in terms of innovation. Link [abstract volume](#)  
Due to the ongoing pandemic, the conference was held online.

## Online platform for communication training

«Communication is a key skill in healthcare and central to build a good relationship between healthcare professionals and patients. It also contributes to optimal patient care. [DocCom.Deutsch](#) (DCD) is an established online learning platform that facilitates the acquisition of communication skills.

This year we implemented two new modules into DCD: «Einbindung spiritueller Aspekte in der Patientenkommunikation» [Spirituality] und «Über das Sterben sprechen» [Talking about dying]. [Link](#)

## «EOSCE Valuatic» has been released

«[EOSCE Valuatic](#)», the successor to EOSCE, was first released in December 2021. Lorem ipsum dolor sit amet, consetetur sadipscing elitr, sed diam nonumy eirmod tempor invidunt ut labore et dolore magna aliquyam erat, sed diam voluptua. At vero eos et accusam et justo duo dolores et ea rebum. Stet clita kasd gubergren, no sea takimata sanctus est Lorem ipsum dolor sit amet.

## Usability & UX



The digital transformation and the pandemic, in particular, has forced us to use a multitude of unfamiliar tools and systems. While every programmer has their own thoughts as to how software is to be used, users might have a very different idea. Our U<sup>x</sup> team helps to apply generic concepts to user interfaces and to create software that is easy and intuitive to use.



## Links

[Academic career \(in DE\)](#)



[Career Steps: Permanent positions](#)



17:30 - 18:30 (17/09/2021)

Abschlussveranstaltung der Tagung & GMA

**Virtual GMA conference: 16. - 17. September 2021**

[Conference website \(in DE\)](#)

[Contributions with participation of the IML \(in DE\)](#)



**Explanations concerning the Examic® Assessment Suite**

Interview (in DE), Dr. sc. ETH Philippe Zimmermann



u<sup>b</sup>

UNIVERSITÄT  
BERN

Medical Faculty  
www.medizin.unibe.ch

## Annual Report 2021

Annual Report 2021 of the Medical Faculty Bern  
[Read online \(pp. 172 - 173\)](#)



# Usability and User Experience

Two Challenging Disciplines as Drivers of Software Development

**Text:** Stephan Schallenberger, Dr. sc. ETH Philippe Zimmermann, 07.07.2022

2021 2022 Service Development Usability

## Usability and UX at the IML > UX

With the IML U<sup>X</sup> team (formerly U5), we have a very experienced and qualified team of UX experts at the IML. We have - for more than 15 years - been supporting and advising development projects at our institute (especially e-assessment and e-learning projects, but also various web-applications) and with diverse external clients.

Our focus lies primarily on projects in the fields of education, healthcare, and administration. However, we have also assisted Migros, UBS, SNF and other companies with projects in various phases.

If you are interested in Usability and UX services or would like to learn more about us, please visit <https://www.uhochx.ch/>.

In the following, we explain how we optimise the Usability and User Experience of our own products and those of our customers using proven methods and processes.

## Terminology

Usability and User Experience are two challenging and interdisciplinary fields that play a central role in software, product, and process development. UX experts not only connect the stakeholders in the development process with each other (clients, developers, visual designers, users, etc.) and mediate between them, but also accompany the development through all phases: from brainstorming to testing after implementation with a wide variety of methods.

But what are Usability and User Experience? And what do experts in these fields actually do?

**Usability** is a quality measure that indicates how easy, efficient, and effective a software or product is to use. At the same time, the term Usability also refers to a discipline in which various methods are used to actively simplify and improve the use of a system.

A somewhat exaggerated definition has been expressed by David McQuillen: “Usability is about human behaviour. It recognizes that humans are lazy, get emotional, are not interested in putting a lot of effort into, say, getting a credit card and generally prefer things that are easy to do vs. those that are hard to do.[<sup>1</sup>]”



However, it was precisely aspects of the emotionality of users that received little attention in the early days of Usability (1980s). This is not surprising, since Usability methods advanced primarily from the field of Ergonomics. From the mid-1990s - and increasingly after 2005 - a somewhat more comprehensive view of the development and assessment of human-product interactions became established, the User Experience.

The term **User Experience (UX)** describes all impressions and experiences of a user during the digital and/or physical interaction with a product, service or institution over time.

Compared to Usability, the UX of a product is not easily measurable, as it also includes hedonistic aspects (e.g., joy, pride, frustration, etc.) and therefore eludes simple measurement scales.

Both disciplines have in common that they strongly refer to the User as the centre of all attention. This clear reference has its roots in User Centred Design (UCD), a philosophy or mindset propagated by Rob Kling in 1977<sup>[2]</sup>, which made the user the centre of attention in product development (in contrast to the technology-centred approach that had prevailed until then).

Simplified, one can say that Usability is a component of the UX concept - an important component of UX, because without good Usability there will never be a good UX.

## Phases of product development

But how can good UX and usability be achieved? What are the tasks of UX designers and Usability experts?

The best way to show the versatility of this profession is to take a closer look at the different phases of product development. There are different phase models, but in principle they are all similar and differ mainly in the level of detail and the names of the phases.

### 1. Analysis (understand/research)

In this starting phase, it is the task of UX professionals to precisely define the goals of the project together with the client. The user groups are identified (and maybe «personas» are created), existing products or competing products are analysed to find out the problems and expectations of the future users of the product (UCD), so that the system can be tailored exactly to their needs.

This phase is very important and is often underestimated (and instead based on the ideas of the company management), but it is essential in a UCD approach. Typical methods used in this phase are interviews, questionnaires, observations (e.g. in a «Contextual Inquiry» or «Shadowing», where the future users are accompanied and observed while working or using a product) or the analysis of existing user data, e.g. from a predecessor product, or the analysis of competitor products.

Afterwards, order must be brought into this collection of data. Conclusions are drawn from all the different sources, and priorities are set. While the data collection is usually done directly and exclusively by the UX department, the prioritisation must be done together with the stakeholders, not least the product owner. This phase of converging information is so important (and often lengthy) that it is seen as a separate phase in some phase models.

It is here necessary to work out what the most important needs, problems and requirements of the clients and management are, where the development should start and where the focus of the project should be.

### 2. Design (ideate)

This phase usually consists of many iterative phases because it is difficult to make a concise design based on data alone. Often there are dozens of possible solutions to a given problem, even at the conceptual level.

The work of UX is particularly important here: on the one hand, as many ideas as possible must be generated («ideate») about how a problem could be solved, a certain screen or dialogue could be designed, how the basic metaphor of the whole application could be built. On the other hand, it is also about showing the stakeholders in workshops examples feeling or looking as real as possible, e.g., with concrete sketches ("wireframes"), how these ideas would look on the screen.

Here, psychological, organisational, and creative skills are required from the UX experts, but also group leadership and finally decisiveness, to select a few, but target-oriented and concrete designs from the many ideas.

The degree to which designs or concepts are created in this phase varies greatly depending on the project and its maturity. During the workshops, often not much more than sketches or even just scribbled details with a pen are recorded. Often, it is then the UX's task to make detailed wireframes of all proposals by the next workshop to provide all participants with the same information level for further discussions.

However, it can also be the case that distinct visual designs are already created in this phase (e.g. because a style guide is already available) or even applications are already implemented with simple frameworks, e.g. if the interaction between the users and the system is central and it cannot be evaluated with static wireframes.

### **3. Evaluation (validation)**

Sometimes the design phase cannot be distinctly separated from the evaluation phase, because the resulting designs are evaluated directly after a brainstorming session. Then design and evaluation alternate in short iterations.

Sometimes, however, the overall metaphor of the whole application must be created first and not details evaluated. Nevertheless, it is often necessary to select from several possible variants (there is always a multitude of possible solutions to a problem) the one that best meets the requirements of the users.

The evaluation is therefore preferably carried out again with the future users, because only they can say or show which solution is the most suitable. There are many different evaluation methods for this purpose, e.g.:

- «Guerrilla Testing» (tests not necessarily with the actual target group, but simply wherever you can find people who have a few minutes, e.g. in the cafeteria)
- Expert Evaluations (UX experts evaluate the various proposals on the basis of predefined criteria (heuristics))
- Cognitive Walkthrough (usually in a group, different tasks are solved with the test designs)
- Laboratory Evaluation (classical Usability Evaluation in a laboratory, possibly also with eye-tracking)
- and many more.

The choice of the appropriate evaluation method ultimately depends on the maturity of the design and the number of variants, as well as the available time and money budget.

Structured evaluations are a strength of the Usability discipline, as different metrics also produce comparable results that can lead to a concrete decision. As mentioned above, in the UX field it is much more difficult to compare, e.g. hedonistic attributes of different designs.

#### **(3b. Iterations)**

«Iterations» is not really a separate phase, because it can happen at any time in the UX process that one has to return to an earlier phase. For example, if it was noticed in the evaluation phase that none of the suggestions were satisfactory, then one must return to the design or even analysis phase. If you notice that information is



missing or that there have been new developments in the environment (e.g. technological, social, economic), then you have to take a step back to analysis or even to additional data collection.

## 4 Implementation

And finally follows the actual realisation of the application, the implementation. Since this phase is usually time-consuming and correspondingly expensive, one tries to have already solved as many problems and eliminated as many ambiguities as possible in the first three phases.

Nevertheless, it is often not until this phase that a graphic designer is called in, a corporate design is created, and a decision is made as to which frameworks the programmers will work with. This means that the UX is once again called upon to draw real-life, pixel-precise screens from the Mockups and Prototypes of the previous phases - based on the design framework and in close cooperation with the Visual Designer and often also with marketing/management of the customer.

In this phase, the aim is to specify each element of the user interface (UI) so precisely that the developers do not deviate from it and that an overall coherent and attractive UI, and thus an attractive User Experience, is created and maintained in the final product.

### UCD as a process

Today, newly planned products usually go through these phases. Unfortunately, clients often demand shortcuts and leave out some phases because of scarce resources, but most of the times, the resources saved are needed multiplied in later phases because the UX is not as great as expected. The described phases should also be implemented for the implementation of new features in an existing product, even if they are not always necessary step by step.

For products, especially software, there is no such thing as «it's finished», because environment, technology, competition, economic situation, user needs, the company goals or developer expectations of the software are constantly changing, hence it is always in a state of flux and thus UX support is necessary, even if the product is years old.

### UX as a transdisciplinary discipline

The tasks and activities of UX experts are very diverse. In addition to creativity, a quick grasp of new fields of work, precise analytical skills or a flair for graphic design, it is above all the communicative skills that distinguish a good UX designer from a bad one.

In general, it is not uncommon for UX experts to have to keep all stakeholders on the path to the goal (or the vision) in the course of the (sometimes multi-year) project phases. Be it because there are personnel changes in the project team or because the stakeholders lose themselves in their particular interests after a certain time. It is often up to the UX to defend the continuous course of the project and a consistent project result, because it is indispensable for a good User Experience to always keep the wishes and needs of the users in focus and to consistently pursue the defined goals.

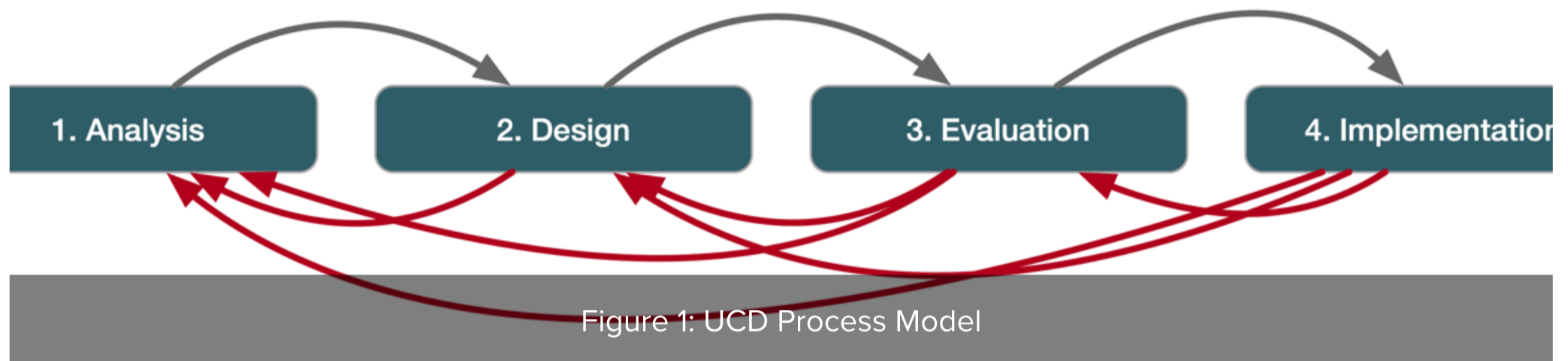
In each phase of the UX cycle, communication with different stakeholders in different roles is necessary:

- In interviews with users to get the desired information for the analysis
- Reflecting back to the client or "product owner" that the specifications or specified requirements are not sufficient
- Lead a workshop or focus group to ensure that useful information flows
- Negotiate with the programmers to what extent they have to or can fulfil the specifications

- Bring the right people together on a project, even if they don't know each other yet
- Approaching a stranger in the cafeteria for a guerrilla/hallway test
- Presenting a prototype (or several) to the management of a company and pointing out the pros and cons
- And last but not least, writing reports to make the information gathered accessible and understandable to third parties.

With all the different demands and ideas of the project stakeholders, the biggest challenge is to always follow up and defend the contact and wishes of the users - the most important stakeholders.

## UCD Process Model



## Selected UCD Models & Artefacts

1. Analysis	2. Design	3. Evaluation	4. Implementation
Persona	Sketches	Usability Findings	Documentation
Scenario	Wireframes	Usability Issues	Pattern Library
Storyboard	Styleguide	Usability Severity	Visual Design
Use Cases	Conceptual Model	Redesign Proposal	Branding
User Journey	Navigation Map	Usability Report	...
Feature Catalogue	Prototypes	...	
...	...		

Figure 2: UCD Methods and Activities

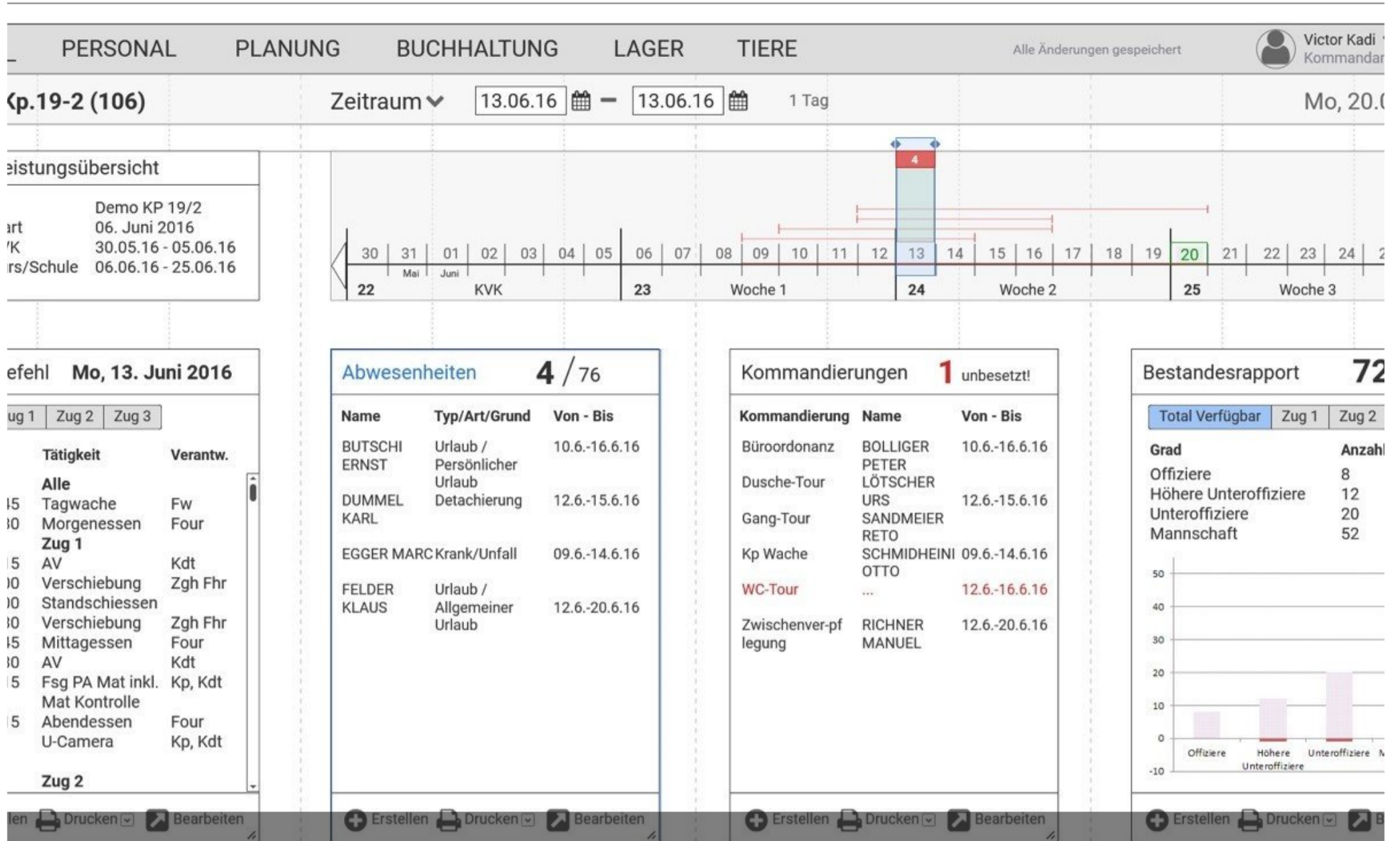


Figure 3: First Wireframes for a customer

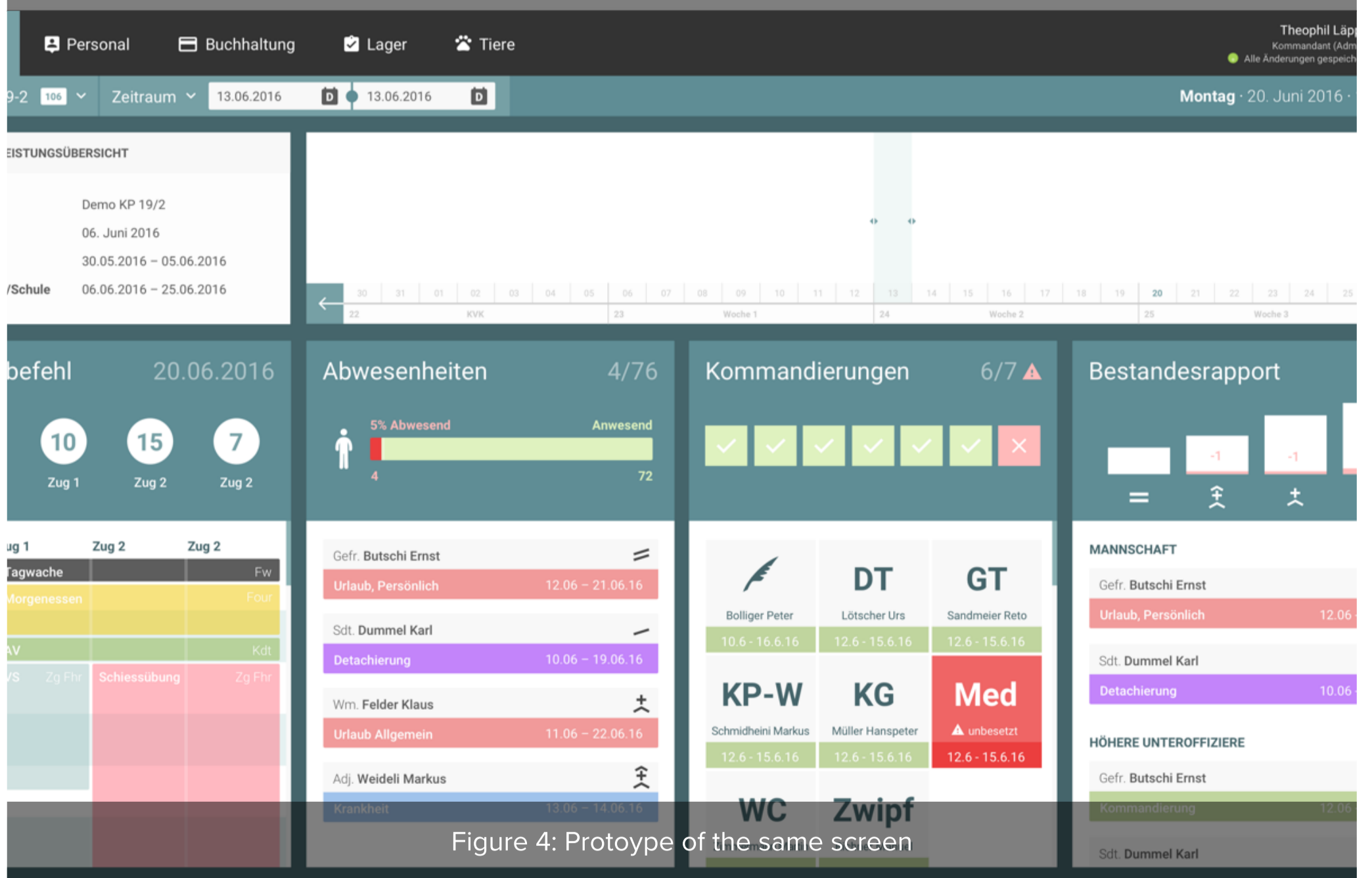


Figure 4: Prototype of the same screen



## Selected UCD Methods & Activities

1. Analysis	2. Design	3. Evaluation	4. Implementation
Focus Groups	Information Architecture	Cognitive Walkthrough	Usability Support
Questionnaires	Card Sorting	Hallway Testing	Styleguides
Surveys	UI Design	Heuristic Evaluation	Design System
Interviews	Visual Design	Expert Reviews	Optimizations
Observations	Information Design	Usability Testing	Design Refinements
Contextual Inquiries	Interaction Design	...	...
	Workshops		

Figure 5: UCD Models and Artefacts

### Anmerkungen

[1] David McQuillen in «Taking Usability Offline» Darwin Magazine, June 2003

[2] Kling, R. (1977). The organizational context of user-centered software designs. MIS quarterly, 41-52.

Links

<https://www.uhochx.ch/>



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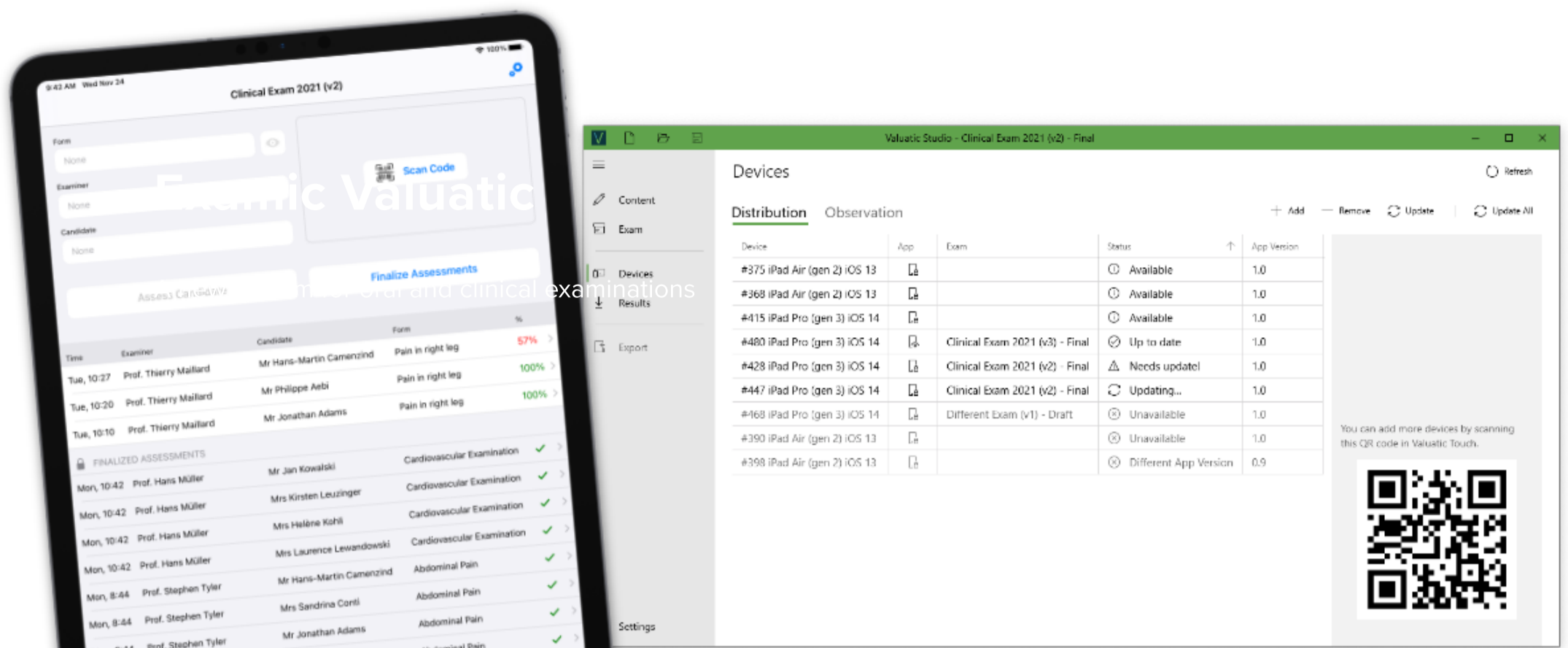


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2021 2022 Assessment Development Examic Usability

Examic Valuatic is a new software system that will replace Examic EOSCE. Valuatic is being developed with all the experience and feedback in mind that we collected over the last 10 years from our partners and in close cooperation with the assessment practitioners that run OSCEs.

There are 2 Valuatic applications: Valuatic Studio, a Windows application which allows you to create, distribute and observe exams as well as collect and export results. And Valuatic Touch, an iOS application with which examiners assess candidates.

Valuatic has some powerful features, such as a wide range of item types within the checklists, the possibility to run random, not predefined schedules, scan QR codes to select checklists, students and examiners, remote data distribution to the iPads without even touching a tablet, customisable PDF reports and different server types to store the data.

### Ordering customer

Medical Faculty University of Bern  
Federal Office of Public Health FOPH  
Institute for Medical Education

### Target group

Everyone that administers or runs clinical or oral examinations, or evaluates the performance of people, products or processes (OSCE exams, evaluations, surveys, product evaluations, vocational training, quality controls, checklists, etc.)

### Team

IML: Hansmartin Geiser, Jonathan Duss, Florian Goll, Stephan Schallenberger, Florian Neubauer, Philippe Zimmermann

### Publications

Version 1.0 was released 12-2021



Valuatic Studio

Pain in right leg

Save Form PDF...

### Edit Document

**1. Pain:**

- asks about
- Multi Select Answer : location - character - radiation -...
- Single Select Answer : Yes - +/- - No

**2. Modifying factors:**

- asks about
- Multi Select Answer : relieving factors -...
- Single Select Answer : yes - 1/- - no

**3. Asks about precipitating event such as trauma or...**

- Single Select Answer : yes - no

**4. Asks about pain worsening with Valsalva.**

- Single Select Answer : yes - no

### Multi Select Answer Modifiers

#### Content

Options

Label	Points
relieving factors	1
aggravating factors	1

#### Properties

Optional  On

Min. Selection Needed: 0 Max. Selection Allowed: -

#### Display

**Project information**

Running time: since 2018

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**Link**

Valuatic Website

[Valuatic.com](http://Valuatic.com)

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# E-Learning-Modul in «Scientific Literature Searching»

Entwicklung eines E-Learning-Moduls in «Scientific Literature Searching»

2021 2022 2023 Service Development

Das wissenschaftliche Team der UB setzt sich als Ziel, möglichst interaktive, lehrreiche und ansprechende E-Learning Angebote zu entwickeln, die den Bedürfnissen der Benutzenden gerecht werden. In diesem Projekt und durch die Zusammenarbeit zwischen der UB und dem IML bezwecken wir, mit einem ersten Modul zu «Scientific Literature Searching» den Grundstein für gute eLearning Angebote rund um wissenschaftliches Arbeiten für Studierende zu legen.

Die Lehrangebote dienen zur Vorbereitung für das Verfassen einer Masterarbeit oder später für eine Publikation. Je nach Thema der Masterarbeit und/oder Publikation (Experimentelle Laborarbeit, klinische Studie, Guideline, Scoping Review, Systematic Review, Vergleichsstudie) stellen sich andere Anforderungen an die nötigen Kompetenzen in der Literaturrecherche. Die Vorteile des E-Learning-Kurses liegen einerseits in seinem modularen Aufbau, der den unterschiedlichen Bedürfnissen an Kenntnistiefe gerecht wird. Andererseits kann der gesamte Kurs oder können die einzelnen Module davon im Selbststudium gemacht werden, oder im Kombination mit Präsenzlehre eingesetzt werden (z.B. als Vorbereitung).

## Ziele

Mit diesem Projekt bezwecken wir mit einem ersten Modul zu «Scientific Literature Searching», den Grundstein für gute eLearning Angebote rund um wissenschaftliches Arbeiten für Studierende zu legen.

## Zielgruppe

Studierende und andere junge Forschende / PhD Kandidierende

## Auftraggebende

Universitätsbibliothek Medizin, der Universität Bern

## Team

IML: Prof. Dr. phil. Sissel Guttormsen, Dr. med. Ulrich Woermann, MME

Project partner: Dr. phil. Michelle Schaffer mit wissenschaftlichen Mitarbeitenden der UB-Medizin



**Projektinformation**

Laufzeit: 2021 - 2023

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# E-Learning für die Ärztekammer Niedersachsen

Beratung, Evaluation und Einbindung von eLearning für die Ärztekammer Niedersachsen (D).

2021 2022 Service Evaluation Further training

Die Ärztekammer Niedersachsen (ÄKN) in Deutschland schreibt die medizinische Lehre in der neuen Weiterbildungsordnung fest. Dies beinhaltet auch verpflichtende Vorgaben für die Qualifizierung von Ärztinnen und Ärzten, welche zur Durchführung von Weiterbildungen ermächtigt sind. Die Weiterbildung soll von hoher didaktischer Qualität sein, um die Motivation und Akzeptanz der Teilnehmerinnen und Teilnehmer zu sichern. Eine besondere Herausforderung stellt die grosse Anzahl Personen (ca. 4000) und deren Heterogenität dar. Der Heterogenität soll mit einem breiten Angebot an e-learning Modulen und verpflichtenden didaktischen Trainings Rechnung getragen werden.

## Ziele

Das neue Weiterbildungsprogramm der ÄKN wird neu entwickelt, eingeführt und evaluiert. Neben Beratung und Evaluation werden auch Lernmedien aus dem IML-Fundus zur Verfügung gestellt. Das Programm soll im Sinne eines lernenden Systems weiterhin fortlaufend evaluiert und optimiert werden. Ein IML-Team unterstützt die ÄKN dabei, diese Zielen zu erreichen.

## Auftraggebende

Ärztekammer Niedersachsen (ÄKN) in Deutschland

## Partner\*innen

Prof. Hans-Jürgen Christen, Dr. med. Christina Quandt

## Mitarbeitende

Sissel Guttormsen, Christoph Berendonk, mit Team IML

**Projektinformation**

**Laufzeit:** 2021 - 2023

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# PhD project: Online and blended learning in Precision Medicine

Improving our understanding of teaching and learning methods acceptable and applicable for frontline healthcare professionals.

2020 2021 2022 Research

Healthcare professionals are required to complete CPD (continuing professional development) but this too often becomes a tick box exercise. Education offerings for active healthcare professionals must be practical to individual needs and offer different teaching methods, whereby learning becomes a fluent, adaptable and continually moving entity tied to the needs of each individual health professional. This project will apply empirical methods to develop a best practice approach for education needs assessment to design, plan and implement a blended learning training programme to deliver a new topic, Precision Medicine, to frontline healthcare professionals.

## Aims

PhD Thesis: Implementing evidence based education to design and implement online and blended learning in Precision Medicine in the context of continuing professional development (CPD)

The results of this research will inform the design, planning and implementation of a national online and blended training programme in Precision Medicine across Switzerland.

## Financing

This research is part of the FRONTLINERS project in Precision Medicine funded by Health2030.

This PhD Project is a part of the Frontliners project, described [here](#).

## Project Team

Ms. Sharon Mitchell M.Sc, IML, PhD Candidate, University of Bern

Dr. phil. Felix Schmitz, IML, Head of Group Research, University of Bern

Dr. med. Evrim Jaccard, Clinical Physician, Department of Medicine, University Hospital CHUV, Lausanne

Prof. Dr. med. Idris Guessous, Division and Department of Primary Care Medicine, Geneva University Hospitals and Faculty of Medicine, Geneva

Prof. Dr. Dr. med. Gérard Weber, Department of Medicine, University Hospital CHUV, Lausanne

Prof. Dr. med. Jaques Cornuz, Unisanté, Faculty of biology and medicine, University of Lausanne, Rue du Bugnon 44, 1011 Lausanne

Prof. Dr. phil. Sissel Guttormsen, IML, medical faculty, University of Bern

**Project information**

**Running time:** 2020 - 2023

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# PhD project: Peer teaching ultrasound

PhD-title: «Understanding and Facilitating Near-Peer-Teaching in Ultrasound Education»

2020 2021 2022 2023 Assessment Research Teaching

Young doctors nowadays need to perform simple ultrasound investigations early on in their clinical career and ultrasound education is thus shifting to undergraduate medical education. Performing ultrasound scans is a complex skill with procedural and pattern recognition aspects best taught in small groups with just-in time feedback and verbalisation of cognitive processes. Near-peer teaching is increasingly used by medical schools to alleviate ultrasound teaching responsibility for faculty. Near-peer teaching is defined as an educational strategy in which one student teaches one or more fellow students whereas the teaching student is more advanced in the same curriculum. Little is known about near-peer teaching in the context of ultrasound education.

## Aims

The overarching aim of this PhD is to investigate how near-peers support fellow students in learning practical ultrasound skills.

## Team

PhD student: PD Dr. med. Roman Hari, MME (BIHAM)

Local PhD supervisor: Prof. Dr. Dr. med. Sören Huwendiek, MME (IML)

Supervisor: Prof. Dr. phil. Diana Dolmans (Maastricht)

Daily supervisor: Ass. Prof. Dr. phil. Rene Stalmijer (Maastricht)

## Partners

BIHAM, School of Health Profession Education Maastricht



Project information

**Running time:** 2020 – 2024

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# PhD project: Entrustable Professional Activities in Old Age Psychiatry

PhD regarding improving residency training with Entrustable Professional Activities (EPA's) in Old Age Psychiatry.

2020 2021 2022 2023 Assessment Research Teaching

PhD-Title: «Identifying and Implementing Entrustable Professional Activities to improve Old Age Psychiatry Residency Training»

The purpose of this research project is to investigate needs and requirements for an EPA-based curriculum in Old Age Psychiatry in Switzerland, to identify a set of EPAs specifically for old age psychiatry and to develop assessment methods of some of the identified EPAs. With the proposed studies, we expect to have a foundation to further develop a competency-based curriculum for residency training in old age psychiatry in terms of residents' achievement of learning outcomes, improving patient safety and patient care quality.

## Aims

The overarching aim of this PhD is to investigate the residents needs in Old Age psychiatry, to develop EPAs for a competency-based curriculum in Old Age psychiatry and to implement assessment and teaching methods for the identified EPAs.

## Team

PhD student: Seraina Lerch (IML)

PhD Supervisor: Prof. Dr. Dr. med. Sören Huwendiek, MME (IML)

Co-Supervisor: Prof. Dr. med. Stefan Klöppel

Co-Referee: Prof. Dr. med. Mathieu Nendaz

Further Supervisor: Dr. med. Severin Pinilla, M. Ed. (IML)

## Partners

University Hospital of Old Age Psychiatry and Psychotherapy Bern, Graduate School for Health Sciences Bern

**Project information**

**Running time:** 2020 – 2023

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# PhD project: Post-graduate medical education programs

What makes post-graduate medical education programs (CME) at the University-level attractive?

2021 2022 2023 Research

The number of participants of post-graduate medical programs increases significantly in later years. There are manifold challenges in this context, which need to be addressed in order to provide best-practice and up-to-date CME programs in the future: (1.) digitalization, (2.) globalization of knowledge, (3.) relevance for the society and professional development, and (4.) providing high quality, innovative teaching and learning opportunities.

Providers of CME programs must face these challenges to survive in the global competition and to attract candidates to join these programs. One way of addressing those challenges is to focus on the post-graduate program participants' needs and interests, as in the field of marketing with the strategy and concept of 'customer centricity'. This concept which normally embraces a company's strategy, structures and processes, and generates knowledge about its customers and the company's` culture, - is recently also used as a method for modelling continued educational offers at a university level.

## Aims

This PhD project will help us to develop a differentiated understanding of attractiveness of CME programs, including usefulness, accountability, practicality, return on investment, acceptability, etc.. Research on the structure, content and orientation of such programs is rare. This project sets out to fill this gap. The application of a new and efficient approach, gives structure to the research and supports a change of perspective, which is promising.

## Team IML

Melanie de la Rosa (PhD Candidate)

Prof. Dr. phil. Sissel Guttormsen (PhD Thesis advisor)

Dr. phil. Felix Schmitz (Project partner)



**Project information**

**Running time:** 2021 - 2025

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# PhD project: Continuing Professional Development conferences

PhD thesis: "Improving the outcome of conferences on Continuing Professional Development (CPD) for healthcare professionals"

2019 2020 2021 Assessment Research

There are four prominent challenges encountered during conferences for CPD which include:

Firstly, the success of conferences is often evaluated with traditional metrics e.g. participant satisfaction indicators. Secondly, conference attendees are often seen as a homogenous group. Thirdly, it is often dismissed that novice members attend conferences as a way of integrating into the community of practice. Lastly, visiting a conference is an established way of disseminating information, however, taking the knowledge from conferences and translating it into practice is difficult.

## Objective

The overarching aim of this PhD is to investigate how to evaluate and improve large-scale health professional conferences, in order to support learning and induce physician practice change.

## Project team

PhD supervisor: Prof. Dr. Dr. med Sören Huwendiek, MME, PhD student: Sai Sreenidhi Ram  
Second supervisor: Prof. Dr. Kevin Eva, Centre for Health Education Scholarship, Vancouver Canada  
Further Supervisor: Prof. Dr. med. Daiana Stolz, Universitätsspital Basel

## Financing

European Respiratory Society (ERS)

## Team IML

Sören Huwendiek, Sai Sreenidhi Ram

**Project information**

Running time: 2020 – 2023

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# PhD project: multisource feedback in postgraduate medical education

Which factors influence multisource feedback in postgraduate medical education?

2016 2017 2018 2019 2020 2021 Assessment Research

Within this PhD work, we aim to demonstrate which factors influence the effects of multisource feedback (MSF) on postgraduate medical education.

Multisource-Feedback (MSF) is an approved form of formative assessment for medical training. Typically, MSF consists of feedback given to a doctor in training by several raters via structured questionnaires. Raters can come from the groups of peers, supervisors, medical and non-medical co-workers. Their written feedback is summed up in a conversation. Here, learner and supervisor formulate individual learning goals, which can help to guide further training.

## Objective

By addressing this question, we seek to discover which influencing factors are present and how postgraduate education can be supported with the help of multisource feedback.

## Partner

Graduate School for Health Sciences

## Team

Eva Hennel (PhD student)  
Prof. Dr. Dr. med. Sören Huwendiek, MME (thesis supervisor)  
and further employees of the IML



**Project information**

**Running time:** 9/2014 – 2/2021

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**Dr. med. Eva Kathrin Hennel**  
Scientific collaborator

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# Digital Learning and Teaching (DLT)

Implementing effective digital learning and teaching in higher education beyond the Covid-19 pandemic. Aligning key players' needs, bringing distant communication close and supporting students' individual learning.

2021 2022 2023 Research Teaching Usability

The pandemic has shown the importance of well-designed Digital Learning and Teaching (DLT). Many of the current applications and implementations have weaknesses. The role of the teaching organisations, as well as the needs of lecturers and students are not well understood nor well met. In this project we aim at understanding keyplayers needs and implementing specific solutions, while investigating their effectivity. In order to keep up the current disruptive DLT development, DLT needs a conceptual framework.

## Aims

We address the following overall research question: How can medical schools effectively support lecturers and students with DLT?

**Study I:** We aim at exploring how requirements and needs are aligned between the key players in Swiss medical schools, to set the stage for future developments.

**Study II:** We investigate the impact of students' simulated patient encounters with video vs. face-to-face on perceived 'social presence', acceptance and performance.

**Study III:** Various means to support individual learning for students in a DLT context will be investigated.

## Financing

SNF Project

## Project Team

### Team IML:

Dr. med. Artemisa Gogollari (PhD-candidate)

Dr. med. Kai Schnabel, MME (Co-Project applicant)

Prof. Dr. Dr. med. Sören Huwendiek, MME (Project partner)

Dr. phil. Felix Schmitz (Scientific collaborator)

Prof. Dr. phil. Sissel Guttormsen (Main applicant)

### Project partners:

Dr. med. Christian Schirlo, MME (Uni Luzern), Dr. med. Dr. sc. Stefan Gysin (Uni Luzern), Dr. rer. biol. hum. Daniel Tolks (LMU), Sören Huwendiek (IML)

**Project Information**

**Project period:** 2021 - 2025

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# From threat to challenge

Improving medical students' stress response and communication skills performance through stress arousal reappraisal and preparatory worked example-based learning when breaking bad news to simulated patients

2021 2022 Research Teaching

Braking bad news (BBN) to patients is a frequent and stress-evoking task for many physicians. Medical students do already practice this demanding task in communication trainings with simulation patients. The intensity of their stress reaction is comparable to that in the real situation and can lead to a decrease of their BBN skills performance. Therefore, it is important to provide strategies that help medical students to effectively deal with this highly stressful communication task.

## Aims

The aim of this project is to explore the effects of the strategies «stress arousal reappraisal» and «preparatory learning with worked examples» on medical students' stress response and BBN skills performance. For this purpose, 200 medical students from Swiss universities will be tasked with BBN to simulation patients. BBN skills performance, cardiovascular activity, stress hormone release and the subjective stress perception of the students will be recorded.

## Financing

SNF Project

## Project Team

### Team IML:

PD Dr. med. Christoph Berendonk, MME, Dr. phil. Felix Schmitz, Prof. Dr. phil. Sissel Guttormsen

### Project partners:

Dr. Patrick Gomez (Uni Lausanne), Univ.-Prof. Dr. Urs Markus Nater (Uni Vienna)



**Project Information**

**Project period:** 2021 - 2025

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**PD Dr. med. et MME Christoph Berendonk**  
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# Medical Education and Corona

This project aims at identifying and describing the experiences made at the Swiss medical schools after having to suddenly switch from on-site to online teaching; in particular, the experienced issues, needs, and solution approaches shall be investigated.

2020 2021 Research

It is important to monitor this process carefully, and learn from the experiences. A structured interview guide was developed based on factors identified in the literature.

## Aims

The responsible curriculum leaders at the Swiss medical faculties participated in a series of structured interviews during the Spring 2020. This project will deliver a better understanding of the actual transition from on-site to on-line teaching including barriers and problems encountered, solutions or innovative ideas for facilitating this transition.

## Partners

IML: Prof. Dr. phil. Sissel Guttormsen, Dr. med. Artemisa Gogollari

## Related publications

Guttormsen, S. (in print). Die Bedeutung von Präsenz in der medizinischen Lehre: Erfahrung und Forschung Hand in Hand. In Stanisavljevic, Marija & Tresp, Peter: (Digitale) Präsenz. ([Invited paper](#))

Bauer D, Brem B, Guttormsen S, Woermann U, Schnabel K (2020). How COVID-19 accelerated the digitization of teaching in the medical program at the university of Bern. [VSH / AEU Bulletin](#), Vereinigung der Schweizerischen Hochschulen, 46, 3/4, ISSN 166- 9898

**Project information**

**Running time:** 2020 - 2025

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# Precision Medicine for FRONTLINERS

Is a multi-support learning platform on Precision Medicine for the daily practice of frontline care professionals.

2019 2020 2021 Development Research Teaching

Nowadays, the majority of primary care professionals are not prepared to deal with issues related to precision medicine.

Frontliners is a training program that offers basic and advanced training opportunities to primary care professionals (PCPs) including physicians, pharmacists and nurses to support them in delivering high-value information, advice and care in precision medicine (PM) to their patients.

## Objective

- Offer an online platform with practical ready to use content
- Provide onsite learning and networking opportunities
- Present quality resources and information on PM
- Bringing together the best experts as teachers and mentors

## Project team

Prof. Dr. med. Idris Guessos, Geneva University Hospitals, UNIGE (Project head)

Prof. Dr. med. Jacques Cornuz, Unisanté/UNIL (Co-Applicant)

Prof. Dr. Dr. med. Gérard Waeber, CHUV/UNIL (Co-Applicant)

Prof. Dr. phil. Sissel Guttormsen, IML, medical faculty, University of Bern (Co-Applicant)

## Financing

[health2030](#)

## Team IML

Sissel Guttormsen, Felix Schmitz, Sharon Mitchell, Daniela Schmid, Philippe Zimmermann

## Recent publication

Mitchell, S., Jaccard, E., Cardineaux, R., Collombet, P., Cornuz, J., Waeber, G., Guessos, I., Guttormsen, S. (2020), *Implementing an Online Training Programme in Precision Medicine for Primary Care Professionals: a Multi-Method Approach*. Short paper in the Proceedings of 17<sup>th</sup> IADIS international conference on Cognition and

Exploratory Learning in Digital Age (CELDA), 18. – 20.11.2020, Lisbon, Portugal.

**Project information**

**Running time:** since 2019

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# Gender gap phenomenon

Gender differences in the career motivations of health professionals.



2020 2021 Research

Despite numerous attempts to promote equality between women and men, there are still significantly more men in top positions in Switzerland. This gender gap phenomenon is not only found in companies, but is also visible in socially-oriented professions such as medicine and psychology.

## Aims

This project seeks to investigate whether there is a gender difference in career motivation among students of medicine and psychology. It will also examine whether career motivations change in a gender-specific manner over the course of the degree, and which of the influencing factors that are already known are most influential.

## Partners

IML: Prof. Dr. phil. Sissel Guttormsen, Dr. phil. Felix Schmitz

Institute of Psychology: Prof. phil. Achim Elfering, Ellen Surdel (Student)

## Publications

Planned

**Project information**

**Running time:** 2020 - 2022

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# Communication is a key competence

Communication with cancer patients and their families about approaching death: scaffolding conceptual and practical learning for health professionals

2019 2020 2021 2022 Service Development Research

Despite extraordinary scientific breakthroughs, cancer remains the top two causes of death in Switzerland. This makes ‘communication about approaching death’ a main communication task for oncology health professionals. Our project aims at supporting oncology health professionals in performing these conversations with confidence and positive impact for all involved. Evidence shows that communication skills can be learned and that they have the potential to influence how people die, how families adjust to bereavement, and how health professionals cope with death in their work.

## Objective

Based on state of the art of research, we will develop a new learning module on the [DocCom.Deutsch](#) learning platform, addressing the issue of communicating approaching death. We will deliver a state-of-the art communication guide for oncology health professionals through an eLearning blended approach, and test the efficiency of learning and employing this approach through research.

## Project team

Prof. Dr. phil. Sissel Guttormsen, IML, medical faculty, University of Bern (Main applicant)

Prof. Dr. med. Steffen Eychmüller, Universitäres zentrum für Palliative Care, Inselspital Bern (Co-applicant)

Dr. Sofia Zambrano, Universitäres Zentrum für Palliative Care, Inselspital Bern (Co-applicant)

Dr. med. Kai Schnabel, MME, IML, medical faculty, University of Bern (Co-applicant)

## Financing

[Krebsliga Schweiz](#)

## Team IML

Sissel Guttormsen, Kai Schnabel, Felix Schmitz, Beate Brem



**Project information**

**Running time:** since 04/2019

Modul „Über das Sterben sprechen“  
[Talking about dying]

online (in DE)

since 11/21 (login required)



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# Spiritual Care in Chronic Pain

Interdisciplinary Research for Interprofessional Practice in Medicine and Nursing.

2017 2018 2019 2020 2021 Research Teaching

The significance of spiritual aspects in the management of chronic pain will be described (Part A), and a screening tool will be developed (Part B). An e-learning tool focusing on pain and spirituality will be developed for communication training purposes between healthcare professionals and patients (Part C). The efficacy of the tool will be evaluated with respect to both initial and more advanced training with the participation of various training institutes.

## Aims

The study has two goals. Firstly, the significance of the spiritual dimension in medical treatment and nursing will be investigated in chronic pain patients and an appropriate surveying tool will be developed. Secondly, an e-learning tool will be developed for communication between healthcare professionals and patients, and its efficacy assessed.

## Lead

Prof. Dr. S. Peng Keller, Theological Faculty, University of Zürich

## Co-applicants:

- Prof. Dr. med. M. Rufer, Psychiatrische Poliklinik Universitätsspital Zürich
- Prof. Dr. med. Dr. phil. N. Biller-Andorno, Institut für Biomedizinische Ethik und Medizingeschichte
- Dr. phil. A. Bischoff, Haute école de santé Fribourg
- Prof. Dr. phil. R. Spirig, Abteilung Klinische Pflegewissenschaft, Universitätsspital Zürich
- Prof. Dr. phil. S. Guttormsen, Institute for Medical Education (Lead project C)

## Target group

Health professionals, pre- and post graduates.

## Team IML

Prof. Dr. phil. Sissel Guttormsen (Lead Part C)

Dr. med. Daniel Bauer, MME

Dr. med. Beate Brem, MME

Dr. phil. Felix Schmitz

Dr. med. Kai Schnabel, MME

**Project Information**

**Project period:** 2017 - 2021

**Funding:** NFP / SNF

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# Self-Directed Learning (SDL) in Clinical Work-Life

How can specialists be supported in highly individualized learning processes with the help of modern tools?

2018 2019 2020 2021 2022 Research Teaching

To guarantee high-quality services, health professionals are required to successfully maintain their extensive knowledge base. Health professionals are forced to consistently stay up-to-date in their field in which new knowledge is evolving continuously. There is a strong need for effective support during their lifelong self-directed, learning processes.

## Objective

We investigate the SDL processes from different perspectives:

- i) Elements of the learning process,
- ii) the view of work and organisation psychology (models and effects on individuals and systems),
- iii) needs and experiences of health professionals in their daily lives,
- iv) elaborating technical tools supporting the learning process, and needed features and functionalities.

## Partner

Prof. Dr. med. Andreas Raabe, Dr. phil. Jodie Freeman both University clinic for neurosurgery, Insel-Hospital Bern

Prof. phil. Achim Elfering, and Linda Christa, both Institute of Psychology, department of work and organisation psychology, University of Bern

## Team IML

Prof. Dr. phil. Sissel Guttormsen

Dr. phil. Felix Schmitz

Dr. sc. ETH Philippe Zimmermann

**Project information**

**Running time:** 2018 - 2023

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# Develop the Examic Assessment Suite

Applications to support exam services in the written and practical domains.

2017 2018 2019 2020 2021 2022 2023 Assessment Service Development Examic Usability

Develop and maintain various applications to support exam services in the written and practical domains. The software package is also used for the Federal Licensing Exams and is implemented in various other exams.

## Objective

Support the whole assessment cycle for written (Measured®) and practical (EOSCE®) exams through user-friendly applications.

## Ordering customer

Federal Office of Public Health  
Faculty of Medicine, University of Bern  
Institute for Medical Education  
Various other partners

## Team

Axel Hahn, Daniela Schmid, Daniel Schüler, Florian Goll, Hansmartin Geiser, Jonathan Duss, Kai Gerszewski, lic. phil. Lukas Rieder, Martin Gasser, Michael Stämpfli, Neil Docherty, Rafael Beck, Raphael Laubscher, Roger Meier, Samuel Tonini, Stefan Tanner, Stephan Schallenberger (MAS in HCID), Pavlyukov Vladimir Vladimirovich, Dr. sc. ETH Markus Dahinden, Dr. sc. ETH Philippe Zimmermann

**Project information**

Running time: since 2012

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**Read more**

Project-Website Examic® Assessment Suite

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# DocCom.Deutsch: Web-based learning modules

DocCom.Deutsch is a series of media-supported online modules for basic, intermediate and advanced training in communication in the healthcare sector. Doctors and specialists from Switzerland, Germany and Austria are

involved.



2016 2017 2018 2019 2020 2021 2022 Service Teaching Usability

## Objective

The modules convey theory and practical examples that represent preparation for hands-on communication training.

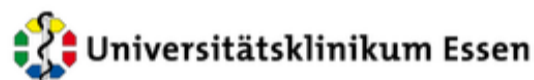
## Target group

Healthcare professional and specialist trainees

## Team IML

Sissel Guttormsen, Kai Schnabel, Daniel Bauer, Adrian Michel, Axel Hahn

## Partners, who are already using the learning platform



## Publications

Brem, B.G., Plüer, J., Schnabel, K.P., Peng-Keller, S., Guttormsen Schär, S., Schmitz, F.M. Fokusgruppenstudie zur Validierung eines "spiritual-care" Gesprächsmodells. In: Jahrestagung der Gesellschaft für Medizinische Ausbildung (GMA). Zürich, 09.-12.09.2020. Düsseldorf: German Medical Science GMS Publishing House; 2020. DocV-040. <https://dx.doi.org/10.3205/20gma059>

Peng-Keller, S., Guttormsen. S., Rufer, M (2020). Spiritual Care als Aspekt einer multimodalen Schmerzbehandlung. Prim Hosp Care Allg Inn Med.;20(12):375-376. <https://doi.org/10.4414/phcd.2020.10312>.

Schmitz FM, Schnabel KP, Bauer D, Woermann U, Guttormsen S. Learning how to break bad news from worked examples: Does the presentation format matter when hints are embedded? Results from randomised and blinded field trials, Patient Educ Couns. 2020. <https://doi.org/10.1016/j.pec.2020.03.022>

Schmitz FM, Schnabel K, Bauer D, Bachmann C, Woermann U, Guttormsen S. The learning effects of different presentations of worked examples on medical students' breaking-bad-news skills: A randomized and blinded field trial, Patient Educ Couns. 2018; 101(8):1439-1451. <https://doi.org/10.1016/j.pec.2018.02.013>

Guttormsen S, Langewitz W, Schnabel K. „DocCom.Deutsch“ Ein videobasiertes Instrument zum Kommunikationstraining in Gesundheitsberufen. Jahrestagung der internationalen Gesellschaft für Gesundheit und Spiritualität: Spiritual Care im Kontext Chronischer Erkrankungen und Schmerzen. Zürich, 27.-28.10.2017.

Schmitz FM, Schnabel K, Stricker D, Fischer MR, Guttormsen S. Learning communication from erroneous video-based examples: A double blind randomised controlled trial. Patient Educ Couns. 2017; 100(6):1203-1212-  
<http://dx.doi.org/10.1016/j.pec.2017.01.016>

Lanken PN, Novack DH, Daetwyler C, Gallop R, Landis JR, Lapin J, Subramaniam GA, Schindler GA. Efficacy of a Media-Rich, Internet-Based Learning Module Plus Small Group Debriefing on Medical Trainees' Attitudes and Communication Skills with Patients with Substance Use Disorders: Results of a Two-Center, Cluster Randomized Controlled Trial. Acad Med. 2015; 90(3): 345-354. <https://doi.org/10.1097/ACM.0000000000000506>

Daetwyler CJ, Cohen DG, Gracely E, Novack DH. eLearning to enhance physician patient communication: A pilot test of "doc.com" and "WebEncounter" in teaching bad news delivery. Med Teach. 2010; 32: e381-e390.  
<https://doi.org/10.3109/0142159X.2010.495759>

**Project information**

**Running time:**

Phase I: 2011 – 2014

Since 2014: continuous support and development

**Financing:**

Phase I / Donation through Novartis Foundation for People and the Environment



**Link**

[Website DocCom.Deutsch \(in DE\)](#)



# EU project „did-act“ on clinical decision-making

An adaptive curriculum for clinical reasoning for students and instructors is to be developed, implemented and disseminated in order to better prepare future doctors and to avoid mistakes.

2019 2020 2021 Assessment Research

Clinical decision making (also referred to as clinical reasoning) is a skill that healthcare students must learn during their studies and then further develop in clinical practice. This process involves the use of clinical knowledge to gather and integrate information from various sources to ultimately lead to a diagnosis and a management plan for patients.

## Objective

- design, develop, evaluate and disseminate a curriculum for clinical decision-making
- develop a train-the-trainer course for lecturers.
- Optimal learning should be achieved through a combination of online and classroom teaching. In order to facilitate the dissemination and use of the new curriculum, it can be adapted to existing curricula, which should make it easier for both curriculum planners and lecturers to gradually integrate it.

## Financing

Co-financed by the EU

## Project Team

### Project team IML:

Sören Huwendiek & Felicitas Wagner

**Project coordinator:** University of Augsburg, Project manager: PD, Dr. med. Inga Hege.

## Project partners:

- Jagiellonian University, Krakow:  
Andrzej A. Kononowicz, PhD; Małgorzata Sudacka, MD; Magdalena Szopa, PhD
- University of Bern:  
Sören Huwendiek, Assoc. prof., MD, PhD, MME; Felicitas Wagner, PhD; Isabelle Steiner, MD
- Faculty of Medicine, University of Maribor in Slovenia:  
Monika Sobocan, MD, Prof. Zalika Klemenc-Ketis, MD, Prof. Sebastjan Bevc, MD, PhD; Prof. Breda Pecovnik Balon, MD, PhD; Prof. Breda Pecovnik Balon, MD, PhD

- Instruct ([www.instruct.eu](http://www.instruct.eu)):  
Martin Adler is CEO; Carina Pfeifer
- Örebro University:  
Associate profs: Samuel Edelbring; Kristin Ewins; Wiegleb Edström; Elisabet Welin, Prof.
- Digital Education Holdings Ltd., Malta:  
Nils Thiessen, MD; Jasmin Düsterhöft, MD; Federico Arevalo, MD

**Project information**

**Running time:** 2019 - 2021

**Links**

["did-act" website](#)



# HemoSurf development

HemoSurf is educational software teaching morphological haematology that is known and used worldwide.

2019 2020 2021 Service Development

The extensive figures are from a time in which digital photography was not as advanced as it is today. The pictures were taken with a video camera and a frame grabber and are rather small and low-resolution. The figures are to be replaced by new images. In addition, HemoSurf will also be translated into Spanish.

Since the sale of HemoSurf on CD-ROM is no longer viable, in the medium term, an online version with online payment is planned.

## Objective

- New figures
- Spanish version of HemoSurf
- Online licencing

## Partner

Prof. Dr. med. Vera Ulrike Bacher, Universitätsklinik für Hämatologie und Hämatologisches Zentrallabor

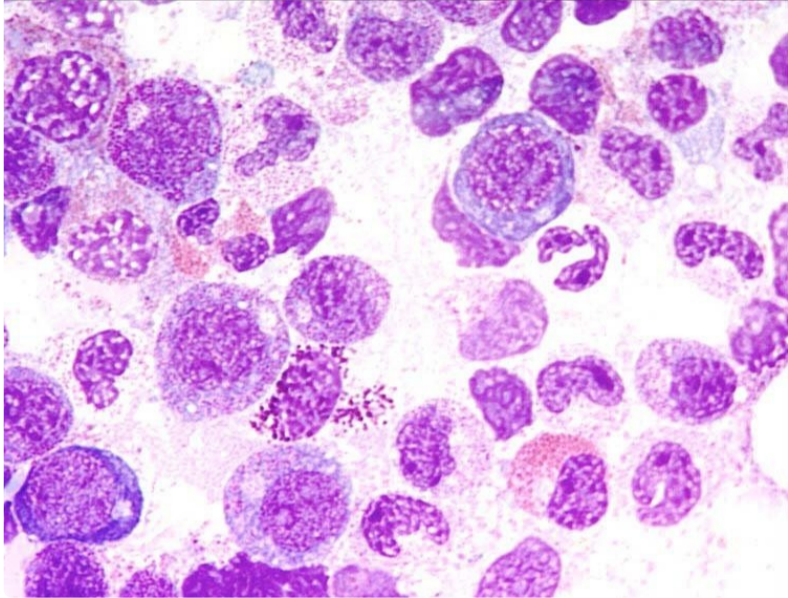
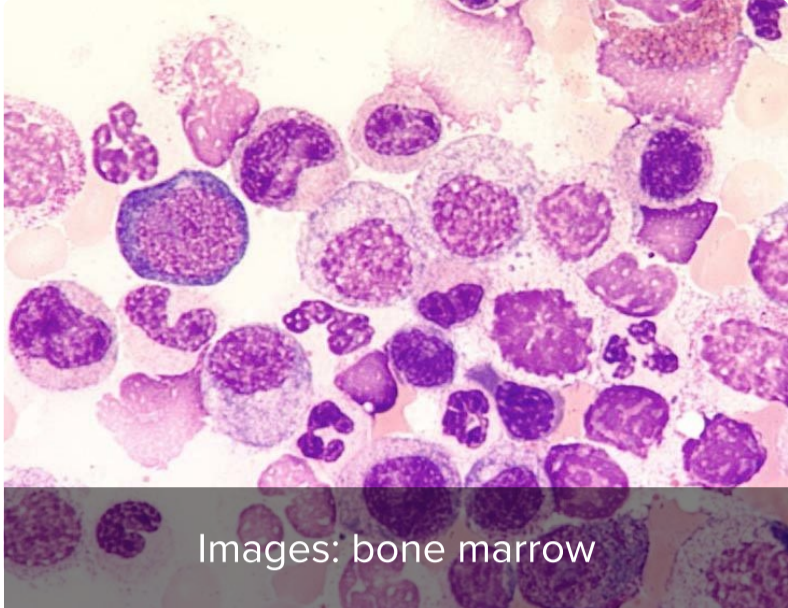
## Team IML

Ulrich Woermann, Adrian Michel, Andrea Leonardo Abgottspon



**Project information**

**Running time:** 01/2019 – 12/2021



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Scientific collaborator, Head of Group learning media

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# SOREL – maintain and redesign

SOREL is an online learning program funded by all five medical faculties in Switzerland and the Swiss Society of Otorhinolaryngology, Head and Neck Surgery.

2016 2017 2018 2019 2020 2021 Service Further training

The Department for Education and Media (AUM) has been maintaining the SOREL program since 2011. The system needs an update, therefore, it is now being redesigned to meet the latest Internet standards. This will make the learning program more attractive for users and make the contents easier to edit for authors. Moreover, in the future, all five university ENT departments (University Clinics for Ear, Nose and Throat Medicine) should be able to install SOREL on their own servers. The revised learning program will provisionally be available from Autumn 2018.

## Objective

- Compatibility with HTML 5
- Modern design
- Optimized for touch screens
- WYSIWYG authoring

## Partners

All five university ENT departments in Switzerland plus the Swiss Society of Otorhinolaryngology, Head and Neck Surgery. The partners are funding the project.

## Team

Adrian Michel

Dr. med. Ulrich Woermann, MME

Dr. med. Nick Lüthi, MME

**Project information**

**Running time:** since 10/2014

**Funding:** by the partners

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# Communication courses for Sanacare group practices

Communication courses for the medical staff of the 13 Sanacare group practices. Including role play among themselves and with simulated staff.

2020 2021 2022 Service Development

Communication courses on the following topics:

- Motivational Interviewing
- Giving feedback
- Breaking bad news
- Shared decision making
- Blended learning concept with pre-course preparation using [DocCom.Deutsch](#)

This is envisaged as a pilot course.

## Objective

- Development of 4 half-day courses on the above topics
- Presentation of all courses (52 dates)
- Standardisation of courses for use by other interested parties.

## Ordering customer

Sanacare

## Financing

Sanacare

## Team IML

Ulrich Woermann, Kai Schnabel, Beate Brem, Daniel Bauer, Adrian Michel



**Project information**

**Running time:** 01/2020 – 12/2023

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# MedSurf

Numerous online learning programs like MorphoMed, RadioSurf or CliniSurf, which were developed at the Department for Education and Media AUM at the IML in conjunction with specialist representatives from the Faculty of Medicine, need to be updated.



2016 2017 2018 2019 2020 2021 2022 Service Development Usability Further training

To enable continued use of these very popular learning programs in the future, a transition from both a technological and creative perspective is essential.

## Objective

Our online learning programs need to comply with the latest standards and need to be seamlessly usable with the whole range of modern devices. New features like a comprehensive search function or deep linking improve the user experience.

Through the development of an author system for learning content also the creation of complex didactic scenarios is supported.

The following learning modules were realized with MedSurf:

- MorphoMed for Anatomy, Histology and Pathology
- RadioSurf for radiology of the chest, the skeleton and the head
- ChiroSurf for surgery
- DentoSurf for dental medicine

More learning modules are in preparation. A list of all our online learning programs can be found [here](#).

## Ordering customer

Faculty of Medicine, Bern

## Team

### Institute of Anatomy, University of Bern

PD Dr. med. Gudrun Herrmann

## IML

Dr. med. Ulrich Woermann, MME

Dr. med. Nick Lüthi, MME

Samuel Heinzmann

Andrea Gottsponer

Thomas Guthruf

Daniela Schmid

**Project information**

Running time: since 2016

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# «BeFit» Project

Evaluation of the «BeFit» Project.

2020 2021 2022 Service

The «BeFit» project aims to improve the physical activity of ankylosing spondylitis sufferers via the promotion of a specific training concept, thereby improving their quality of life. It also seeks to implement this concept throughout Switzerland.

## Aims

The aim of the evaluation is to follow the BeFit project throughout its entire duration and to assess its results and effects.

## Client

Health Promotion Switzerland (GFCH)

## Co-workers

Felicitas Wagner, Barbara Zurbuchen, Corinne Dreifuss, Sören Huwendiek

**Project information**

**Running time:** 02/2020 - 04/2024

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# Evaluation to accompany the "Steigbügel" project

Supporting professional reintegration following parental leave.

2017 2018 2019 2020 2021 2022 Service Evaluation Further training

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The project aims to support the professional reintegration of physicians who have been away from their profession for a longer period of time for family reasons. Over 12 months, the participants complete a residency program and are supported by various offers (e.g. coaching).

## Objective

The purpose of the accompanying evaluation is to check the success of the project and to identify factors for success.

## Ordering customer

[medical women Switzerland \(mws\)](#)

## Team

Dr. phil. Felicitas Wagner

lic. phil. Barbara Zurbuchen

Prof. Dr. phil. Sissel Guttormsen

Prof. Dr. Dr. med. Sören Huwendiek, MME

**Project information**

**Running time:** 5/2017 – 2/2022

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# Literature search and academic writing

Evaluation of workshops and lectures in literature search and academic writing.

2019 2020 2021 Service

The University Library of Bern (UB) is offering new lectures and workshops in systematic literature search and academic writing for students of human medicine. As part of the first implementation, systematic evaluations are planned.

## Aims

The goal of the evaluation is to provide the UB with useful data to arrive at conclusions regarding the quality of the new lectures and workshops and potential for improvement.

## Team

IML: Felicitas Wagner, Corinne Dreifuss, Sissel Guttormsen

**Project information**

**Running time:** 11/2019 – 07/2021

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# DocCom.Deutsch

Good communication between all stakeholders in the healthcare system can be learned.

**Text:** Prof. Dr. phil. Sissel Guttormsen Schär, 13.05.2022

Communication is a key skill in healthcare and central to a good relationship between healthcare professionals and patients, and contributes to optimal patient care. DocCom.Deutsch (DCD) is an established online learning platform that facilitates the acquisition of communication skills. The DCD project was initiated 10 years ago – a good time point to look back and to the future.

The first German-language DCD version was inspired by the US production “DocCom” and was developed in 2012 with the support of the “Novartis Foundation for Man and the Environment”, multiple experts as well as the Drexel University. It became apparent that a literal translation was not useful as the cultural differences in lifestyle, conversation and care practices were too great. The first 12 modules were therefore fully adapted and all patient examples were redesigned.

## **Communication is a core skill for all stakeholders in the healthcare sector**

At the start of the DCD development, physician-patient communication was particularly emphasised. Today we are deliberately designing new modules in an interprofessional way. The importance of communication skills across the various health care professions is recognised through the increasingly widespread communication courses in nursing and medicine, in practical assessments as well as the new Master’s course in Pharmacy in Bern, where communication training is a solid aspect of the dispensing curriculum. The modules are also utilised in various Certificates of Advanced Studies (CAS) at the Universities of Bern and Zurich, and are a component of those modules with a communication focus (e.g. CAS Palliative Care).

## **Communication in healthcare**

For optimal communication in healthcare, the stakeholders can orientate themselves on high-level, evidence-based principles, which are didactically prepared in specific modules in the DCD. The following modules facilitate a good relationship between the healthcare professional and patient:

- **CENTERING:** Integration of patient-centred and physician-centred conversations
- **RELATIONSHIP:** Building the physician-patient relationship
- **HISTORY:** Obtaining information
- **PERSPECTIVE:** The patient's perspective
- **INFORMATION:** Information sharing



In addition, DCD offers modules on specific topics of conversation and particular circumstances, e.g .:

- EMOTION: dealing with intense emotions: anger, fear, sadness
- MOTIVATION: Changes in health behaviour: advice, assistance, support
- BADNEWS: Delivering bad news
- MISTAKES: Talking about incidents
- Further modules can be selected in DCD

### **DCD as a support for communication training**

The main idea behind DCD is that good communication can be learned and that the evidence-based concepts can be easily implemented through practice. DCD is designed as an online component for “blended learning”. Following individual online learning, the new knowledge is ideally applied in practical exercises in safe conditions with "simulation staff". Through feedback and peer feedback, we have documented improvements in both knowledge, behaviour and attitudes. With this foundation, it is possible to be better prepared for an in-depth experience with patients in everyday clinical practice with minimal hesitation.

The online learning opportunities from DCD thus form a bridge between theory and practice: Numerous videos show how good communication can be practically applied in different situations. So that learners can memorise the model-based communication steps shown in the video, the videos are annotated and also concise incorrect examples are provided to ensure such errors can be knowingly avoided. Important steps in the conversation are commented on and, if appropriate, further explained via talking heads. In this way, the learners obtain an insight into what experts and patients reflect on during a conversation.

During the pandemic, DCD has proven to be a helpful bridge to communication lessons at numerous medical faculties in German-speaking countries. In Bern over the lockdown, via preparation using DCD, aspects of the communication training were moved completely online. Our experience with online communication training using DCD is described briefly [here](#).

### **Research driven DCD development**

It is a fundamental principle that DCD modules are informed by research. Many basic principles of the above modules are already broadly underpinned by research. As a result of social change, new needs in patient communication are also being recognised. To this end, accompanied by research, we are developing additional communication models, e.g .:

- SPIRITUALITY: incorporating spiritual aspects. As part of an NRP 74 project. Link to [general information](#) and [module](#) (online since January 2021; registration required)
- DEATH: Conversations about impending death. As part of the following [project Link](#). [Module](#) is online since November 2021 (registration required)
- In the coming year we will be launching a new and equally important module covering “participatory decision-making”.

### **Publications**

Research on the learning effectiveness of the DCD modules is important to us. Examples of our own publications include:

- Schmitz, F.M., Schnabel, K. P., Bauer, D., Woermann, U., Guttormsen, S. (2020). Learning how to break bad news from worked examples: Does the presentation format matter when hints are embedded? Results from randomised and blinded field trials. [Patient Educ Couns, 103\(9\): 1850-1855.](#)



- Schmitz, F. M., Schnabel, K. P., Bauer, D., Bachmann, C., Woermann, U., Guttormsen, S. (2018). The learning effects of different presentations of worked examples on medical students' breaking-bad-news skills: A randomized and blinded field trial. Patient Educ Couns, 101(8):1439-1451.
- Schmitz, F. M., Schnabel, K., Stricker, D., Fischer, M. R., & Guttormsen, S. (2017). Learning communication from erroneous video-based examples: A double blind randomised controlled trial. Pat Educ Couns, 100(6):1203-1212.

The learning effectiveness of US version is also well documented.

Links

[Flyer DocCom.Deutsch \(in DE\)](#) 

[Website DocCom.Deutsch \(in DE\)](#) 



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# Good teaching and research go hand in hand

Educational research provides important building blocks to promote excellence in education. With two new 4 year SNSF projects, we are able to incorporate current themes in teaching and approach them with the necessary care and resources.

**Text:** Prof. Dr. phil. Sissel Guttormsen Schär, 17.05.2022

2021

2022

Research

Teaching

In one of the new projects, we are investigating the needs and requirements of the main educational stakeholders in digital education and how these can be optimally coordinated. In the other project, we will analyse how teaching provision of demanding duties can reduce stress if students are specifically prepared for such tasks.

In teaching, although not always acknowledged, such research should, on the one hand set the direction, and on the other scientifically assess progress. Accompanying research assesses innovations and new trends for effectiveness and makes practical teaching sustainable. In this way the necessary evidence is also produced so that resources are allocated for innovative teaching in a meaningful way. Teaching must be based on solid research and objective knowledge, because only then can it also be described as good. In medicine, in particular, where everyday clinical practice is sine qua non evidence-based, evidence-based teaching should not be as difficult to value as it sometimes is. Maybe this is due to the complexity of the implementation field? In medicine, in addition to traditional knowledge acquisition and the associated optimal teaching, a large number of practical and social skills must also be acquired. The bridge between theory and practice must function in a complex system between basic teaching and teaching in everyday clinical practice. That is and will remain challenging! It seems that the evidence concerning teaching effectiveness not always reach the educators. Or is there insufficient time for the individual teachers to deal with new teaching formats or a lack of support? It is a goal of our educational research to generate implementable needs-oriented and practically feasible innovations. How do we implement these high goals in the two new projects?

## **Digital Learning and Teaching**

The pandemic has shown the importance of good digital teaching. Many digital solutions have weaknesses, and the needs of teachers and students are often neglected. The project focuses on digital learning and teaching and investigates how necessary developments can be implemented. It is exemplarily anchored in medical teaching, but is relevant for university education generally.

We aim to better understand current needs and to investigate targeted solutions.

- In the first part of the study, we examine academic teaching as an interaction between the organisation, teachers and students. Good digital teaching is only possible when these three parties are optimally coordinated. We want to better understand the needs as well as the conducive and detrimental factors.

- In the second part of the study, we ask how a feeling of closeness and communication are experienced when conversations are conducted over video? In medicine, and wherever practical teaching is important, the pandemic has had a particular impact. For example, communication training is essential to practice good communication with patients, when such training runs online, we need to know under which condition it can be effective.

- The third sub-study focuses on the needs of the students: How can they be supported to learn independently and effectively? If there is an absence of spontaneous contact between students and teachers, students suffer particularly. Digital teaching also means that students have to learn more independently. In this study we investigate how students can be specifically supported in independent learning.

In the three studies we are seeking to address the above questions that have become particularly urgent during the pandemic. We want to conduct interviews with the target groups and design surveys, understand through controlled studies how video communication is experienced, and also how students can effectively learn independently.

### **Breaking bad News – Optimising the stress management and communication efficiency of medical students**

Physicians sometimes have to cope with emotionally stressful duties in their clinical work. Breaking bad news (e.g. giving a serious diagnosis) is one such task. Medical students do already practice this complex task as part of communication training with simulation patients and the emotional stress experienced is comparable to that in real situations. It can lead to reduced performance and thus to poorer doctor-patient communication. Therefore, it is important to teach medical students strategies that can help them deal with the stressful communication task.

A very promising approach is the «reassessment of the bodys stress reaction» (stress arousal reappraisal): The stress reaction is reinterpreted in such instances as “normal” and even “beneficial” for the fulfillment of the task. Successful preparation of the information to be communicated could also help reduce stress reactions. «Preparatory learning sequences with step-by-step demonstration» (worked examples) can be applied in this context.

The aim of this study is to examine the extent to which the strategies “reassessment of the bodys stress reaction” and “preparatory learning sequence with step-by-step demonstration” influence the stress reaction of medical students when breaking bad news. For this purpose, 200 medical students from various Swiss universities are presented with the task of informing simulated patients of a serious diagnosis. Cardiovascular activity, the release of stress hormones and the students' subjective feeling of stress will be recorded and these influences on communication performance will also determined.

If the two strategies for breaking bad news prove helpful for medical students in dealing with stress-related reactions, they could be used across the board in medical education. It would also be worth examining their use for other emotionally stressful clinical tasks. Ultimately, this could promote communication skills and the optimal management of stress reactions of prospective doctors.

These two projects show in an exemplar way how our research is generally applied, and/or aims to be implemented. What is not immediately apparent from this short description is, however, how methodically complex it is to progress such model questions to scientifically proven results. The IML is well positioned for this task. As in other projects, we work together with national and international specialists to support the project.

The pandemic has clearly shown how limiting traditional forms of teaching can be in a crisis. Research shows that face-to-face teaching combined with digital teaching aids i.e. a hybrid combination of online and on-site teaching (blended learning, team-based teaching, flipped classroom etc.) is effective. This consequently affects



the entire teaching landscape, as well as the evaluation of education. The traditional lecture format has generally been given more weight than interactive courses with small groups, although this view is no longer up to date.

The goal must be to train competent and independent students, to promote active learning, to increase personal responsibility and to create freedom for self-study - everything carefully delivered either in person, online or a combination thereof as needed. This requires content and methodological adjustments in teaching, as well as the necessary support of all stakeholders. Many research and development projects result in concrete concepts and strategies for evidence-based, effective and digitally supported medical and university education.

### Selected relevant publications on educational research

- Guttormsen, S.; Schnabel, K. [Hrsg.]. (2021). DocCom.Deutsch. Die Lernplattform für Kommunikation im Gesundheitswesen. Bern: Institut für Medizinische Lehre. <https://doccom.iml.unibe.ch>
- Mitchell, S.; Jaccard, E.; Cardineaux, R.; Collombet, P.; Cornuz, J.; Waeber, G.; Guessous, I.; Guttormsen, S. (2020). Implementing an Online Training Programme in Precision Medicine for Primary Care Professionals: a Multi-Method Approach. In: Sampson, D. G.; Ifenthaler, D.; Isaías, P. (Hrsg.) Proceedings of 17th International Conference on Cognition and Exploratory Learning in the Digital Age (pp. 359-364). Lisbon: IADIS Press.
- Berger-Estilita, J. M.; Greif, R.; Berendonk, C.; Stricker, D.; Schnabel, K. P. (2020). Simulated patient-based teaching of medical students improves pre-anaesthetic assessment: A rater-blinded randomised controlled trial. *European journal of anaesthesiology*, 37(5): 387-393. [10.1097/EJA.0000000000001139](https://doi.org/10.1097/EJA.0000000000001139)
- Krings, R.; Huwendiek, S.; Walsh, N.; Stricker, D.; Berendonk, C. (2020). Predictive power of high school educational attainment and the medical aptitude test for performance during the Bachelor program in human medicine at the University of Bern: a cohort study. *Swiss Med Wkly*, 150:w20389. [10.4414/smw.2020.20389](https://doi.org/10.4414/smw.2020.20389)
- Schmitz, F.M., Schnabel, K. P., Bauer, D., Woermann, U., Guttormsen, S. (2020). Learning how to break bad news from worked examples: Does the presentation format matter when hints are embedded? Results from randomised and blinded field trials, *Pat Educ Couns*, 103(9):1850-1855. <https://doi.org/10.1016/j.pec.2020.03.022>
- Bauer, D.; Brem, B.; Guttormsen, S.; Woermann, U.; Schnabel, K. (2020). How Covid-19 accelerated the Digitization of Teaching in the Medical Program at the University of Bern. *Bulletin VSH-AEU*, 46(3/4):3-8. <https://boris.unibe.ch/146586/>
- Guttormsen, S. (2020). Die Bedeutung von Präsenz in der medizinischen Lehre: Erfahrung und Forschung Hand in Hand. In: Stanisavljevic, M.; Treppe, P. (Hrsg.) (Digitale) Präsenz - Ein Rundumblick auf das soziale Phänomen Lehre (pp. 49-53). Pädagogische Hochschule Luzern, <https://boris.unibe.ch/149835/>
- Bauer, D., Lahner, F.-M., Huwendiek, S., Schmitz, F.M., Guttormsen, S. (2020). An overview and approach to selecting appropriate patient representations in teaching and summative assessment in medical education. *Swiss Med Wkly*. 2020;150:w20382. <https://doi.org/10.4414/smw.2020.20382>



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## Online platform for communication training

Communication is a key skill in healthcare and central to build a good relationship between healthcare professionals and patients.

Über das Sterben sprechen

Nachber

13.05.2022

2021

Service

Development

It also contributes to optimal patient care. DocCom.Deutsch (DCD) is an established online learning platform that facilitates the acquisition of communication skills.

This year we implemented two new modules into DCD: “Einbindung spiritueller Aspekte in der Patientenkommunikation” [*Integrating spirituality in patient care*] und “Über das Sterben sprechen” [*End of life conversations*].





**DocCom.Deutsch**

Project Information

[Website](#) (in DE)



# 10 years of clinical skills exams with Examic EOSCE

As a pioneer in the field of electronic OSCE assessments on tablet computers, the Institute for Medical Education (IML) started supporting clinical examinations with its own software Examic EOSCE 10 years ago.

**Text:** Dr. sc. ETH Philippe Zimmermann, 17.05.2022

2021

2022

Assessment

Development

Examic

## The beginnings

In autumn 2008, a student from the University of Applied Sciences Rapperswil presented a simple exam application at the IML, but it was installed on an unusual device - the then released iPhone 1. Initial tests showed that the size and resolution of the device were not suitable for displaying the complex OSCE checklists.

However, the idea of digitally supporting the previously paper-based and error-prone process of clinical skills (CS) examinations was happily taken up. In quick succession and in close cooperation with the CS experts of the Assessment and Evaluation Department (AAE), we subsequently developed various prototypes of digital OSCE applications and tested them in our in-house usability laboratory.

The detailed requirements analysis soon had to be extended from the pure software specifications to specifications for hardware. It turned out that the devices available at the time were all unsuitable for all-day use: batteries that discharged too quickly, reflective screens, and many other problems occurred with the different device classes. For example, the underside of a laptop became so hot during continuous operation that the test person was in danger to suffer burns during test sessions.

Lucky for us, the first iPad was introduced at that time. It soon became clear to us that this device was superior to all those tested so far and that we would like to develop an application based on it.

## Support through Switch AAA project funding

From 2009 to 2013, the development and roll-out of EOSCE (and its predecessors) was supported by the "AAA-SWITCH" funding programme. Together with the University of Applied Sciences Rapperswil and its developers, as well as various application partners (medical faculties of Zurich, Basel, and Lausanne, ETH Zurich, Bern University of Applied Sciences), EOSCE was further developed in three phases and the roll-out into the examination process was prepared.

During the entire development phase, it was very important to us that the applications had an optimal usability, i.e., that they were as easy, efficient, and error-free to use as possible. This was of particular benefit to the examiners, who are under a lot of pressure during the long examination days and should concentrate on the candidates - not on an application that is supposed to support them.

The development was therefore accompanied by a team of usability experts from the IML

(<https://www.usability.unibe.ch/>) and Rapperswil, who pursued a strict user-centred design (UCD) approach. Each new version was first evaluated in the usability lab and later in the field with examiners and was adapted according to the findings.

The project was also accompanied scientifically. Various studies, the findings of which were also published in scientific publications, examined several aspects of EOSCE, e.g. the interaction design, the use and the acceptance of the software and the practical effects of switching from paper to tablet. They led to interesting results, for example, the cognitive load of examiners decreases when working with EOSCE compared to paper-based checklists.

### **First exams with EOSCE**

In 2012, the time had come to conduct the first examinations at our faculty in Bern with EOSCE. Even in the introductory phase, we kept encountering unexpected problems. For example, the WLAN coverage in the examination rooms was often so poor that we first experimented with our own WLAN routers and then equipped EOSCE with a complete offline mode.

Operating iPads, which were new at the time, was not only met with enthusiasm. For example, at the beginning of an examination we had to convince an examiner who insisted on assessment with paper checklists to use the iPad (he then said goodbye enthusiastically in the evening and said he wanted to buy such a device for himself today). Within a short time, the examiners got used to the unfamiliar touch operation. The results of the evaluations also showed that the examiners prefer the digital evaluation with EOSCE.

After EOSCE was established at the Faculty of Medicine in Bern, other faculties in Switzerland also introduced EOSCE in the following years. And it was not only in Switzerland that the advantages of digital assessment were recognised: EOSCE was also in demand internationally by various institutions.

### **Federal examinations**

In September 2017, the time had come for the Federal Examinations in human medicine to be switched from the paper-based process to EOSCE. Because the organisation of these examinations with five different locations and two languages is much more complex than a faculty examination, individual steps in the existing process had to be adapted.

But it was in this examination that the advantages of conducting examinations digitally showed very clearly: the distribution of the examinations across the 5 locations is much easier and more secure with EOSCE; the exam can be monitored directly in real time centrally; it is no longer necessary to scan the examination sheets and thus the analysis can be started immediately after the examination.

### **The future**

Since then, EOSCE has established itself as a tool for both local and international examinations and evaluations. After more than 10 years, we had to realise that the code base of the applications, which has been updated and extended many times, is no longer maintainable. Also, the requirements of the users are becoming more and more advanced, therefore we decided in 2020 that we had to develop a completely new system on a new code base.

"EOSCE Valuatic", the successor to EOSCE, was first released in December 2021. It is a system that allows more degrees of freedom in the design of examinations and checklists and also offers a lot of new functionality. In the first examinations, Valuatic has proven to be very reliable and has been enthusiastically received with its new possibilities.





iPad 11:29 73% 🔋

Rotationen **Rotation 1** Abschliessen 04:21 **Martin Stoller**

✔	<b>Sarah Herzog</b>	★★☆☆☆
🔔	<b>Martin Stoller</b>	04:21
✘	<b>Anita Koller</b>	11:35
✘	<b>Nicole Estermann</b>	11:45
✘	<b>Hans Meier</b>	11:55
	Kein Kandidat (Pause)	
✘	<b>Markus Inderbinden</b>	12:15
✘	<b>Dominik Studer</b>	12:25
✘	<b>Reto Kuhn</b>	12:35
✘	<b>Claudia Schwaller</b>	12:45
✘	<b>Patrizia Furber</b>	12:55

### Kurzanamnese

Erfragt Ausprägungen der Müdigkeit (beides = ja)  
Dauer ; Entwicklung

Erfragt Auswirkungen der Müdigkeit im Alltag

Erfragt weitere Beschwerden (mind. 1 = ja)  
Dyspnoe ; Thoraxschmerz

Erfragt frühere Erkrankung(en)

Erfragt Sucht-Anamnese (beides = ja)  
Alkohol ; Nikotin

Erfragt Appetit- und Gewichtsveränderung (beides =ja)  
Zeitraum ; Körpergewicht (Kg)

Erfragt Fieber, Nachtschweiss, Infektion (mind. 2 = ja; 1= teils)  
Fieber ; Nachtschweiss ; Infektion

Erfragt NSAID's Medikamente

### Gesamteindruck Anamnese

Gesamteindruck Anamnese

### Zusammenfassung

Zusammenfassung der erhobenen Anamnese genügend



B4. Prüfung Hautveränderungen (0-1=nein; 2=teilweise; alle 3=ja) Arme ; Beine ; Rumpf	Bewerten...
B5. Prüfung der 4 Extremitäten (0-1=nein; 2=teilweise; alle 3=ja) Kursorische Sensibilität ; Motorik ; Beurteilung Symmetrie	Bewerten...
B6.1. Prüfung Eigenreflexe (0-2=nein; alle 3=ja) PSR ; ASR ; BSR	Bewerten...
B6.2. Prüfung Fusssohlenreflex	Bewerten...
B7. Kursorische Prüfung Hirnnerven (0=nein; 1=teilweise; beides=ja) Pupillenreaktion und Augenbeweglichkeit ; Sensibilität Gesicht und 3 Fazialisäste	Bewerten...
B8. Prüfung zentrale Lähmungen (0=nein; 1=teilweise; beides=ja) Armhalteversuch ; Beinhalteversuch	Bewerten...
B9. Kleinhirntests (0=nein; 1=teilweise; beides=ja) Finger...	Bewerten...

**A Nicht kompetent** Kommunikations-Skala  
Reagiert unangemessen und nicht effizient in der Situation, zeigt kaum entwickelte soziale

E-OSCE Station 8, Rotation 2 09:22 05:56 ( Stroller )

Martin Stroller Sarah Herzog

Aspekte des Psychostatus Konzentration, Sinnestäuschung, Ich-Störungen

Adäquate Begrüßung (Handgeben, Anrede mit Namen), klärt Funktion, schafft günstige Situation

gut **genügend** ungenügend schlecht

**Psychostatus**

ja  nein Offene Frage nach Wohlbefinden, Medikamentenverträglichkeit, o.ä.

**Nachfragen zur Art der Sinnestäuschungen**

ja  nein Akustisch

ja  nein Genauer Charakter der Sinnestäuschung erfragt (wer, was, wie, wie oft etc.; mind. 2 Aspekte erfragt = ja)

ja  nein Optisch

ja  nein Körper

ja  nein Geruch und Geschmack

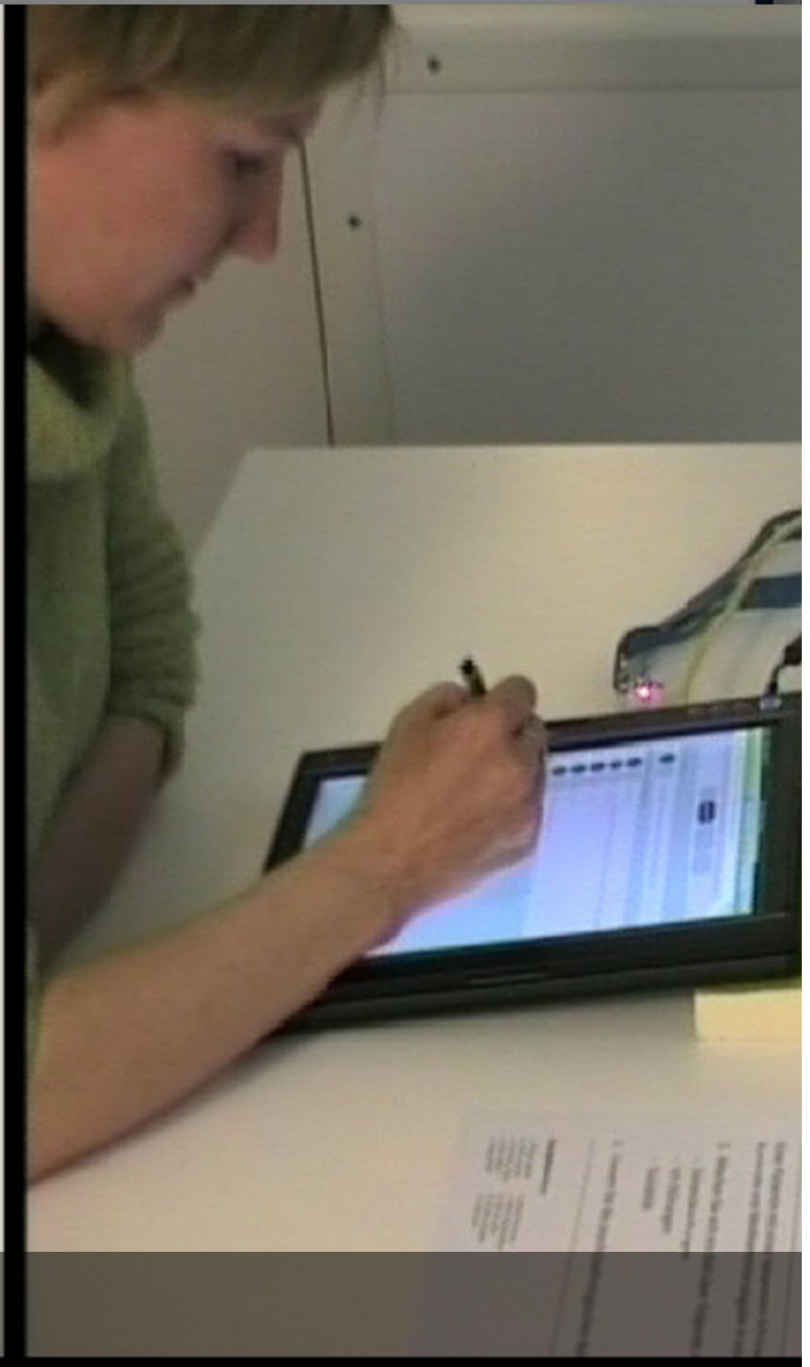
**Ich-Störungen**

ja  nein Derealisationen

ja  nein Depersonalisationen

ja  nein Gedankenausbreitung, -entzug, -eingebug (mind. 2 = ja)

ja  nein Fremdbeeinflussungserleben



Usability-Test





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# Children as simulated patients in practical exams

Use of primary school children as simulated patients as part of a practical exam (OSCE) meets international criteria for good examinations.

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According to a current publication by the Institute for Medical Education, the use of child actors as patients as part of a practical exam fulfils most of the international criteria for a good examination. The use of primary school children acting as patients was perceived by all involved as fair, acceptable, realistic and feasible.

Exams represent a great incentive for students to learn. It is therefore important that exams are as realistic as possible. Often children are not used in practical exams (OSCE), but rather simulation dolls and adults acting as parents. Child actors have been employed in the Bern medical course since 2015 to make examinations more realistic and, in particular, to assess student:child communication and the practical examination skills of the students with children.

The aim of the recently published study was to investigate whether children acting as patients as part of a summative OSCE met the Ottawa criteria for good assessment. For this purpose, data relating to an examination was gathered from participating students (n = 124), examiners (n = 11) and primary school children (n = 127) via questionnaires (students and children), focus groups (examiners) and interviews (school children and examiners). In addition, the psychometric quality indices of this OSCE were analysed.

The results showed that this OSCE is valid, reliable and feasible, and achieved an educational value and acceptance. Students and examiners accepted the new approach and rated it as fair, acceptable, realistic and valid. This OSCE had a perceived positive educational effect for 30% of the students who were expecting child patient actors. The examiners indicated that it was feasible to include children.

The children had great fun taking part. The statistical quality indices were in the recommended ranges. It can be concluded that primary school children acting as patients for a summative OSCE were perceived by all involved as fair, acceptable, realistic and feasible, and a positive educational effect was found. This paediatric OSCE met five of the seven Ottawa criteria (except “equivalence” and “catalytic effect”, which were not examined in this setting). Further studies are needed to examine different paediatric OSCE exam stations.

The results of this study confirm that we are on the right track. We would like to express our sincere thanks to all those involved, especially the children and their teachers.



## Current Publication

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