

# Abschlussbericht des Forschungsfreisemester im Sommersemester 2023

## Student Group

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# Abschlussbericht des Sabbaticals im WS 2023

## Eyes on TAMK

<https://events.tuni.fi/eyeontamk/>

MELES "Bot" for Entrepreneurship: <https://bot.science4people.eu/>

### Monday (19.03.2023)

#### 14:00 Never Mind the Competencies, Here's the Punk Pedagogy

- Competencies are "nice", but should not be the only focus

### Wednesday (22.03.2023)

#### 09.15 Interdisciplinarity in proactive design processes

Prof. Erich Schöls, Dean, Faculty of Design, Technical University of Applied Sciences Würzburg-Schweinfurt, Germany

- Würzburg: Design students have to take 25% of their study beyond design
- Ahead of the Customer (Feedback) there should be a look a broader view
- storytelling and the way to present the ideas are important (students cannot read 5 pages of a textbook but Harry Potter)
- universities shall be for science not only for practices needed in the industry
- problems are work

#### 10.00 For a better future - the role of Living Labs

- Participation of the "common people"
- Not only enabling sensors but with a change in focus
- Example: people in a Chinese city were "not only" measuring the air quality, but also driving the politics in only allowing electric cars in the inner city.
- <https://enoll.org/>

#### 11:00 Panel discussion about the future of higher education

- Dr. Silja Kostia, Principal Lecturer, School of Built Environment and Bio-Economy, TAMK;
- Prof. Dr. Marco Rimkus, Vice President for Studies and Teaching at Hochschule Emden/Leer;
- Mrs. Marietta Muhonen, Director of the School of Education at Hanze University of Applied Sciences, Groningen; (deeper in Sports)
- Mr. Shane Wilson, Principal of Marble Bar Primary School, Western Australia; (small school "in the distance", diverse in culture, language, and background)
- Mr. Zhang Mi, Chairman of Poling Education Management Group, China ("full-path school": from kindergarten to university)
- ([more info](#))

Outlook in Edu?

- Wilson: preservation and explicitly preserving the endangered local Indigenous language, Nyamal
- Kostia: staying competitive as a country
  - more possibilities for learners: e.g. education more in small chunks
  - collaboration: between universities and companies (also up-to-now not existing ones)
  - educational products
- Rimkus:
  - increase the market share of private universities --> learning point
    - focussed target groups
    - clear profile
    - your investment will get you to the working goal
  - increase flexibility for students, e.g. part-time studies
- Muhonen:
  - “Where is sit competition”
  - less teachers --> more educational designer
    - what is a good question for a 2nd semester BA student?
    - Design thinking
  - Collaboration
    - with companies: what to teach?
  - leadership on “every level”: from primary school to university
    - The learning culture in the organization “university” will spread to the student
- Mi: Thinking of “whole human race”
  - too much time is wasted while competing (China in school in uni). afterward, collaboration is needed
  - seeing and emphasizing the advantages of the different cultures and countries
- How to involve the “end-users” in designing?

### Opportunities of networks?

- Wilson:
  - Marble Bar is far out --> was an advantage in the COVID time
  - virtual teacher education as an immersive experience as an avatar in VR.
  - virtual networking and connecting digitally (esp. linguistically diverse groups)
  - Master is 3 weeks in Finland and after this online worldwide
- Muhonen
  - The university has international buddies for students
  - students can learn how to act in an intercultural world
  - Netherlands: are there too many international students?
- Rimkus
  - learning online
  - exchange helps foster the change the mindset, e.g. in changing structures and curricula: It's working already somewhere!
- Kostia
  - creating new ideas and projects sometimes is easier than in-house
  - power in networks as a platform for lobbying ideas
  - needs (re)sources from the university
- Mi
  - China: The COVID situation created more of an intranet than an internet.
  - creating working experiences by exchange
  - Exchange has a history in China (e.g. Christian schools) --> hybrid Western + China is better

good practice for international networking:

- Wilson:
  - 4-year journey of building Marble Bar virtual world
  - oriental and Western ways of curriculum
  - more aboriginal culture and astronomy in VR
- Muhonen
  - Erasmus program: 5 countries for intercultural competence program --> now implemented in the curriculum
- Rimkus
  - enabling PhDs for students by a collab with universities
  - double degree programs
- Mi: Chinese cooking course (only for 20 students)
  - cooking is a language
  - collab with kitchen lab in NY: exchange online --> In the end it produces a book
  - outcome visible in chemistry marks
- Kostia
  - making and eating food is a good starter and sustainer for networking
  - sharing ideas and contacts

what single part would you change in global education?

- Rimkus: Flexibility
  - flexibility in the organization and in the mind of the people
  - flexibility for new approaches to education
- Kostia: KISS!
  - user-oriented mindset
  - also in politics in order to increase the flexibility of the universities
- Wilson: guiding the cultural responsibility of the teachers
- Muhonen: trust and space
  - not only having the traditional classroom
  - many countries have a lack of teachers --> Fun and space should be more visible
- Mi:
  - stand up in class --> harder to sleep
  - activate more senses for memorizing the specialties in the curriculum
  - teacher as a fitness trainer: e.g. let's make the students give the class

Teaching is the most important profession in the world.

Q&A:

- How to get students to go abroad?
  - structured in curricula for exchange from Germany but not to Germany
  - Australia is opening borders to foreign students.

## 12.00 The future of internationalization

- less cost-intensive, less mobility-driven, but with more focus on improving the education
- cultural understanding
- why does the learner come to classes --> Attractivity, trustworthiness

## 14.00 Workshop: Rise of the Robots: How Might We Deal with the Increasing Use of AI in Education?

- Focus on language generators
- Image generators
- [The Pseudo Uni](#): machines are emulating humans for machines emulating humans.
- not AI not AGI, but GAI
- The industry provides test generators and, in parallel, test generator checkers --> It seems like a rat race
- anthropomorphism: It lies
- Is AI as a discipline based on deceit? Or the illusion of intelligence?
- Arthur C Clarke: "Any teacher can be replaced by a machine should be!" --> "Any assessment that can be completed by a generative AI should be (substituted by something different)"
- Writing as a metric for learning? --> But is writing thinking? Or do we write to focus our thinking?
- TAMK encourages use, but students are responsible for cheating. --> Isn't it giving the rope but don't hang yourself!

## Wednesday (22.03.2023)

### 09.00 General and Human Centric Illumination for Electricity and Construction Students

- Koen Malfait
  - Physicist (Astronomy)
  - in Vives University
  - Automotive tech, electromechanics, construction, electronics, aviation, design and production, care-tech, biotech
- Tech
  - LED found by chance when working on diodes --> It lights up!
  - Comparison between LED and light bulb in spectra --> Light bulbs are 99% producing heat
  - why do we see RGB? It's all about the sun...
  - Melatonin is produced in the lower part of the eye --> detects blue sky --> improves concentration

### 10.00 Workshop: Effective Use of Digital Tools and Resources in STEM Subjects

- polling: <https://pollev.com/home>
- ChatGPT
  - Compare the outcomes of ChatGPT with the textbooks
- Tools
  - <https://edu.flinga.fi/s/E5Bdehq>
  - <https://edu.flinga.fi/s/ew7sf3w>
  - EDUscrum: <https://eduscrum.org/>
    - points for success --> into final mark
    - one leader (wechselnd) 5 sprints
  - Infomarket:
    - finally: the presentation of posters
    - with a pre-deadline: check whether the posters are ok
  - 40%/60% or 20%/80% point distribution exercises to exam
  - hybrid: automated multiple-choice plus pen and paper
    - short answer grading

- hypothetical grading --> all about the reasoning...
- parameterized tasks (included in mark)
- less is more:
  - Prof has to focus on the topics/books
- <https://www.sefi.be/>
- DigiSTEM (2021-1-FI01-KA220-HED-000027535)
  - Daniela Velichova (AIS STU) --> Math exams (connection to Peter Hubinsky?)

## 12.00 Chemification: A New Gaming Tool for Student Learning in Natural Sciences

- Game
  - Escaperoom about Whistleblower
  - 3-4 Players: Journalist, Boss, Colleagues, Lawyer
  - 3-4 "Acts"
    - Application
    - Discoveries, Meeting Lawyer, Investigations
      - Students have to investigate and analyze texts
    - Publication with the outcome
  - Joker cards are available (Games masters)
- Results
  - Gaming groups are / will be learner groups
  - Students "had to" read papers (here: "Do PFAS be a thing?")
- H5P --> h.sander@ostfalia.de

## General overview

- Konferenz-"Light drawer"
- viele Personen aus dem Bereich Entrepreneurship, Internationalisierung
- viele Personen aus Dänemark und Niederlanden

## Wissenschaft

### Entwicklung eines EEG/EKG Sensors

- Inbetriebnahme vorhandener Hardware (microE EEG click Board am Arduino)

Persönlicher Outcome:

- Kenntnisse in Messung von Strömen im Picoampere-Bereich
- Platinen selbst ätzen
- Arbeit im Reinraum

### Austausch

- Teilnahme an TAMK
- Austausch mit Forschungsgruppe
- Aufbau des [Professors Guide to Sabbatical](#)

## Lehre

## MEXLE-Wiki

### Einarbeitung der technischen Vorgaben

- Nomenklatur von physikalischen Größen, vgl. [Formelsatz](#)
- Korrektur der englischen Rechtschreibung und Wortwahl mit KI Unterstützung

### Entwicklung und Nutzung von Plugins

- Entwicklung eines Plugins in JS und Php mit KI Unterstützung
- Verwendung und Anpassen von vorhandenen Plugins für leichteren Workflow
  - "Stift"
  - Einfügen von Aufgaben
  - [TextInsert](#) Plugin
    - Macht Macros Text austauschbar, ähnlich zu String-Variablen in Programmiersprachen
    - Pflege der Makroliste als Admin über Adminkonsole
    - z.B. Kann nun statt
 

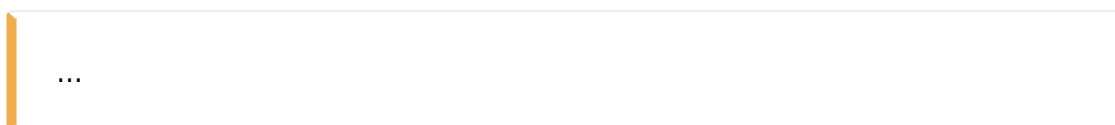
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</button>
<collapse id="eindeutigeID_xxx" collapsed="true">
  ...
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```

die folgende, kürzere Variante geschrieben werden:

```
#@HiddenBegin_HTML~1,ButtonText~@#
...
#@HiddenEnd_HTML~1,ButtonText~@#
```

Beides erzeugt folgende Ausgabe

ButtonText



- Durch die übersichtlichere Darstellung in der Syntax wird das Erstellen und die Pflege von Aufgaben im Wiki erleichtert

### Update der verwendeten DokuWiki Version

#### weitere

- Erstellen von Animationen für Magnetkreise
- Erstellen von durchgerechneten Aufgaben

## ILIAS

## Erstellen von Fragenkatalogen für EE1/EE2

- Übersetzung und Anpassung des vorhandenen Fragenkatalogs unter Verwendung [geeigneter ILIAS Fragevarianten](#)
- Es wurde die Verwendung des [ILIAS Test Generators](#) in Betracht gezogen, aber schließlich doch Formelfragen genutzt.
- Formelfragen
- Bilder wurden mit [drawIO](#) erstellt und zunächst [im Wiki](#) abgelegt. Diese sind in die erstellten ILIAS-Aufgaben eingebettet.
- STACK
  - [Einführung in maxima in STACK](#),
  - Online Manual zu [Maxima](#) vom Entwickler,
  - Online Manual zu [Maxima](#) von Anwendern,
  - [STACK Documentation](#),
  - [MAOAM](#) als Beispiel einer Anwendung von STACK für große Studierendengruppen,

## Tools

### Einarbeitung in Arduino-Umgebung

### Einarbeitung in KiCAD

### Einarbeitung in Maxima

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