Teaching and research at the

*University of Natural
Resources and Life Sciences
in Vienna, Austria (BOKU)*

Teaching with tradition

First lectures at the BOKU dealing with alpine hazards
started in 1882, situated in the forestry faculty.

- Until ~2000: Diploma study "**Wildbach- und Lawinenverbauung**" [torrent and avalanche control"] since the 70ties as specialization within the study program "Forstwirtschaft" [forestry]
- 2000-2009: International master program "**Mountain Risk Engineering**"

Current BOKU master programs related to natural hazards

…tought in German

- **Alpine Naturgefahren / Wildbach- und Lawinenverbauung (ALPNAT)**
- Forstwissenschaften
- Kulturtechnik und Wasserwirtschaft

…international programs

- Mountain Forestry
- **Water and Environmental Engineering / diploma supplement Mountain Risk Engineering (MRE)**
- Natural Resource Management and Ecological Engineering (NARMEE)
- Environmental Sciences – Soil, Water and Biodiversity

University of Natural Resources and Life Sciences
Department of Structural Engineering and Natural Hazards

ALPNAT
Structure overview

- Compulsory courses: 20 ECTS
- Master seminar: 2 ECTS

- Master thesis: 30 ECTS

- Optional courses: 50 ECTS
  Have to be selected from three modules

- Elective courses: 18 ECTS

- Total: 120 ECTS

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Prevention: Curriculum Development at the
Universities of Western Balkan Countries

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BOKU

**University of Natural Resources
and Life Sciences**
Department of Structural Engineering
and Natural Hazards

ALPNAT
Structure overview

- **Compulsory courses:**
  - "Wassergefahren" [water-related hazards]
  - "Schnee- und Lawinengefahren" [snow-related hazards]
  - "Gefahren durch Massenbewegungen" [mass wasting hazards]

- **Optional/modules**
  - Basics (e.g. forestry, technical, ecological)
  - Core
    - structural engineering in torrents
    - High mountain forestry
    - Socio economics and law
    - Risk management
    - Disaster management
  - Applied
    - Integral watershed management
    - Modelling and simulation
   - Construction site management

ALPNAT
Structure overview

- **Elective courses**

  from any national or foreign University

- **Master thesis**

  German or English

- **Title**

  "Diplomingenieur"

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Prevention: Curriculum Development at the
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Fields of activity

- Analysis and assessment of hazards in mountain regions

- Prevention of hazards

- Integral watershed management

- Risk prevention

- Disaster management
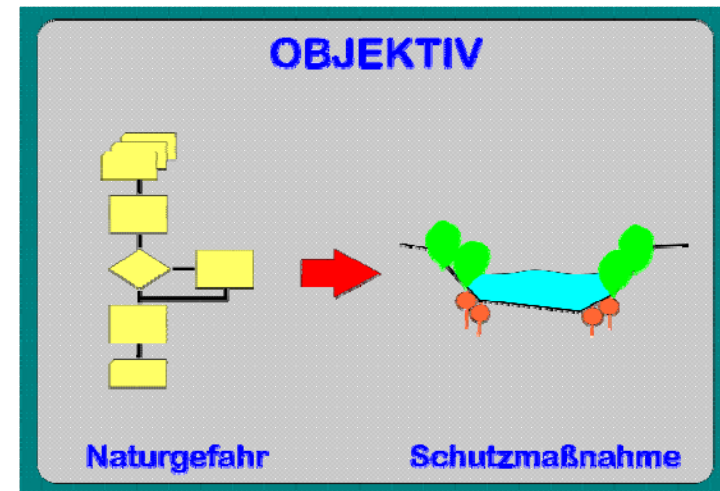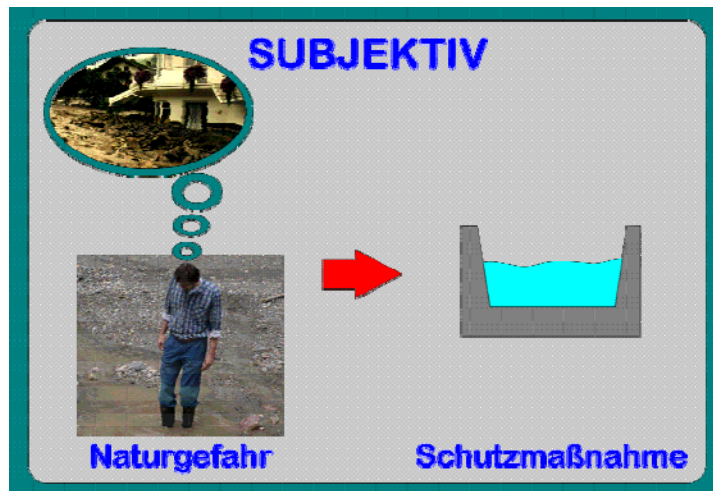
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Professional field

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➢ Public sector (e.g. forest service for torrent and avalanche control)

➢ Service enterprises

➢ Private sector / consulting

➢ Research and development

E-learning and Didactics
E-learning and blended learning
BOKU learn (Moodle)

University of Natural Resources and Life Sciences
Department of Structural Engineering and Natural Hazards
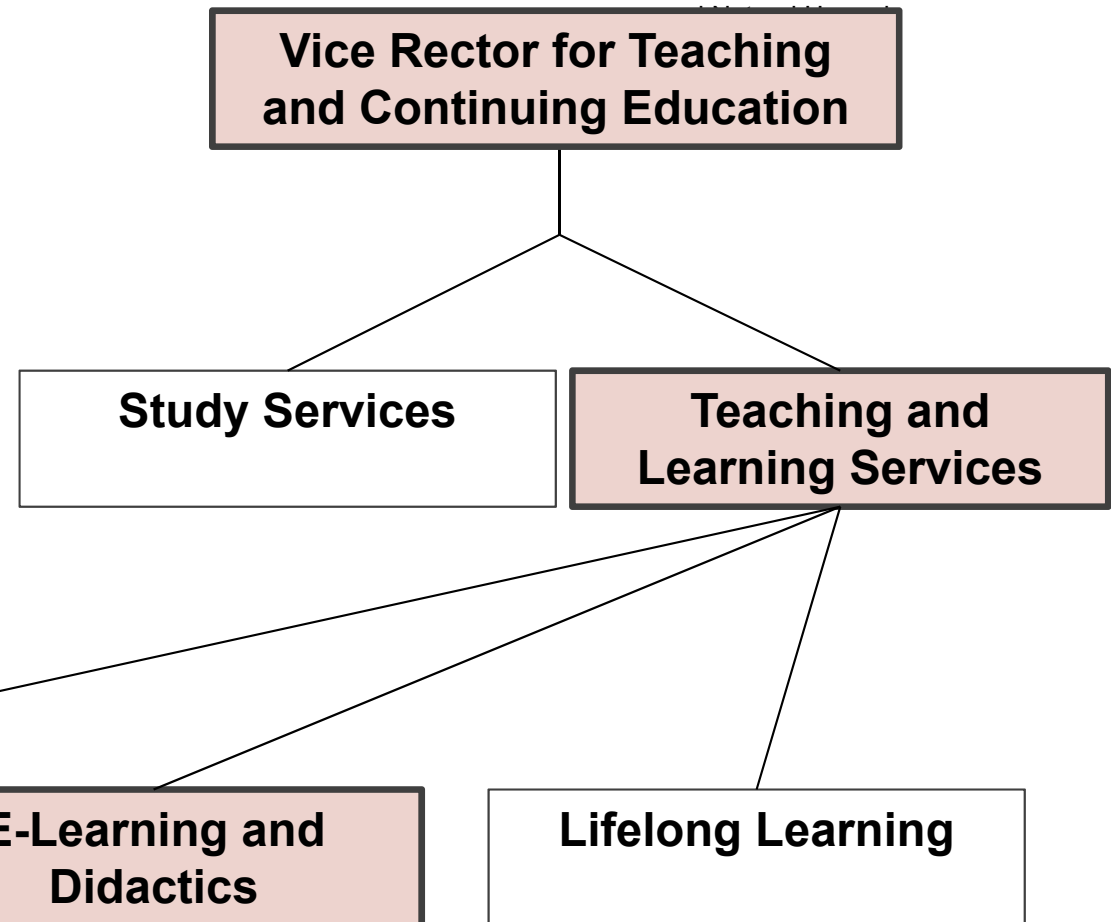
E-learning and Didactics

Facts

■ Vice Rector for Teaching and Continuing Education

■ founded in 2004 as "BOKU e-Learning Centre"

■ pedagogical unit integrated since 2015

University of Natural Resources and Life Sciences
Department of Structural Engineering

```
Vice Rector for Teaching
and Continuing Education
         |
    +----+----+
    |         |
Study      Teaching and
Services   Learning Services
               |
   +-----------+-----------+
   |           |           |
Kinder BOKU  E-Learning  Lifelong
(children    and         Learning
BOKU)        Didactics
```

E-learning and Didactics

Mission

The goal is to improve

- the **teaching competencies** of the teachers,

- the **study ability** and **learning success** of students as well

- the **satisfaction** of the teachers

by a didactically thought-out and technically tailor-made offer at the BOKU.

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E-learning and Didactics

Services

DIDACTICS

- Individual Coaching
- Teaching Portfolio
- Internships (hospitation)
- Training program
- Quality assurance, evaluation
- Constructive Alignment
- Lecture/course development
- Teaching / learning research
- Media & library
- Webinars

HIGHER EDUCATION 4.0

- Digital
- Learner-centered
- Diversified
- Individualised
- Interactive, guiding & motivating
- Time and space independet
- Mobile
- Social
- Open
- Global
- Certified

E-LEARNING

- *BOKU learn (moodle)*
- Support/development
- Blended Learning
- Course/media development
- Selflearning tests/quizzes
- Examinations, offline tests
- Lecture recording
- Web-Conferencing
- Live-Streaming
- Social communication
- BLOG, Wiki, News

E-learning and blended learning

What is e-learning?

There are many terms for e-learning like

- computer-based training

- online learning

- web-based learning

- distance learning

- … and many more

Many definitions simply **focus** on the **technical side** of e-learning.

E-learning and blended learning

What is e-learning?

In a broader sense: **learning** as long as someone is trying to **teach** someone else **via electronic means**.

E-learning refers to the delivery of **training**, **education** and **collaboration** using various electronic media but predominantly the **internet**. (Usoro & Abid, 2008)

E-learning and blended learning

What is blended learning?

A special and very common form of e-learning is blended learning which combines two different kinds of learning.

Blended learning (also called hybrid learning) is the term used to describe learning or training events or activities where **e-learning**, in its various forms, is **combined** with more **traditional forms of training** such as "class room" training (Stockley, 2011).

Blended learning, for example, can result in a class having three face-to-face sessions and five online sessions or in a course having a preparatory week via an e-learning platform and the main part of the course is then delivered in class face-to-face.

E-learning and blended learning

Characteristics of good e-learning

- focusing on the **didactical** and **pedagogical aspects** of e-learning rather than on the technical framework

- **three main factors** must be considered which are strongly intertwined:

```
            e-learning
            environment
              ↑         ↑
              ↓         ↓
teachers'  ←──────────→  e-didactics
e-competencies
```

BOKU learn (Moodle)

University of Natural Resources and Life Sciences
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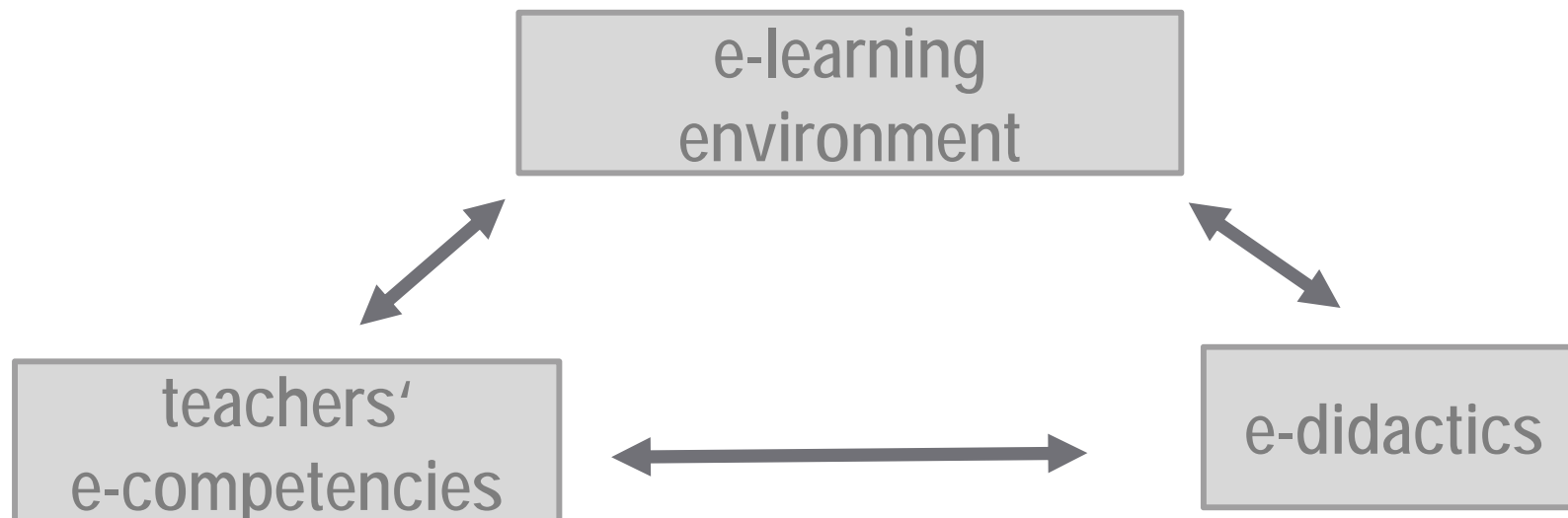
- based on ![moodle]
- since 2005 used at BOKU
- about 1500 course per academic year (ca. 66 % of all courses)
- Interface to **BOKUonline** (student information system)
- Easy import of courses of the last years with **Import** function

BOKU learn (Moodle)

University of Natural Resources and Life Sciences
Department of Structural Engineering and Natural Hazards

- **Interface to BOKUonline**

  - for every approved course a *BOKU learn* course is created automatically

  - automatic **synchronisation of teachers and students**

  BOKUonline
  Lehrveranstaltung

  automatische
  Aktualisierung →

  BOKU learn
  E-Learning-Kurs

  - Lehrende
  - Mitwirkende
  - Studierende

  - Teachers
  - Non-editing teachers
  - Students

  - initially **unvisible**, has to be activated by teachers

BOKU learn (Moodle)

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Department of Structural Engineering and Natural Hazards

Functions

- Providing of **resources**, lecture recording and links

- Organization of topics, coordination of dates for face-to face-meetings with **choices**

- Collection, rating und feedback of **assigments**

- Organisation of research work with **databases**

- Collaborative writing with **wikis**

- Discussionen und group work with **fora**

- Meetings via chat or **videoconferencing**

The Learning Management System
BOKU learn

Functions

- Supporting of **peer review** processes

- Examination preparation with
self assigments

- **Exams** on computer or paper

- Evaluation with **questionnaires**

- …

BOKU learn (Moodle)

Qualification Framework in Austria

University of Natural Resources and Life Sciences
Department of Structural Engineering and Natural Hazards

Qualification Framework

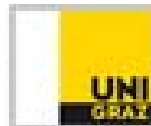The Coordination point in Austria (NCP) for the National Qualifications Framework (NQF) is the central administration, coordination and information office.

The aim of the National Qualifications Framework is

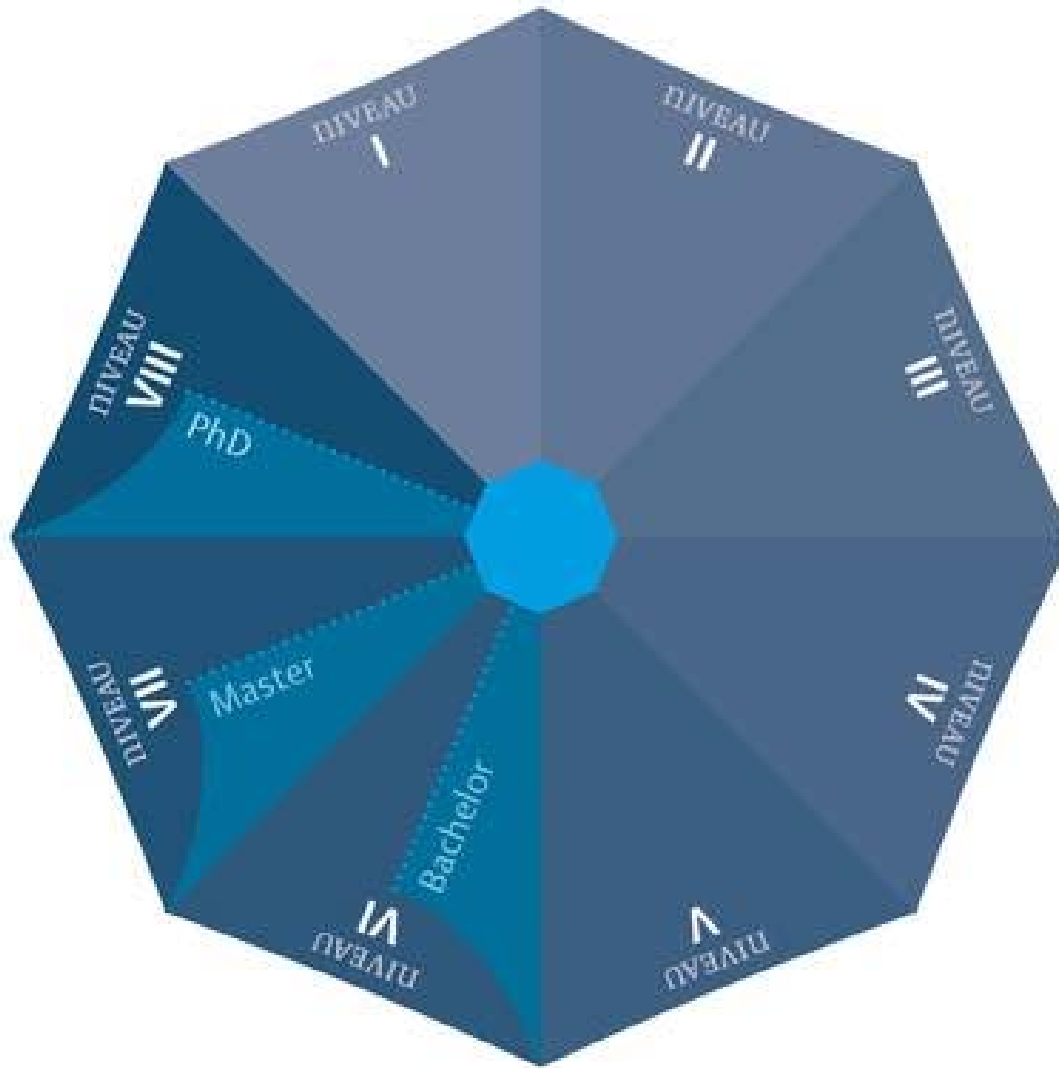→ to create a translation tool between the different qualifications systems and their levels for all areas of education in Austria.

Source:
https://www.oead.at/projects_cooperations/quality_transparency/national _coordination_point_for_nqf/EN/

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Qualification Framework

At the core of the European Qualifications Framework for Lifelong Learning (EQF) there are <u>eight reference levels</u> that comprise the entire spectrum of possible qualifications <u>from basic education to the highest level of academic</u> and <u>vocational education and training</u> and are characterised on the basis of learning outcomes.

By 2013 the entire <u>Austrian qualifications system</u> have been integrated into a <u>classification scheme with eight levels.</u>

Institute of Mountain Risk Engineering

Qualification Framework

NIVEAU I
NIVEAU II
NIVEAU III
NIVEAU IV
NIVEAU V
NIVEAU VI — Bachelor
NIVEAU VII — Master
NIVEAU VIII — PhD
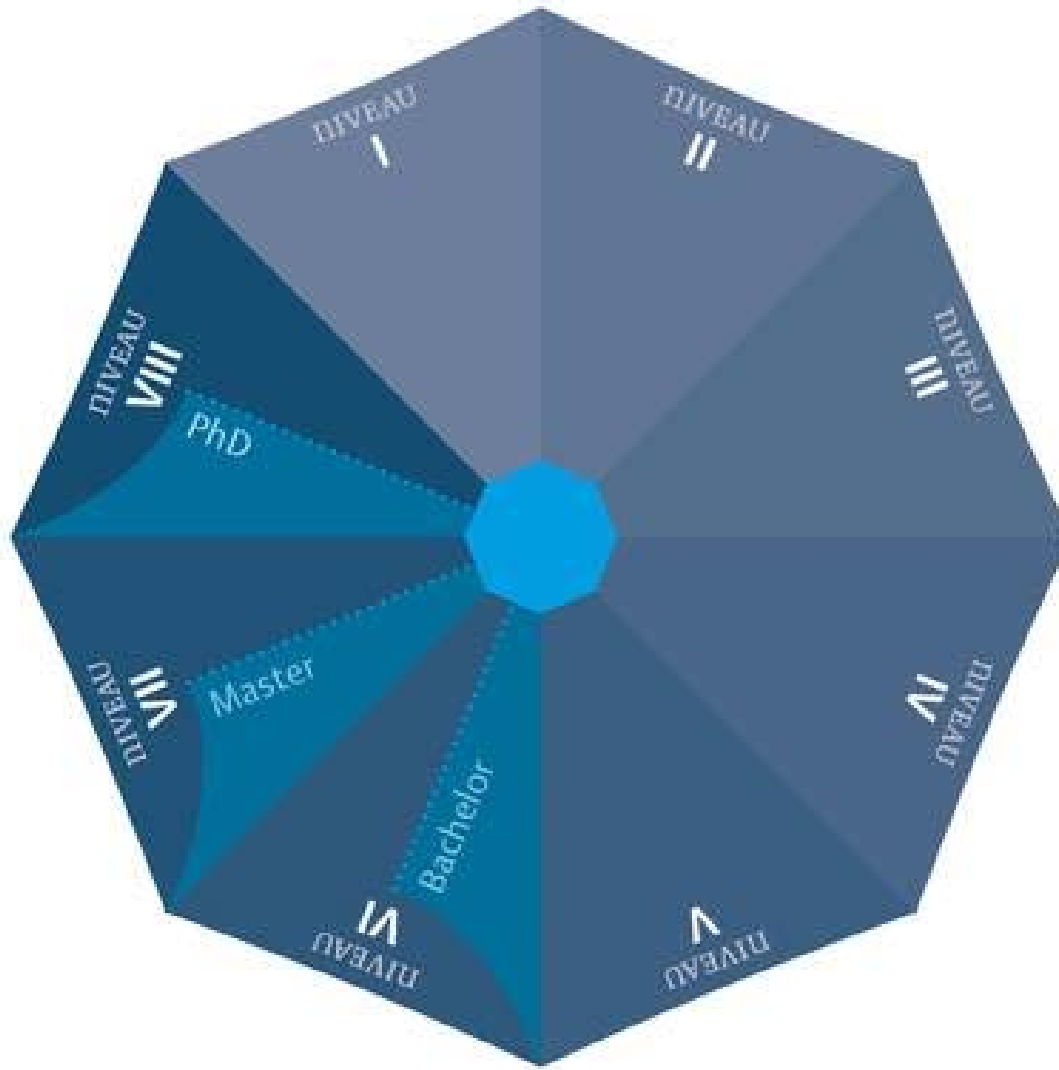
The NQF comprises eight levels with qualifications from all educational contexts assigned to <u>Levels 1 to 5</u>, also characterised by EQF descriptors (*competence, skills, knowledge*).
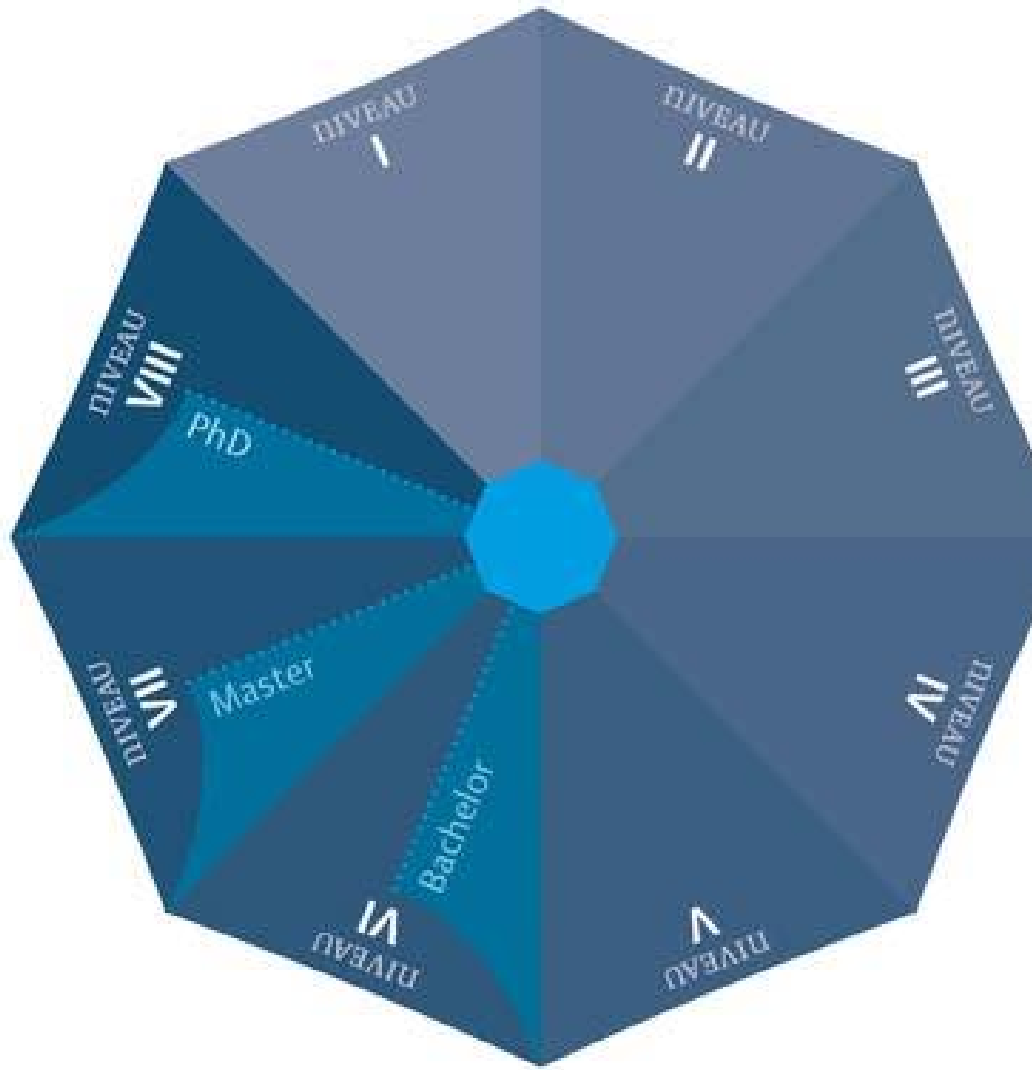
ndra Reidinger

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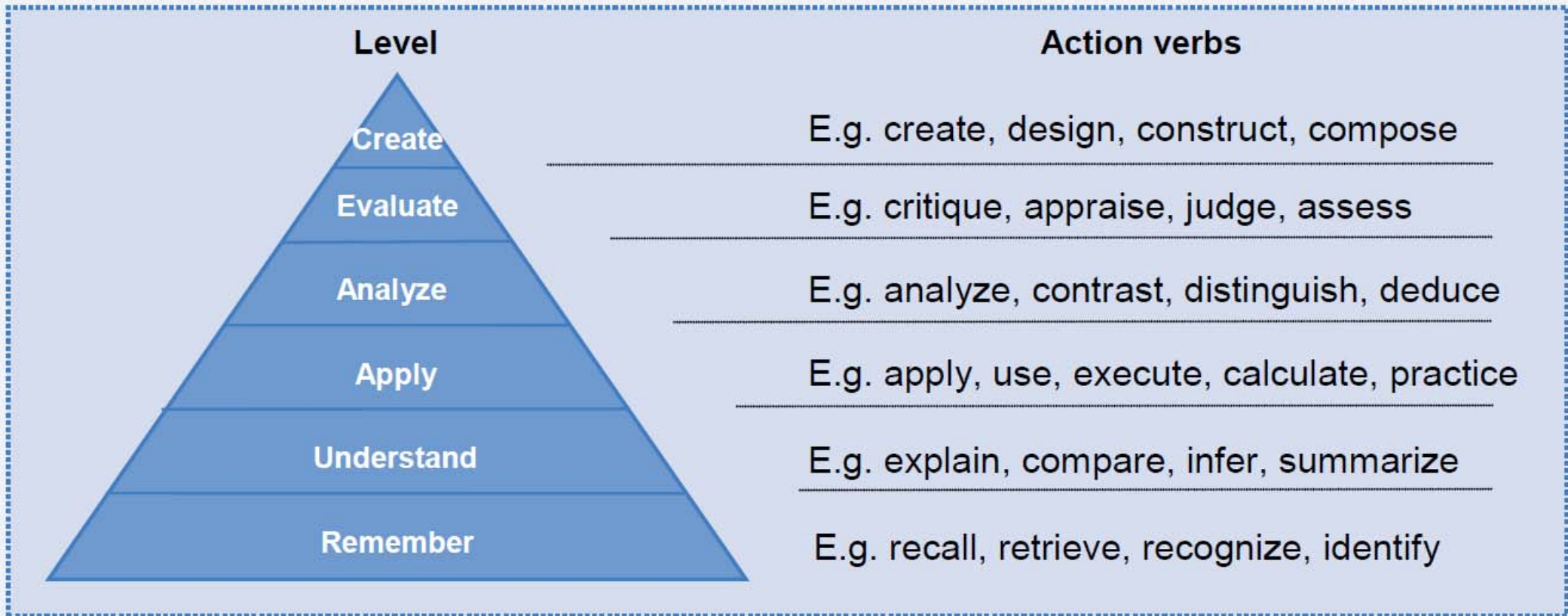Erasmus+ Programme
of the European Union

BOKU

Qualification Framework

At <u>Levels 6 to 8</u>, different sets of descriptors are applied. Whereas qualifications of the Bologna architecture acquired at higher education (HE) institutions *(i.e. bachelor, master and PhD)* are classified according to the Dublin descriptors *(Knowledge and Understanding, Application of Knowledge and Understanding, Ability to Make Judgements, Ability to Communicate and Learning Skills)*, assignment of all the other qualifications builds on the EQF descriptors (*competence, skills, knowledge*), which have been formulated to complement the EQF descriptor, and 'reference qualifications'.

Qualification Framework

Level	Action verbs
Create	E.g. create, design, construct, compose
Evaluate	E.g. critique, appraise, judge, assess
Analyze	E.g. analyze, contrast, distinguish, deduce
Apply	E.g. apply, use, execute, calculate, practice
Understand	E.g. explain, compare, infer, summarize
Remember	E.g. recall, retrieve, recognize, identify

Graph 2 – Example for Bloom's Taxonomy after Anderson et al. 2001 (after Steen 2009)

Source: E-Learning: Didactical Recommendations and Quality Assurance An Overview

Euroleague for Life Sciences / Quality Assurance Support Team & eLearning Support Team Copyright 2012 by the Euroleague for Life Sciences http://www.euroleague-study.org

Learning outcome

Learning outcomes are statements that specify what learners will know

or be able to do as a result of a learning activity. Outcomes are

usually expressed as knowledge, skills, or competences.

Passive ←→ Active

Learning outcomes should flow from a needs assessment. The needs assessment should determine the gap between an existing condition and a desired condition. Learning outcomes are statements which described a desired condition – that is, the knowledge, skills, or competences needed to fulfil the need.

Learning outcome

Learning outcomes provide direction in the planning of a learning activity. They help to:

Focus on learner's behaviour that is to be changed

Serve as guidelines for content, instruction, and evaluation

Identify specifically what should be learned

Convey to learners exactly what is to be accomplished

More definitions:

"An educational need is something individuals should learn for their own good, for the good of their organization or profession, or for the good of society." (Knowles, 1970)

A need represents a gap between an individual's current level and some desired level of knowledge, skills, or attitudes.

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THANK YOU VERY MUCH FOR YOUR
KIND ATTENTION

University of Natural Resources and Life Sciences, Vienna

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