Research-informed teaching and curriculum design

The perspective of Teaching and Learning in Higher Education at Karlsruhe Institute of Technology (KIT)

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Agenda

- Introduction
- Input:
  Research-informed teaching at Karlsruhe Institute of Technology
- Group work:
  Strategies, activities and projects related to research-informed teaching at your universities
- Results and discussion
Specific context of KIT

- KIT as merger (2009) of:
  Technical University Karlsruhe + Helmholtz Research Centre Karlsruhe

- New vision and new mission:
  “The Research University in the Helmholtz Association”

- 3 strategic fields:
  Research + Teaching + Innovation

- Research-informed teaching:
  - implementation into KIT policies
  - appointed as the central strategy for teaching and learning
Research-informed teaching at KIT

Research-teaching-nexus (Healey 2005)
Realisation of research-informed teaching at KIT, based on Healey (2005)
Objective

- Until 2021:

  the 4 types of research-teaching links (based on Healey 2005) are put into practice in all study programmes, modules and courses/subjects at KIT in order to foster students‘ research expertise.

http://www.smart-pm.de/wp-content/uploads/2013/06/Ziel.png
Organisational levels by Hilb 2009

- Individual
- Team
- Organisation
Organisational levels by Hilb 2009

- Teaching staff
  - Individual offers

Individual

Team

Organisation
Organisational levels by Hilb 2009

- Teaching staff
  - Individual offers

- Faculties – Institutes – Groups
  - Inhouse offers
  - Target group oriented programmes
Organisational levels by Hilb 2009

- Teaching staff
  - Individual offers

- Faculties – Institutes – Groups
  - Inhouse offers
  - Target group oriented programmes

- KIT as a whole organisation
  - Developing a Mission Statement „Teaching“
  - Guidelines
Implementing research-informed teaching

Mission Statement „Teaching“

Higher Education Accreditation

Defining Learning Outcomes (Guideline)

Defining Learning Outcomes (Workshops)

“Praxis der Forschung”

Helmholtz Research Center

Observation & Consulting

http://upload-magazin.de/files/2013/03/symbolbild-lupe-508x381.jpg
Higher Education Accreditation

- **Individual level**
  - Supporting teaching staff defining learning outcomes for courses

- **Team level**
  - Offer workshops for faculties and institutes
  - Support process of defining and documenting learning outcomes and qualification aims → module manual

- **Organisation level**
  - Guideline “Defining Learning Outcomes”
  - Importance of defining learning outcomes and qualification aims

*Processes of defining Learning Outcomes at KIT (Beyerlin et al., 2014)*
Defining Learning Outcomes at KIT

Processes of defining Learning Outcomes at KIT (Beyerlein et al., 2014)

Teaching mission statement
Research-oriented Teaching
- Conceptual cooperation
- Advice for research-oriented teaching
- Moderation of workshops for mission statement development

General qualification aims
Course of studies
- Workshops for deans
- Individual consultations
- Guideline for the formulation of qualifications aims

Qualifications aims
modules
- Workshops for the formulation of objectives and skills to coordinate the learning outcomes at module levels
- Assistance with formulation

Learning Outcomes
Courses
- Learning aims formulation as integral part of didactical university training
- Workshops for research-oriented teaching
- Counseling for the implementation of research-oriented teaching
LehreForschung

Individual level
- Teaching staff development
- Meta Forum
- Scholarship of Teaching and Learning

Team level
- Consulting and supporting teachers creating new modules and courses
- “Praxis der Forschung”

Organisation level
- Integrating Helmholtz Research Centre into teaching
- Special workshops and consulting offers for researchers
Your perspective!

- Strategies, activities and projects which are related to research-informed teaching at your universities (5 max.)

- Matching of the identified measures and the three levels of staff development/organisational development

- Which measures do already address the curriculum? What else needs to be done to put research-informed teaching at the heart of the curriculum?

https://www.apollo.de/medias/sys_master/root/h0e/hd7/h00/8797198975006/Markenbrillen-440x340px.jpg
Results I

- **Support:** Defining learning outcomes for courses
- **Metaforum for teaching staff**
- **Workshops:** Qualification aims at module level
- **Consulting:** Creation of research-informed modules and courses
- **Guideline:** "Defining learning outcomes & qualification aims"
- **Integrating the research centre into teaching"
Results II

- VG/PCT Research Projects
- How to search/relate literature
- Supporting Teacher Development for literary project
- Problem-based learning
- Research-led Teaching at heart of university strategy
- Research by Academics on inclusive learning & assessment, feeding into assessment design & student feedback
- Research in Residence
- Limited amount of each Academic's research or PE context fed into PE programmes & implemented by second year research in each field
- Training - GTPs - Young academics involved with regional/individual
- Intercalting: ICS IC
- Involve professional regulator in Teaching
- Joint publication
- Pedagogy workshop for staff
- Research skills development
- Dissertation - final year - Mentor
- Formative feedback in each assignment based on research carried out in the field, as part of each coursework or exam.
- Literature review writing through our degree
- Project-led learning inside/outside the classroom, supported by tutors.

Academic Staff Development
Teaching and Learning in Higher Education (PEBA)
Results II

- How to search for literature
- Supporting Teacher Development for learning projects
- Level 3/Higher: Learning through academic research interests
- Research-led teaching at the heart of university strategy
- Research by lectures on inclusive learning and assessment, feeding into assessment design and student feedback
- Involve professional regulator in teaching
- tantalizing - training - GTAs?
- Young academics intensive regional

- Research Projects
- How to search for literature
- Project-led learning inside/oudside the classroom, supported by lectures
- Problem-based learning
- Literature review: writing through our degree

- Individual
- Team
Results II
Results III

1. Student Conference
   - (with practitioner)

2. Peer-Assisted Learning (PALS)
   - External Speakers

3. Final Year Projects (Students as Researchers)
   - Develop Confidence in Ideas

4. Collaborative
   - Scoping R-skill for all years
   - R-practice - all years

5. Program-Based Learning (PBL)
   - Promoting Interprofessional Learning

6. Live Briefs in the Public Realm

7. Interdisciplinary Practice/Projects
   - Medical School - lots of support - look after support - your progress

8. Funding for Co-Research Projects
Results IV

- Student Research Projects
- Annual Student Research Conference
- Students research in real world as part of assessment
- Being a scientist in everything we do
- Collaborative Projects with Students
- Work with students to get papers published
- Flipped classroom + problem based learning
- Embedding Research skills into Curriculum
- Field Work
Results V

- Better scaffolding to support moving from Model A to Model B.
- Recognising and managing risks associated with R-I-T.
- Bring in aspects of own research into 2nd & 3rd year modules.
- PBL - letting students solve wicked problems.
- Research-informed teaching.
- Draw from others in T&L Secret.
- Global challenge - Ed 4u Luxembourg workshops for academics.
- Learning spaces & resources.

(Handwritten notes and diagrams are present, but not fully transcribed.)
Thank you for your attention.
References


- Karlsruhe Institute of Technology (2013): Leitfaden zur Formulierung von Qualifikationszielen.
Contact details

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