Universität Hamburg
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TECHNISCHE UNIVERSITÄT KAISERSLAUTERN

Universität Potsdam

FideS
Forschungsorientierung in der Studieneingangsphase

A NEW MODEL FOR RESEARCH-BASED LEARNING

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Dieses Vorhaben wird aus Mitteln des Bundesministeriums für Bildung und Forschung unter dem Förderkennzeichen 01PB14013 gefördert.

GEFÖRDERT VOM
Bundesministerium für Bildung und Forschung

WORKSHOP TIMETABLE

1. Introduction to the model (15 min.)
2. Group work on the curriculum level of the model (20 min.)
3. Group work on the pedagogical level of the model (30 min.)
4. Feedback

Inquiry-based learning

"Inquiry-based learning aspires to engage students in an **authentic scientific discovery process.**

From a pedagogical perspective, the complex scientific process is divided into **smaller, logically connected units** that guide students and

draw attention to important features of **scientific thinking**"

(Pedaste et al. 2015, p. 48).

RESEARCH-BASED LEARNING (RBL) AT A GLANCE

Inquiry-based learning

"(…) **umbrella term**

covering a range of pedagogical approaches that

are united by the central place they give to **students' investigative work**

(addressing questions and solving problems)"

(Aditomo et al. 2013, p. 1239).

RESEARCH-BASED LEARNING (RBL) AT A GLANCE

Undergraduate research

"inquiry or investigation or a **research-based activity**

conducted by an undergraduate student that

makes an **original intellectual or creative contribution**

to the discipline and/or to understanding"

(Brew 2010, p. 38).

RESEARCH-BASED LEARNING (RBL) AT A GLANCE

Undergraduate research

"a high-impact **educational practice** that has the ability to capture **student interest and create enthusiasm** for and **engagement** in an area of study" (Hensel 2012, p. 2)

APPROACHES TOWARDS RBL

- No established definiton of RBL
- Two approaches towards RBL (Simons and Elen 2007)

Functional approach

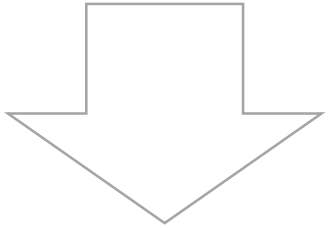
- Focus on “the function of research from the viewpoint of teaching” (p. 619)
- Learning theories in the background
- Connection to the current employability discussion

Reflective approach

- Focus on “a subjective formation of one’s character” by striving for objectivity through science (p. 624)
- Research as the core idea of the university
- Researchers as learners and learners as researchers

APPROACHES TOWARDS RBL

Functional approach	Reflective approach



- Long tradition towards the reflective approach (Humboldt's sense) in Germany
- Research as the object of academic teaching and learning across all disciplines
- Academic learning is research-based in its core (Reinmann 2016)

Curriculum Decisions

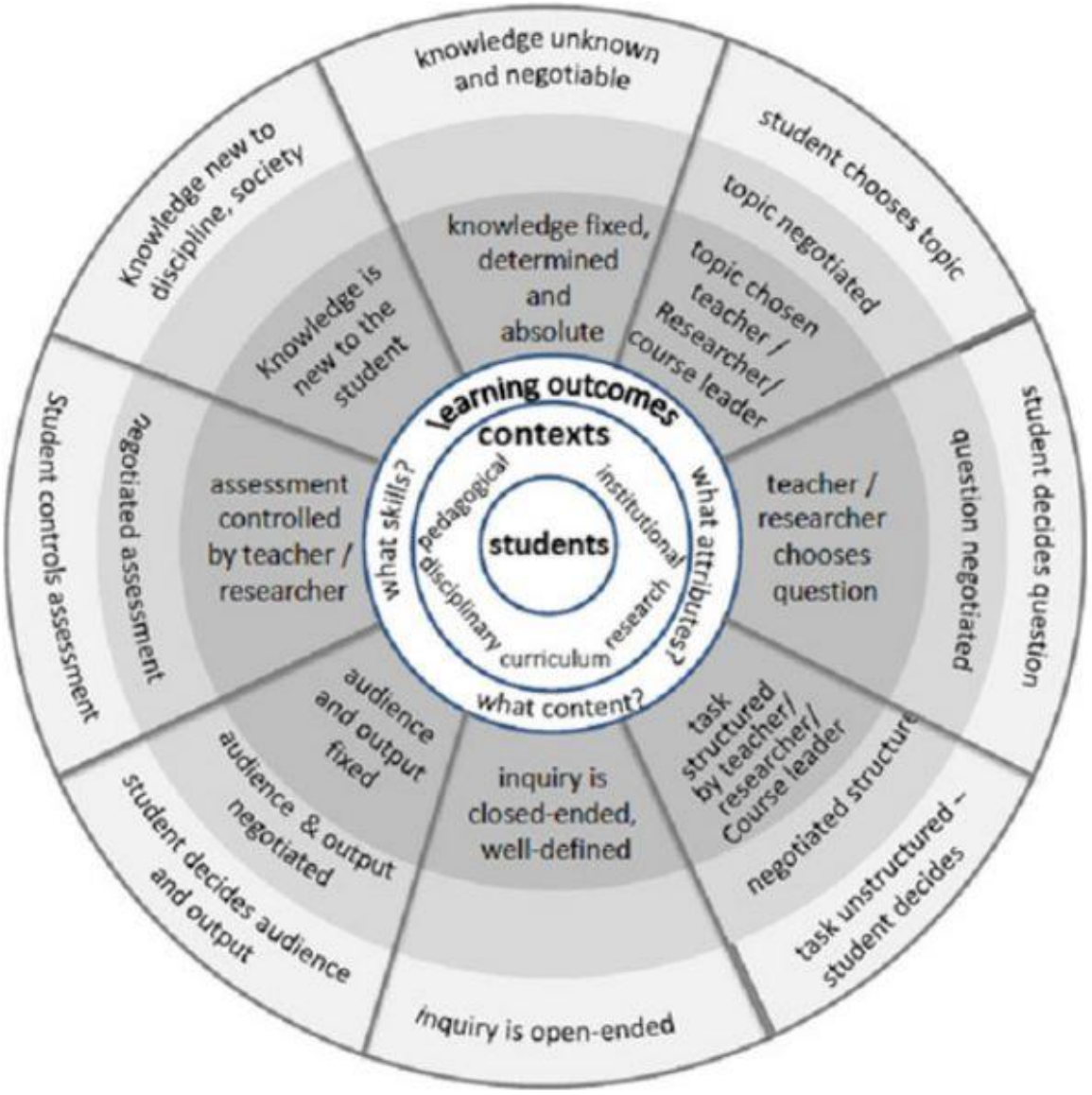
"(...) **curriculum decisions** have to be taken about the **overall structure and framework** of the undergraduate research experience, what it is intended students should **gain** from it and how and whether their work is to be **assessed**" (Brew 2013, p. 606).

CRITIQUE ON EXISTING RBL-MODELS

- Few insights into the curricular framework of RBL
- Many models conflating the levels of curriculum and pedagogy in their analysis
- Differentiation useful to analyze the teachers' power in decision-making processes
- Need for a practical framework to assist lecturers in designing their research-based courses

(Brew 2013)

BREW‘S RBL-MODEL (2013)



Brew 2013, p. 613

FIDES-PROJECT

- Funded research in 19 projects at German universities
- Research-based learning in the students‘ first year at university
- Variety of programmes WITHIN the concept of research-based learning
- Projects include mostly extra-curricular activities

- Aim of our project: Develop materials to support projects and centers of teaching and learning on research-based learning

FURTHER DEVELOPMENT OF BREW‘S MODEL

- Seperated representation of pedagogical decisions and curricular / organisational conditions
- Epistemological aspects of model as seperate question
- Additional aspects with regard to reflection and feedback, details on research process

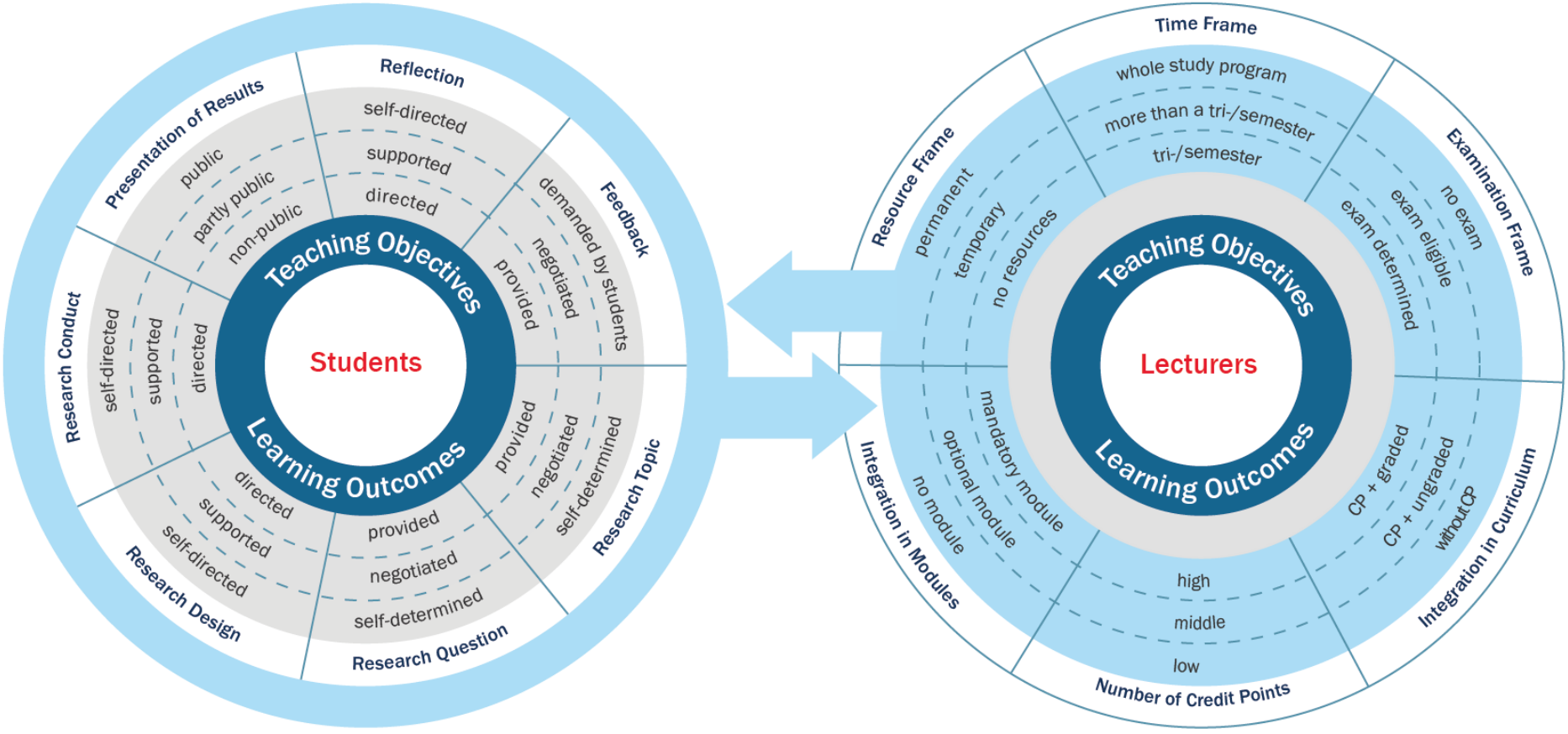
FURTHER DEVELOPEMENT OF BREW‘S MODEL

Pedagogical level

Micro Level

Curricular level

Meso Level



QUESTIONNAIRE I – MESO LEVEL

Please, fill out the questionnaire for the study unit that you are teaching or managing!			
How is the students' research integrated in modules?	☐ The research project is mandatory for the students.	☐ The research project is optional for the students.	☐ The students do the research project voluntarily.
What is the value (number of CP) of the students' research?	☐ The research project has a relatively high value within the study program/module.	☐ The research project has a relatively low value within the study program/module.	☐ There is no direct reward (CP) students' research.
How is the student's research integrated in the curriculum?	☐ Students get credit points and grades for their research.	☐ Students get credit points, but no grades for their research.	☐ Students don't get credit points for their research.
What is the examination frame for the student's research?	☐ The type of exam is determined for the students' research.	☐ The teacher can choose between different types of exam.	☐ The students' research will not be examined.
What is the time frame for the student's research?	☐ Students have one semester/trimester for their research projects.	☐ Students have more than one semester for their research projects.	☐ Students do their research project(s) during the whole time of their study program.
What is the resource frame for the student's research?	☐ There are no additional resources for students' research.	☐ The resources for students' research are temporary.	☐ The resources for students' research can be used permanently.

QUESTIONNAIRE II – MICRO LEVEL

Please, fill out the questionnaire for the study unit that you are teaching or managing!			
Who decides about the research topic?	☐ The teacher provides the research topic.	☐ Students choose their research topic within a given frame.	☐ Students choose their research topic themselves.
Who develops the research question?	☐ The teacher provides the research question.	☐ Students develop the research question under the guidance of the teacher.	☐ Students develop the research question themselves.
How do students design the research process?	☐ The teacher sets phases and deadlines for the research process.	☐ Students plan the research process under the guidance of the teacher.	☐ Students plan the research process in a self-directed way.
How do students conduct the research?	☐ The teacher (or the tutor) guides the conduct of the research.	☐ Students conduct the research under guidance of the teacher (or tutor).	☐ Students conduct the research in a self-directed way.
What happens with the results of the students' research?	☐ The results remain in the safe space of the participants.	☐ Results are made public in the department/the faculty.	☐ Results are published and are visible university-wide (or beyond).
How do students reflect on their research?	☐ The teacher (or tutor) provides cause for reflection.	☐ Students are encouraged to reflect on their research.	☐ Students reflect on their research in a self-directed way.
How do students get feedback during the research process?	☐ The teacher (or the tutor) provide (or demand) feedback at specific points of time.	☐ Provided and demanded feedback are combined.	☐ Students ask for feedback from the teacher or their peers.

USE OF OUR MODEL

1. Analysis of existing RBL projects and courses
2. Design of future RBL projects and courses
3. Coaching of lecturers regarding their RBL projects and courses
4. Comparison of lecturers‘ and students‘ grades of autonomy in different educational systems

USE OF OUR MODEL IN THIS WORKSHOP

1. Analysis of existing RBL projects and courses
2. Design of future RBL projects and courses
3. Coaching of lecturers regarding their RBL projects and courses
4. Comparison of lecturers‘ and students‘ grades of autonomy in different educational systems

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OVERALL TASK A: FEEDBACK

Please, provide us with some feedback!

Yellow: I like the model (to some extent), because…

Red: (To some extent), it does not work, because…

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OVERALL TASK B: YOUR PROJECT

Please, think about a research-based learning project you have organised or you are going to organise.

Alternatively: Think of a research project you have experienced as student or a research-based learning project that is organised at your university/by a colleague.

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TASK 1:

Is the students' research project rather open-ended (compared to: close-ended and well defined) or can you anticipate what the students will discover (on a scale from 1 to 5)?

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TASK 2:

Fill in the first questionnaire with regard to the organisational conditions under which your students‘ research projects take place.

Mark your answers on the flipchart with RED dots.

Next to the dot, please indicate the country in which the project takes (took) place.

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TASK 3

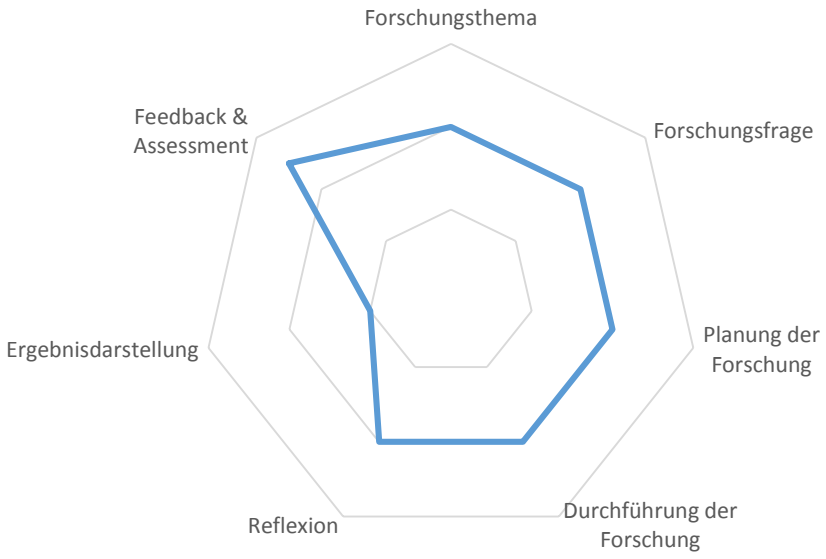
Please fill out the questionnaire on pedagogical decisions with your students‘ research projects in mind.

Mark your answers on the flipchart with GREEN dots.

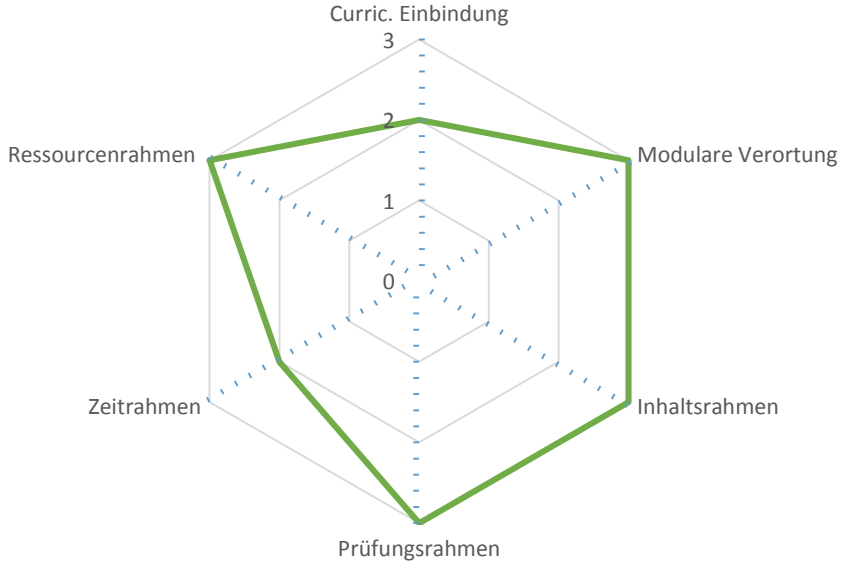
INDIVIDUAL PROFILE

Project: Humboldt reloaded – University Hohenheim

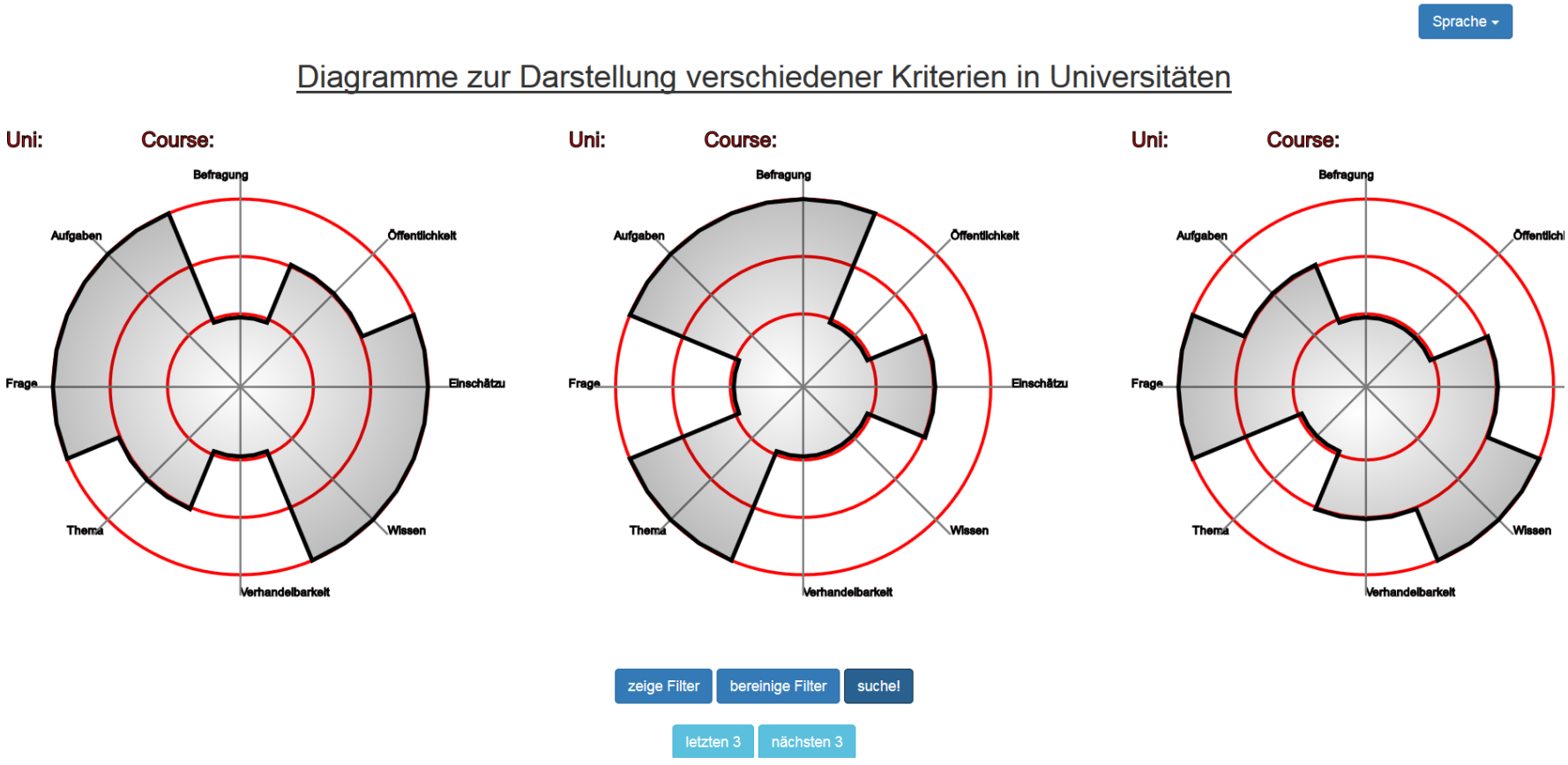
Micro Level



Meso Level



ONLINE VERSION



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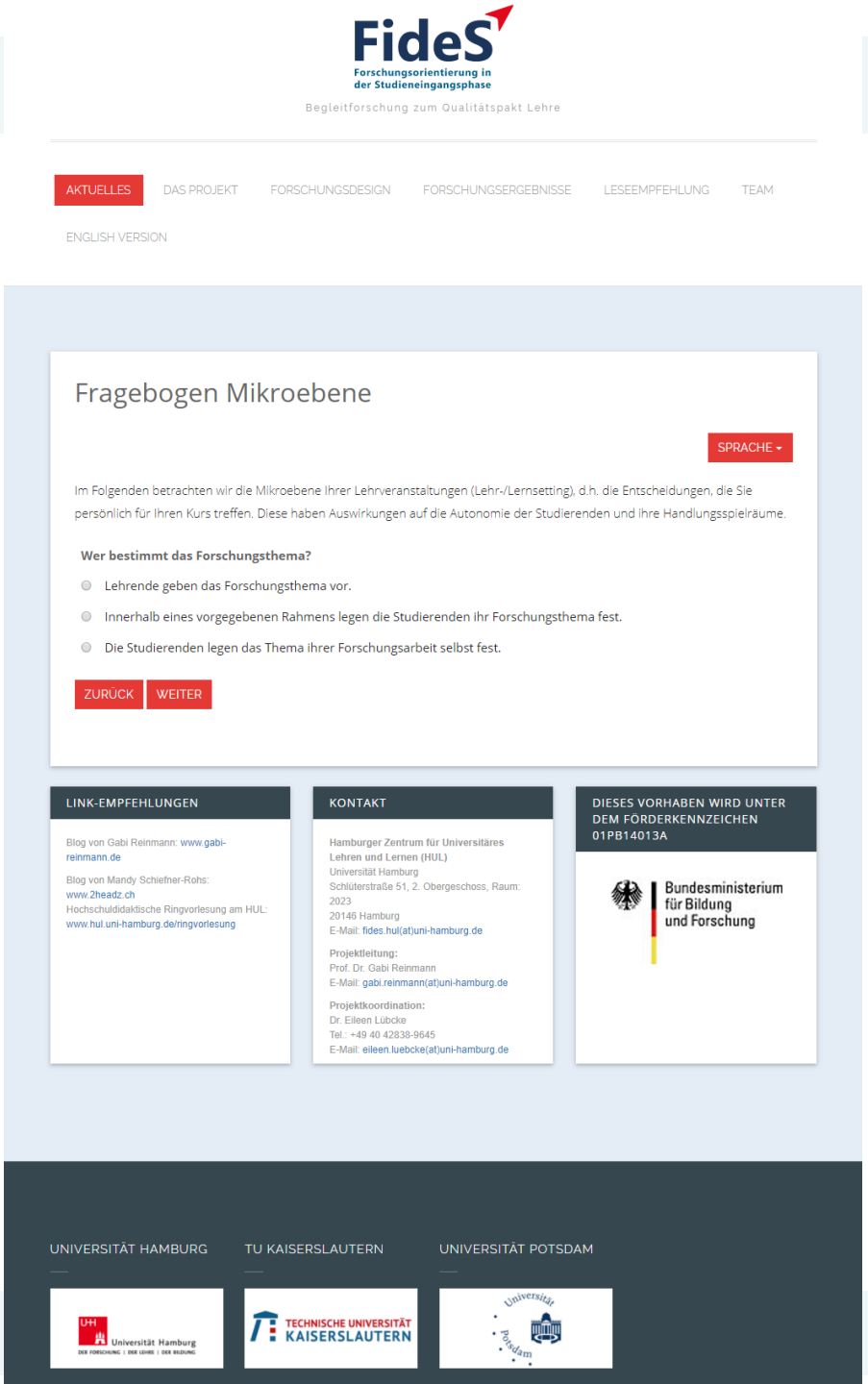

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TASK 3 – DISCUSSION PART

Why did you make this decision?

What are your experiences with it?

What has to be different to give students more autonomy during their research?

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