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UNIVERSITÄT LÜNEBURG

# **Developing Key Competencies for Sustainable Development**

*Summer School “Implementation of Sustainability into Research and Teaching of Higher Education Institutions in Eastern Europe”, Lüneburg*

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## Higher Education for Sustainable Development

- Universities as important actors for shaping the future of the world society in terms of sustainable development “by addressing sustainability through their major functions of education, research and outreach” (Fadeeva/Mochizuki 2010: 250)
- *Future-oriented Higher Education* should promote the development of such key competencies which enable individuals to contribute to sustainable development (cf. Adomßent et al., 2007, 2009; Barth et al., 2007; UNESCO, 2004)
- Issues of interest:
  - Concept of (key) competencies
  - Selection of sustainability key competencies
  - Development of sustainability key competencies
  - Assessment of sustainability key competencies



## Concept of (Key) Competencies

*From input to outcome orientation:*

- Background: increasing complexity, uncertainty and dynamics of social change and the associated demands on the individuals
- Abilities to self-organise oneself become more important
- Competencies = self-organisation dispositions
- Acquisition of competencies as central goal of education



## Concept of (Key) Competencies

### ■ *Competencies*

- are individual dispositions which include cognitive, affective, volitional and motivational elements;
- facilitate self-organised action in various complex situations, dependent on the given situation and context;
- are acquired during action – on the basis of experience and reflections.

### ■ *Key competencies*

- are understood as multifunctional and context-overall competencies;
- are considered to be particularly crucial for implementing societal goals important in a defined normative framework;
- are important for all individuals.

*cf. Erpenbeck/von Rosenstiel, 2003; Erpenbeck/Heyse, 2007; Kaufhold, 2006; Rychen/Salganik, 2001; Weinert, 2001*



## Selection of Sustainability Key Competencies

- *Question:* Which individual key competencies are crucial for understanding central challenges facing the world society and for facilitating its development towards a more sustainable future, and thus should be fostered through future-oriented university teaching and learning?
- *Different approaches for the selection of sustainability key competencies:* e.g. shaping competence (de Haan, 2006), sustainability literacy (Parkin et al., 2004), sustainability skills (Hopkins/McKeown, 2002; Stibbe, 2009), „Professional Competences for Sustainable Development“ (Martens et al., 2010), OECD’s DeSeCo key competencies (Rychen/Salganik, 2001, 2003)



## Shaping Competence

- competency in anticipatory thinking,
- competency in interdisciplinary work,
- competency in cosmopolitan perception and change of perspectives,
- competency in handling incomplete and complex information,
- participatory competency,
- competency in cooperation,
- competency in dealing with conflicts of goals,
- competency in self-motivation and motivating others,
- competency in distanced reflection on individual and cultural models,
- competency in independent action,
- competency in ethical action, and
- capacity for empathy and solidarity.

*de Haan, 2006; de Haan et al., 2008*





## Results of a European-Latin American Delphi Study

*Twelve key competencies crucial for sustainable development:*

- Competency for systemic thinking and handling of complexity
- Competency for anticipatory thinking
- Competency for critical thinking
- Competency for acting fairly and ecologically
- Competency for cooperation in (heterogeneous) groups
- Competency for participation
- Competency for empathy and change of perspective
- Competency for interdisciplinary work
- Competency for communication and use of media
- Competency for planning and realising innovative projects
- Competency for evaluation
- Competency for ambiguity and frustration tolerance

*Rieckmann, 2010, 2011*



## Development of Sustainability Key Competencies

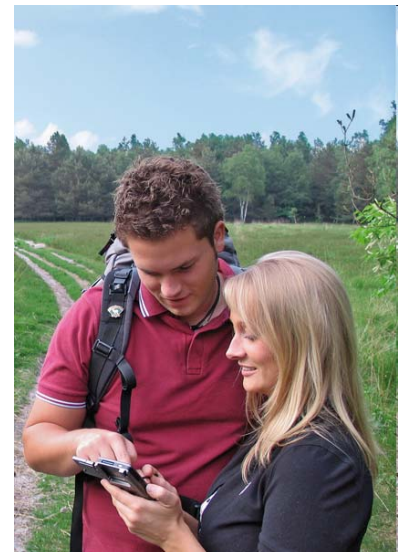
- Universities have to become a “learning academia” (Adomssent 2006: 13) – they should create teaching and learning settings which can be characterised by aspects as inter- and transdisciplinarity, participation, problem-orientation as well as the linking of formal and informal learning and, thus, should facilitate the development of key competencies needed for dealing with (un)sustainable development (Fadeeva/Mochizuki 2010; Barth et al. 2007).





## General didactic considerations

- Competencies can not be taught, but can only be (further) developed through practical experience.
- This means for education for sustainable development that it has to create settings in which students can make their own experiences, can try things, have organise things for themselves and have to cope with challenges (learning by doing).
- Therefore particularly suitable appear the following didactic approaches:
  - self-directed learning;
  - project-based learning (projects in the local environment / in serious situations);
  - promotion of participation, dialogue and self-reflection;
  - Multi-perspective and interdisciplinary thinking and working.

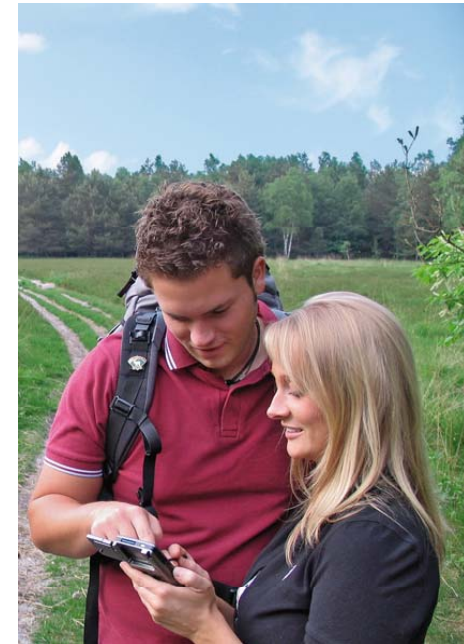




## Didactic Principles

- vision orientation
- orientation towards action and reflection
- discovery learning
- systemic learning
- accessibility
- participatory orientation

*Künzli David, 2007*





## Minor “Sustainability Humanities”

- Dealing with sustainability issues
- Students from cultural studies, economic psychology, administration, economics, engineering,...
- Analysing complex systems, scenario development, transdisciplinary projects
- The Minor course facilitates the development of sustainability key competencies (cf. Barth et al. 2007).





## Assessment of Sustainability Key Competencies

- In general, lack of research on competence assessment in higher education (Zlatkin-Troitschanskaia/Kuhn 2010).
- „...basic research concerning theoretically as well as empirically sound models of competence structures, competence levels, and competence development is still required“ (Koeppen et al. 2008: 64).
- Only a few approaches for assessing the development of sustainability key competencies (cf. Bormann/de Haan 2008; Rost 2005).
- Existing approaches focus on cognitive dispositions (cf. Eggert/Bögeholz 2010; Lauströer 2005; Rost et al. 2003; Klieme et al. 2010; Klieme/Leutner 2006)
- Need for integration and modeling of non-cognitive dispositions
- „particularly heavily abstracting and generalised key competencies face the problem that key factors of these competencies are hardly measurable“ (Barth 2009: 85; cf. Harris 2001).
- As key competencies are context-overall competencies, for their assessment different methods have to be used in different contexts.



## Conclusion

- Universities should integrate HESD in their curricula in order to enable future professionals to cope with issues of SD in their future fields of work.
- Results of the Delphi study show an international common ground for the definition and selection of SD key competencies.
- In particular important are competencies for systemic thinking and handling of complexity, anticipatory thinking and critical thinking.
- For developing these key competencies, new teaching and learning approaches are required.
- Further research on the assessment of sustainability key competencies is needed.



**Thank you very much for your attention!**

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