



Learning Outcomes & Shift from Teaching to Learning

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The Shift from Teaching to Learning

- **PISA** (Programme for International Student Assessment): In 2000 OECD introduced the worldwide study “to evaluate education systems **worldwide** by testing the skills and knowledge of 15-year-old students who are nearing the end of their compulsory education. PISA assesses how well they can **apply** what they learn in school to **real-life situations**. [...] Every three years students are tested in the key subjects: reading, mathematics and science.” (OECD, 2019)
- 2009: Himachal Pradesh und Tamil Nadu took part, 2021: India as a whole
- “PISA-Shock”: Students in German Schools only average! Focus was changed from (inert) factual knowledge to its application -> **competence orientation**



The Shift from Teaching to Learning

- **Bologna Process:** In 1999 29 of the European countries agreed to develop **comparable standards** of higher-education qualifications and allow [recognition](#) of these qualifications, aim: European Higher Education Area, enhance the students' "employability".
- **Paradigm change:** Focus moves from input to output, from teacher's behaviour and course content to students' **learning outcomes** that are measurable and can be compared -> led to new examination regulations
- Example for a learning outcome: "By the end of this lesson, the student will be able to calculate the kinetic energy of a projectile."; Languages



The Shift from Teaching to Learning

Competence = applying knowledge + skills + attitudes & values

“The concept of competency implies more than just the acquisition of knowledge and skills; it involves the **mobilisation** of knowledge, skills, attitudes and values to meet **complex** demands. [...] Students will need to **apply** their knowledge in **unknown** and evolving **circumstances**.” The OECD Learning Framework 2030 (Organisation for Economic Co-operation and Development, 2018).

- This problem solving requires **reflection** of the own learning process
- Sense of **responsibility** as well as **personality development** are important
- Knowledge can not simply be transferred but has to be **constructed** by the learner himself / herself (constructivism)



The Shift from Teaching to Learning

Focus on the student's learning outcomes instead of the teacher's behaviour





Constructive alignment (Biggs & Tang, 2011)

-> *assessment drives learning!*

- Students learn differently for problem-solving tasks where knowledge must be applied instead of being reproduced

But consider:

- The teaching / learning should also take place in a competence-based way
- The exam should represent the learning outcomes and the learning activities

-> *constructive alignment:*

learning activities <-> intended learning outcomes <-> assessment tasks



Taxonomy of cognitive learning objectives (Bloom, 1956)

- Evaluation*

Judgement: **Give reasons** if and why the following learning theory in your opinion allows to build competences to deal with complex situations. ____

- Synthesis*

Problem solving: **Design** a learning activity for each learning theory and give reasons for your choice of learning methods. _____

- Analysis

Compare the three learning theories regarding the role of the teacher.

- Application

Determine on which learning theory dog trainings are usually based on.
() cognitivism () constructivism (x) behaviorism

- Comprehension

Explain what a teacher could use Moodle for. _____

- Knowledge

Name the Learning Management System that is used at TU Berlin.
(x) Moodle () Blackboard () Ilias () Clix

Level of learning objectives

* no automatic assessment on the two highest levels but higher competence levels possible

Planning of exam questions & syllabus (example)

Learning Content ↓	Know- ledge	Compre- hension	Applica- tion	Analy- sis	Synthe- sis	Evalua- tion	← Level of Learning Objective
History of learning	1	1	2				20 %
Learning theories		2	2	1	1		30 %
Learning objectives		2	2	2	2	2	50 %
Sum (20 p)							100 %

List topics – define percentage for each topic – define number of tasks for each level



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Thank you for your attention!

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