

Learning Outcomes

Learning Outcomes describe what students are able to do when they have graduated from their study program. For a course, a Learning Outcome gives students a concrete understand what they can do after completion – provided they have actively participated. Furthermore, Learning Outcomes also reveal what will be done during the semester and how the outcomes and the quality of learning will be tested.

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Authors:

↗ [Antonia Wunderlich](#) (2016),



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The process to express learning outcomes
is based on the model developed by
Prof. Dr. Dr. Oliver Reis
(↗ oliver.reis@uni-paderborn.de).

*We are happy to answer your questions or
hear your suggestions regarding our infor-
mation sheets!*

Contact person:

Team Hochschuldidaktik

Zentrum für Lehrentwicklung (ZLE)
Team Academic Development
Coordinator Teaching A-Z
T: 0221-8275 3820
E: hochschuldidaktik@th-koeln.de

ZLE

Zentrum für
Lehrentwicklung

Technology
Arts Sciences
TH Köln

In brief

Learning Outcomes – intended learning outcomes – describe the skills students should have acquired by the end of the course. They guide the content of the entire teaching/learning processes and the course exam (see Info Sheet „Learning Rooms“): What is described in the Learning Outcome must also be taught and tested. Learning Outcomes thus allow the course requirements and results to be transparent and are referred to again and again during the course.

Formulating Learning Outcomes I: The „what“ – „with what“ – „what for“ structure.

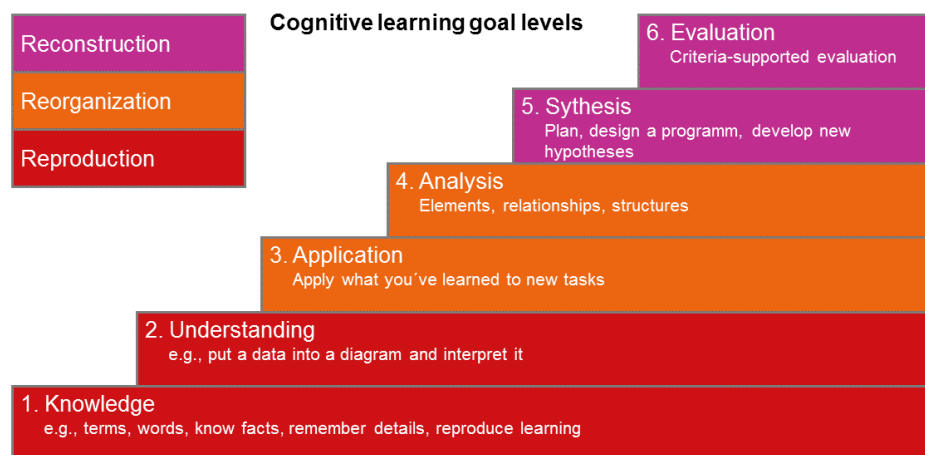
In order for students to evaluate what is expected of them, the Learning Outcome needs three different pieces of information that indicate a clear taxonomic competence level:

1. What precisely is the topic?
2. With what tools can this topic be addressed?
3. What will these competencies be acquired for?

For the Learning Outcomes to guide the teaching and learning process, they need to be given in concrete form and name demonstrable requirements. These requirements can be described in their complexity by using Bloom's taxonomy levels and what are known as "cognitive actions," those that describe what students can perform at each level. Common words in course descriptions and module handbooks such as "recognize," "understand," or "know" do not describe actions, but rather mental states that cannot be observed and therefore cannot be reliably and fairly tested on an exam.

If teachers write: "Students should learn the fundamentals of thermodynamics," then 1) the requirement level of the course is not clear, and 2) it cannot be inferred what students need to do in order to clearly demonstrate the desired competence level they have achieved. The Learning Outcome should include verbs that describe a teacher-observable activity: "list/recite" something (taxonomy level 1), "describe in your own words" (taxonomy level 2), or "independently evaluate" (taxonomy level 3), etc.

Without taxonomic classification, an exam first and foremost fails to address competencies in an academic sense, and instead primarily asks about knowledge. These types of exams are therefore designated as taxonomy level 1 and 2.

Taxonomy levels according to Bloom

Own illustration based on: Bloom et al.: Taxonomy for Educational Objectives. The Classification of Educational Goals, 1972. / Dubs, R.: Professionell Lehren und Lernen. Darmstadt, 3. A. 2008. / Winteler, A.: Besser schriftlich prüfen, NHHL, Griffmarke.1.

An example

Let's analyze our example "students should learn the fundamentals of thermodynamics" with reference to this three-part structure:

1. Is the topic clearly identified? Do you know precisely what to expect from this course?

No. The "what" is described as it is commonly in course descriptions. But in a substantive field such as this, that description is far too wide-ranging to be completely addressed in one course. According to which criteria are the topics selected? Translated into student language this question sounds like: "What will be on the exam?" The Learning Outcome must therefore include a concrete topic.

2. Are the tools for this work identified? Would you know whether this course involves calculation, reading, research, or work in a laboratory?

No. The "with what" is missing because no observable actions are described, only content. What exactly does "know" mean? By what actions would students recognize that they have learned the fundamentals? The "with what" identifies the taxonomical learning outcome tools whereby the "what" is possible in terms of specific actions.

3. Is the purpose of the course clear? Would you know what situations this course prepares you for?

No. Why students acquire the competencies is not identified. Does the course practically prepare students either with laboratory skills needed in a subsequent semester or does it familiarize them with the complexity of the working world to come, both of which require independent project work? The "what for" clarifies the "horizon of meaning" and impresses upon students the essential methods for working toward something, even in situations that cannot be independently tested on an exam.

References

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Info Sheet ["Constructive Alignment"](#)

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