Designing learning rooms

The metaphor of a "learning room" illustrates how breaking down learning events into didactically meaningful teaching-learning units can lead to competence-oriented teaching. At the beginning of the semester, students "enter" the first learning room, work within it, then leave through a "door" that leads to the next learning room. In each room they acquire clearly defined skills and abilities, derived from a Learning Outcome that guides the entire course.

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Learning rooms are designed so that each room allows students to actively participate in developing skills, assessing their progress, and moving into the next learning room. It's helpful if the "doors" that lead from one learning room to the next align both the course requirements and the learning steps. Doing so allows students and teachers to see whether the course planning and learning behavior of students are working together successfully.

Learning is Action

Academic competence acquisition – such as training the capacity to act within a certain theory-based field – happens through real action. Universities of Applied Sciences address focused cognitive actions, such as, "perform calculations," "describe theories in your own words," "develop and support hypotheses," "analyze a situation with respect to certain categories." But creative actions, such as those in arts and technical fields, as well as those required in natural science laboratories or engineering model workshops, also play a role. For competence orientation, it's important that the overall actions are in the focus of the lesson planning, not just content, knowledge, and facts.

In no way does this mean that content, knowledge, and facts don't play a role. On the contrary, they remain the essential elements of teaching. Those who want to teach in a competence-oriented way still face the challenge of not only identifying the topics for their respective courses (declarative knowledge = "knowing what"), but also making transparent to the students what to do with the knowledge and content and what procedural knowledge ("knowing how") they should acquire.

The tools of this procedural knowledge are an integral part of competency-based planning in learning rooms. A learning room is a self-contained unit of a course that clearly defines the competence acquisition possible within it. A meaningfully prepared learning room usually involves more than a two-hour lecture, and therefore it's sensible to design five to eight learning rooms per semester. Learning rooms are based on a ↗Learning Outcome that concretely describes which complete subject-related actions students can perform by the end of the semester.

Learning Rooms should be designed so…
- that the students acquire the skills in one learning room that they need in the subsequent learning rooms,
- that the complexity of requirements increases during the course, and
- that the exam doesn't increase the demands of the course, but are rather on par with the most recently completed learning room

Students who have not yet developed the required competencies of the learning room cannot successfully continue to the next learning room until they have reached the corresponding level. It therefore makes sense to check students' competencies before their transition from one learning room to another – not to require a test, but rather a way for students to discover for themselves whether or not they are ready to "enter" the next learning room or whether they should first catch up and rework.

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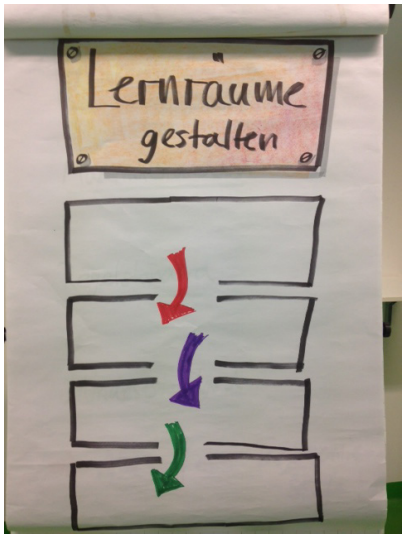
Learning rooms can be derived in different ways from ↗Learning Outcomes. For each learning room, it is useful to write a separate Learning Outcome in order not to fall back on a content-oriented "textbook chapter" during a course. Describe for each learning room which competencies can be meaningfully addressed: What do your students need first? How easy should the requirements be at the beginning, how complex should they be at the end? Which cognitive tools fit together and how can their application be broken down into learning steps?

Learning rooms should include at least one preparation/development phase and one practice phase. Make sure that in the practice phase that students can reasonably achieve the learning-room learning outcomes. Only then can they keep up with the demands of the next learning room. What these phases actually look like depends on the course and its content (the number of and experiences of the students, space and equipment funding possibilities of the university, length of in-person lecture time, etc.). Both phases should be activated in order to trigger the actions students are able to achieve.

Diffuse statements such as "You may have already heard this" or "You can look this up later" have no use in skills-based learning. For this reason, teachers' aims should be for students who can work independently and ask critical questions, and requires more of them than the passivity of "I'll learn that later for the exam." Cleverly designed learning rooms require much more sophisticated competencies to be developed through a didactically and sensibly planned study program.

Designing a learning room requires very different thinking about the goals of a course than just a list of course content. In the beginning, the question of actions is not easy to answer because for teachers the actions are obvious, although rarely explicitly stated in words. Teachers are experts in their subjects, but students are novices. The design of learning rooms requires a return to the start of your own training in the field: What questions did you have as a beginner? What seemed strange or foreign to you? What kinds of logical thinking did you find difficult? Which steps or themes led you to develop in your field?



"Designing learning rooms"

An example

In a logistics lecture, students learn to analyze current news articles to determine how three levels of transport policy (regulatory, procedural, and structural) interact with each other. To do so, students need the following cognitive tools:

- the ability to confidently use technical terms and basic principles of transport policy
- the ability to describe the essential elements of regulatory, procedural, and structural policy – both their functions and their effects on each other
- the ability to identify all of these elements in newspaper articles and analyze their relation to each other

A previous lecture was structured such that the technical terms and the basics of transport policy were discussed and then regulatory, procedural, and structural policy tools were presented.
Because this "chapter" of the course did not include any concrete instructions, most students did not know what to do with so many details, and used the usual methods to study: memorizing the content of the lecture notes, asking questions during every lesson about what to expect on the exam, trying to glean from the teacher definitions and possible solutions in order to memorize them before the end of the semester.

Thus the actions of the students were limited to a small range of tasks, mainly of trying to glean from the teacher how the lesson topics related to the course goal, and thus only once the course was completed could students see what the teacher had in mind for the lectures.

A possible conclusion of the students: Subject XY is boring and not worth it. I just memorized what I needed to know for the exam and forgot the details shortly thereafter. I can't see why this course is relevant for me.

A possible conclusion of the teachers: Students are only interested in the exam, not in thinking.

Because the teacher was not satisfied with these conclusions, she analyzed the course themes – but not in the usual way, in which content is merely listed, but rather as actions: What do the students need to be able to do with the technical terms and basic principles of transport policy? How can they learn to apply this basic knowledge within the framework of complex learning steps? In other words, how can they learn to not just correctly memorize terms, but to use their knowledge in real-life situations (newspaper articles keywords). And what do they need in the next step, in order to be able to analyze more complex instruments of regulatory, procedural, and structural policies and their connections to each other?

The teacher designed five learning rooms. The first consisted of two work phases to clarify the terminology and the basic principles of transport policy. To ensure that students used these basics correctly, there was a Wiki-workshop where the students could formulate processes as well as distinguish between similar terms. In a quiz, they could determine whether they were ready to transition to the next learning room.

There were three study rooms for each of the three levels of transport policy. A recent newspaper article was selected so that students could initially analyze it with respect to regulatory policy. In this way, the competencies from the first learning room were necessary (the ability to use technical terms and basic principles) and new actions were practiced (identifying elements of regulatory policy in an article, the connections simplified so that even non-specialists could understand them). In these three steps, each of the three levels of transport policy was processed, and in addition analyses of articles with non-technical language with respect to one of the three levels of policy was trained.

The last learning room, the one that prepared students for the exam, presented the students with a new, higher level of complexity. At this point they had analyzed newspaper articles with respect to all three levels of transport policy and the links among all three. To do this, it was necessary that they have previously mastered the basic concepts and the analysis of newspaper articles. What was new was that students had to be able to selectively distinguish among the three levels. For the exam, the students had to be able to analyze and complete the same tasks from the previous learning room using a previously unread, but similar, article.

How you increase your lecture complexity depends on your ↗Learning Outcome. In this example, the first learning room breaks down a complex topic into small units, which in reality would not be achieved in isolation. But this real-life complexity and integration can only be achieved at the end of the course. What is important is that with each step, the level of complexity and student autonomy increases. In short, that it represents "reality."