

DUT Guide: Use (of) the physical learning space

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Abstract

The physical learning space, understood as the conscious use of the classroom, has rightly received increased attention in recent years as a tool to support learning. This guide begins by reviewing the reasons for the interest in learning spaces as a tool. Based on the concept of *didactic spatial competence*, advice, instructions and illustrations are then described for how the use of the physical learning space can be approached. Finally, development opportunities are pointed out, both for engaging in new development of learning spaces at an institutional level and for developing one's own didactic spatial competences as a teacher.

Practical points

1. Be clear about what your intentions are with your teaching – what should the physical space support?
2. Arrange it so that it best supports your goals – how should the physical space support?
3. Explore what is possible – or be creative.
4. Begin! Remember the students as a resource.

Background

The title of this guide has two functions: *Use* the physical learning space! And Use *of* the physical learning space. Behind the *first* invitation to use the room, is a desire for more people to, prior to a teaching session, take into consideration that the space also has an impact on what kind of learning can take place. That the room becomes part of the didactic considerations you make in the preparation phase – in line with considerations such as the number of students, the length of the teaching session, the time of day, etc. The *second*, more instructive part of the heading, Use of the physical learning space, is a reference to the fact that this guide will try to provide advice and instructions on how to approach the use of the physical space as a learning tool.

But first, very briefly, why it makes sense to care about the physical learning space. Over the past 20 years, the physical space has received increased attention for its role in shaping the teaching and learning that take place within it – mostly in primary and secondary education, but also at universities and other higher education institutions. However, research in this area is not particularly extensive (Leijon et al. 2022), because if you ask what significance space has for the students' learning, it is difficult to isolate space as a single reason for student outcome – just as it is also difficult to isolate the teacher, the student, or any other contributing factor in the

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complex process, we call learning. However, several studies show that space can encourage learning activities that leads to better learning outcomes (Painter et al. 2013; Chui & Cheng 2017; Thomas et al. 2019). The room and its interior stimulate a particular behaviour in the teacher, which stimulates a particular behaviour in the students (Brooks 2012).

But the space is not in itself a guarantee for the behaviour or activities in the room. The space can only stimulate and encourage the people who use the room. In this way, it becomes even more important to consider how you want to use the space – or in other words: there is a difference between "the physical space" and the "learning space". The physical space is the space itself, while the learning space is what happens when the space is used for teaching and learning.

Teaching at universities takes place in many kinds of spaces: teaching laboratories, workshops, sports halls, lecture halls, classrooms, group rooms, supervisors' offices, and many other places. Some of these spaces are *strongly programmed*, which means that they are designed to accommodate a very specific behaviour and use (Hillier et al. 1984). For example, laboratories with extraction and gas taps naturally encourage students to be actively experimental, and the traditional lecture halls are designed so that all students can see and hear the teacher. On the one hand, the strong programming means that there is a clear and reassuring expectation from all parties in the teaching situation as to what kind of activity can – and cannot – take place in the room. On the other hand, the clear expectation and the special behaviour that the design allows for can also create problems, e.g. it can be said that the room itself works against interactivity in the lecture or reflection in the laboratory.

Conversely, other rooms are *weakly programmed*, such as the many rooms with flat floors and movable chairs and tables, which can be used for many different activities, but do not have any special atmosphere. Nevertheless, it is these, somewhat characterless, ordinary "classrooms" with tables and chairs in straight rows and a screen or blackboard at one end of the room, that this guide takes into consideration. Mainly because they are the most common at the universities, but also because they hold the potential to become effective learning spaces if we, as educators, deliberately plan how the room and its arrangement can support the teaching conducted within it.

To be able to do this, however, it is necessary that you as a teacher have a spatial competence to use the physical learning space. A teacher's spatial competence is dependent on being able to read the pedagogy of a room (*built pedagogy*, Monahan 2000), i.e. one, first of all, can de-code how a room's design creates opportunities for pedagogical actions in the room, and second also be able to manipulate and reorganize the components in the room to support the learning activities (Lackney, 2008). However, it is one thing to be able to read and react to the pedagogy of the room, another thing is to include spatial considerations already in the planning of the teaching session. This is called a *didactic spatial competence*, and is defined as:

- To have the ability to plan and design teaching and learning in a variety of learning spaces
- To implement teaching and learning, act and react in a variety of learning spaces and
- To evaluate, reflect and transform both pedagogy and the learning space.

(Leijon, Malvebo & Tieva, 2021, p. 72)

Thus, a didactic spatial competence is about incorporating space into one's didactic considerations. The following four tips provide a guide on how you can get started with planning, carrying out and transforming your teaching with an eye for space – how you can practice a didactic spatial competence:

Tip 1: Be clear about what you want to do with your teaching

The first thing you need to be clear about, is what the goal of your teaching is. Here you can easily think about the learning goal of the entire teaching process, but since it is rarely possible to teach in the same room throughout all the teaching sessions during a semester, I will focus on the individual teaching session.

When planning the content of the teaching session, you have made didactic considerations about what you want the students to learn and how they should learn it. You may have decided to build the teaching on cases so that the students can apply their theoretical knowledge to a practical case. Or that the students must work in groups on an assignment that will be shown to the whole class at the end. Or that the students must take part in an academic debate in which they will represent two competing points of view in the theoretical landscape. In other words, you have already decided what the students will train and on what content.

In the above scenarios, you must then consider what behaviour you specifically expect from the parties involved – i.e. both yourself as a teacher and the students? For example, is it important for the teaching method you have chosen that you as a teacher can move freely between all the students – and not just back and forth along the screen/blackboard? Is it important that all students can look each other in the eye? Is it important to create some smaller spaces in the room, e.g. if the students need to be able to hear what each other are saying during group work? Is it important that the students have free movement, e.g. around a communal table, because a product must be viewed from several angles? Just as the learning goal must be aligned with the learning activity, the learning activity must also be aligned with the physical space: if your students are to do group work, the students must have the necessary space for it, just as a good, equal discussion requires that the discussants are placed on an equal footing with each other.

A natural consequence of the consideration of what behaviour your planned teaching entails, is the consideration of what role you yourself have as a teacher in the given teaching session? If your role is to be a communicator of knowledge, all the students must be able to see and hear you. Or if you are the facilitator who supports and guides the students' own work on the topic, the students must be able to concentrate on their own work, and you must be able to get close enough to them to be able to guide them. And if you take turns doing both, it requires a room with just as flexible a décor as your teaching roles.

Tip 2: Arrange it to best support your goals

Once you have a clear picture of what activities will take place in the room and what behaviour you expect from those involved, you can set up scenarios for the interior design. The way tables, chairs, screens, blackboards, outdoor spaces, etc. are placed sends signals about how the teaching should take place and reminds us of what is important in the given teaching session. Below I outline some possible arrangements for different activities:

A. Here, the students (circles) sit in groups around tables that are placed in a kind of semicircle in the room. There is room in the opening of the semicircle for the teacher (the triangle) to move around to the groups (the dotted line).

The teacher can start the teaching session with a joint presentation on the screen/blackboard (the narrow rectangle). The presentation must be short, because some of the students must turn away from the group table to be able to see (arrows) the screen. Of course, the joint attention to the screen can also take place at other times in the lesson, handled by either the teacher or the student.

B. Here, the students also sit at group tables, but the groups can fill the entire room. The teacher can move around the entire room, and the students' attention is focused solely on each other in the groups.

The teacher can facilitate the group work by giving short, oral instructions in the middle of the room, but otherwise the primary work takes place internally in the groups. There is room for the students to move freely in the room, either between the groups or to, for example, stations on the outer edge of the room, where group work materials, or inspiration can be placed.

C. In this arrangement, the students sit opposite each other, possibly in several rows depending on the number of students. The students can see each other and focus primarily on each other. The teacher can move across the room to be either close to one group or to move between them.

Teaching based on this arrangement can be academic debates, where each side represents a professional point of view. If students sit in several rows, the back row can supplement the first row with data or good arguments in the debate – or be "substituted" during the debate.

D. At one end of the room, the tables are placed together so that the whole group of students sit together, and at the other end there is room for the whole group of students to stand in front of/see a common blackboard or screen. The teacher – just like the students – can move freely in the room.

The interior design accommodates and supports teaching situations where the entire student group is working on the same project/task. It can be joint problem solving or the design of a common product, which is facilitated by alternating between working on a flat surface for drawing/writing on and discussing standing at a horizontal surface.

Of course, a lot of teaching takes place as combinations of different activities: At the beginning, the teacher gives a short introductory presentation on the topic of the day, then the students go into groups, then the teacher picks up in plenary and then ends with an individual reflection exercise – or other ways of structuring/varying a teaching session. Here you must consider whether some interior can serve several educational purposes, whether the interior can be changed along the way, or whether one of the activities is so important to your learning goal that the other activities have to settle for a slightly less optimal interior design.

Tip 3: Research what's possible

Any interior, refurbishing and adaptation of the room to fit your ideas for teaching is possible in theory. But not in reality. You will often find classrooms where the tables are bolted to the floor or held together in rows with strips, or where the projector-screen is placed in front of the blackboard so that you cannot use them at the same time, or that when rearranging the tables, there is not as much excess floor space as you need. To be able to consider the differences in the rooms, you may need to familiarise yourself with their setup prior to teaching: In some places there are booking systems that describe the room's resources, in other places you need to find out about the interior design options for yourself.

If you need help and inspiration to spot the possibilities in a learning space, you can probably get help from your local learning unit. You can also be inspired to use the room in new ways by asking colleagues, or by sitting in on their teaching. You can also ask the students for help: How would they arrange themselves in the room in question if they were to get the most out of, for example, groupwork? Most students bring experiences from their study life, which may be brought into play. Everyone's wishes and needs may not be met, but the inspiration is passed on – and the students are, at the same time, made aware of the relationship between space and learning.

If the room does not give you the necessary opportunities to arrange it so it supports your teaching, you can look into whether you can move the teaching to another room. It is usually a logistical challenge and, if so, you can also bring what the room is missing, e.g. whiteboard foil to supplement the room's display options. Or you

can consider including spaces outside the room. Outside most classrooms, there are corridors or other spaces where groups of students can work. In that way it does not take long to get back to the room, and you as a teacher can still circulate between the groups. You can also consider sending students out for shorter walk'n'talks, either in the institution's outdoor areas or in the corridors.

Tip 4: Begin!

All that's left is to throw yourself into it! In the vast majority of classrooms for teaching small groups, the furniture (unfortunately) is, by default, set up in a uninspiring row arrangement, as if it was a lecture hall. So, you will probably need to spend some time changing the table layout – and you usually only have the academic quarter between lessons for that.

You can spend time and effort resetting the room yourself. Or you can involve the students in the refurnishing, with several advantages associated. The obvious benefit is that it saves your effort and time. But the involvement can also help the students to understand that the interior design wants something special for them – the involvement can in itself support the goals of the teaching, because the teacher can explain and justify the learning activities that the interior design should reflect. For many students, it can create peace of mind and reassurance to be included into what behaviour and activity the teacher expects of them. In general, don't be afraid to make the use of the space explicit; Being given a specific role in a specific place in the room can make it easier for students to fill the role.

Finally, there is also a more indirect way to change the layout (and flexibility) of the room, namely by asking for it! This applies to both teachers and students. Teachers can, for example, use the workplace assessments (in Denmark, arbejdspladsvurdering (APV)), where the physical working environment – including the classrooms – is evaluated. If you as a teacher experience some classrooms that are designed inappropriately, e.g. with too few screens or too inflexible and heavy tables, the first step to getting it changed for the better is of course to draw attention to it. As a student, you can also request changes to the learning space – e.g. via course evaluations. Here, there will usually be a "do you have any other comments" category in the evaluations, where you can point out inexpediciencies in the learning spaces and provide constructive input for changes.

The further development of learning spaces and of didactic spatial competence

In the above, I have taken my starting point in the creative use of so-called ordinary classrooms, i.e. rooms with a flat floor, rectangular tables usually placed in straight rows and a blackboard/screen at one end of the room. This is because the vast majority of the universities' total mass of classrooms looks like this. But rooms with this layout, where the students all look in one direction (towards the teacher) and where the teacher has minimal room for manoeuvre, mirror a slightly old-fashioned form of teaching with a division of roles between teacher and student à la oracle and listener. Fortunately, most universities are paying increased attention to redesigning learning spaces to reflect modern, active approaches to learning. In connection with new interior design, research indicates that the involvement – and preferably early in the process – of the parties who will use the space subsequently leads to learning spaces that are relevant and used as intended (Alstete & Beutell 2018, Casanova, Napoli & Leijon 2018). Therefore, it should be possible to influence the design of learning spaces as a teacher (and as a student) by expressing your interest to the local departments responsible for the building stock.

The reason why an interior design revolution featuring round tables, soft sofas, wheeled chairs, and the like has not long ago happened in university classrooms around the world is, of course, that many stakeholders are involved in the design of these spaces. In addition to teachers and students, the rooms also must accommodate the cleaning staff, fire authorities, schedulers, technical staff and, not least, the finance department. But perhaps

the time has come for the pedagogical principles to be given a higher status in the negotiation between the many stakeholders' views on the effective learning space. From my perspective, the time is long overdue for the pedagogical principles guiding teachers' planning of their teaching to also be made visible in the design of the spaces where teaching occurs.

In conclusion, let me repeat the call from the headline: Use the room! Use it as an additional resource alongside preparation activities and instructions that can help students achieve the goals of the lesson. Use it as a tool in teaching that identifies and emphasizes how you want the students to work. Use it to support you in your preferred role as a teacher.

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