A constructive learning environment is the physical onerepresentation of the values, beliefs and pedagogical practices shared by the school's teachers, management and students. By changingthe learning space, new opportunities are created to support, develop or change the local learning culture.

Søren Peter Dalby Andersen
KlimaZirkus


Studio 17
www.klimazirkus.com

Studio 17
- an arena for today's changemakers.

A good learning environment is the physical expression of the values, beliefs and pedagogical practice shared by the teachers, school management and students at the school.
By changes in the learning environment new opportunities to support, develop and change the local learning culture is created.

Consequently, it is instrumental to consider how the learning culture can define how the learning environment is designed – not the other way around. Having this in mind we designed Studio 17 as a concept for interior design of learning environments meant to support hands-on learning and innovation.

The focus of this concept is to enable young people to unfold their creativity and address the global challenges outlined in the UN's Sustainable Development Goals (SDGs).

A Studio 17 is set up and owned locally. It constitutes a shared resource for the school or a community of schools in the local area.

In a Studio 17 the work is based on five foundational elements:

Projects:
The teaching situation are designed so that students work on the own projects that are relevant to them.Typically, the point of departure will be the students' own ideas and materialized by learning methods based on practice.

Passion:
The students are encouraged to follow the track of their own passion since we know that they will work more concentrated and diligent when they are working in projects that are relevant and thus motivating.

Co-operation:
The students are encouraged to work in teams since learning is a social process.

Play:
The students are encouraged to learn through play, exploration, creativity, wondering, experiments, and art.

Authentic Role Models:
When the students work together with a local company, a NGO, an art museum, an engineer or construction company they have the sense of being taken seriously. In this way the project become realistic, meaningful, and relevant.

Studio 17 is:

- An arena for change-makers.
- Didactic, craftmanship, technology, art, STEAM and Open School.
- Hands on, persistence, design thinking and Project Based Learning.
- Cross sectorial cooperation.
- Continuity, structure, and experiential learning.
- Networking and sharing of experiences.
- A concept for the interior design of schools working on practice-based learning.
- The space in which students can try, fail, and try over again.

The three foundational principles:

1. The learning environment must support the learning culture.
The workshop should function as a learning space that support wondering, professionalism, exploration, creativity, and a point of departure for learning outside as well as inside school.

2. School and local area meet.
Out-door areas should be seen as an extension of the in-door learning environment and vice versa.

3. Transparent and multidisciplinary.
There must be openness and a wide view over the workshops, so that eagerness to create and cross curricular working approaches are stimulated.

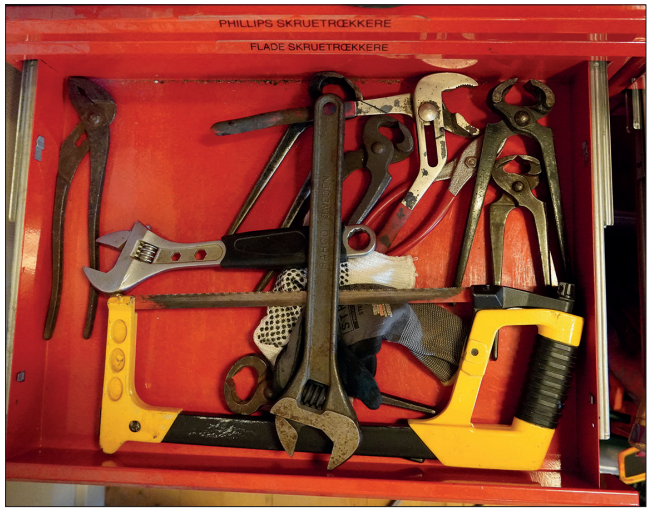
Workshops

All activity in Studio 17 originates from rooms designed for the specific purpose to enable young people to address the challenges outlined in the UN SDGs. They work as a local emporium for young people to discuss and develop innovative and operational ideas.

In the design we considered:

- How students can experiment in and explore a rich variety of natural science topics
- Giving easy access to inspiration, equipment, and material
- Inspiring interior design in a narrative frame.
- The interior work as space for a variety of teaching modalities
- Flexible furniture, authentic equipment, and material that inspire the students to empathize with the topic and take various roles as the process runs.
- Room for concentration in quiet spaces as well concentration even when it is noisy. Options for the students to get in flow. Students will, forget about time enhan cing their ability to concentrated work on their assignments.

The learning concept includes various workshops that can be seen as bricks in specially designed local learning room.



How can we turn a classroom into a workshop?

Before you begin to make sketches of, design, and furnish the rooms they should all be revisited to answer the following question:

What will we need to happen in this room?
Think through various scenarios of teaching and take note of the needs this will cause on behalf of the room. How many power outlets do we need? Where do we need day light and where do we need electric light? Will students be standing or sitting down during work? Will we need white boards and interactive screens for project work and introductions?

How many students will be working in the room at the same time?
It is instrumental to clarify how many chairs will be needed, how many working places, and decide how big tables and how much free floor area is needed to make work run smoothly.

Which age group will be working in the room?
Will you need adjustable furniture? Will we need stools for smaller children to reach tools and operate machinery or will the solution be to height adjustable?

How much noise will machinery and working process cause?
Will we need quiet zones and conversation zones separately and how do we protect those who need to concentrate from those who are operating noisy machinery?

How much place for storage, put aside and exhibitions do we need in the workshop?

Often, we have many student-driven projects running which we need to be put aside for shorter or longer while. If we do not enough shelves or a depot for them, they will soon turn the room into a mess.

This comprehensive advice has been developed in cooperation with Højer Møbler, a furniture manufacturer that have specialized in developing learning rooms.
(www.hojermobler.dk/nynaturfag/konceptet/naturfagsprincipper

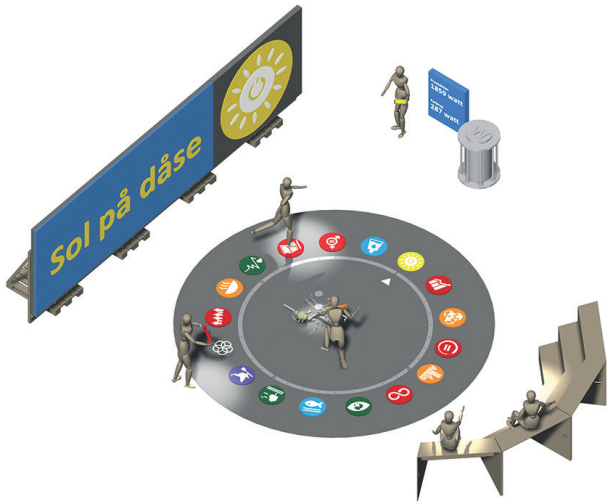
The workshops could be:

- The Makerspace
- The Star-scene
- The Idea-factory
- The Science Factory
- The Food-lab
- The School Garden
- The Music and Video Studio
- etc.

Next, we will outline the workshops briefly.

The Makerspace
The Makerspace is a high-tech engine and pulsating heart in room of wide scope. It is stuffed with hardware and options for unfolding creativity.
In this room students and teachers can use and explore new technologies.
In this room we work with the students' perception of technology and the aim is to develop their professional competencies and they reach proficiency knowledge to work in a constructive yet critical manner on learning activities and digital artefacts to understand their implications.
In the Makerspace the students can take control of contemporary computerized tools. We work on prototypes and models to be shown at The Star-scene.

The Star-scene
The Star-Scene is a core element in the common space. It is used for student presentations, theatre performances, concerts, and similar activities. The scene is a natural meeting point in relation to events, workshops, and other joint activities at school. When the scene is not used for such purposes, it is still a core element in the room as it can be utilized for space demanding activities group work etc.



The Idea-factory

In the Idea-factory ideas are brain-stormed. We make research on the internet, we discuss results, and our findings are reported in articles or in large screens. Films are edited and knowledges is shared in a wider audience. The students' immersion in the topics individually or in groups they develop ideas and solutions to real time authentic challenges.

The Science-Factory

The Science-Factory is meeting spot for theoretic as well as practice part of the preparation for professional or academic secondary education. In here the students can work out user driven innovation and they can materialize and bring the ideas to live that they worked on in Studio 17. The work in The Science-Factory is to a high degree interdisciplinary and to build up a visualization of the students' solutions we need a different learning environment. In this room academic terms and theory is aligned with hands on physical elements. The students should experience that a theoretical model will not always work, and they should be driven by curiosity and keep up the work to find alternative solutions. In The Science-Factory we build simple models for experiments or even full-size solutions. You make noise and get dirty, and you are talking and having fun. You concentrate even in the noise, you try out ideas, calculates and make sketches, build prototypes or mock-ups.

I try to apply differentiated teaching in my lessons to make sure that all students can feel that they are recognized and included. By doing so some students can work on higher level with difficult topics while other can do more practical activities and yet learn. All students must feel equity of esteem and that they are part of working community.

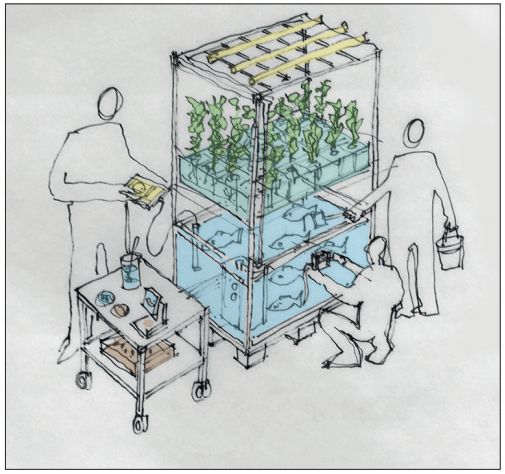
Teacher from Denmark

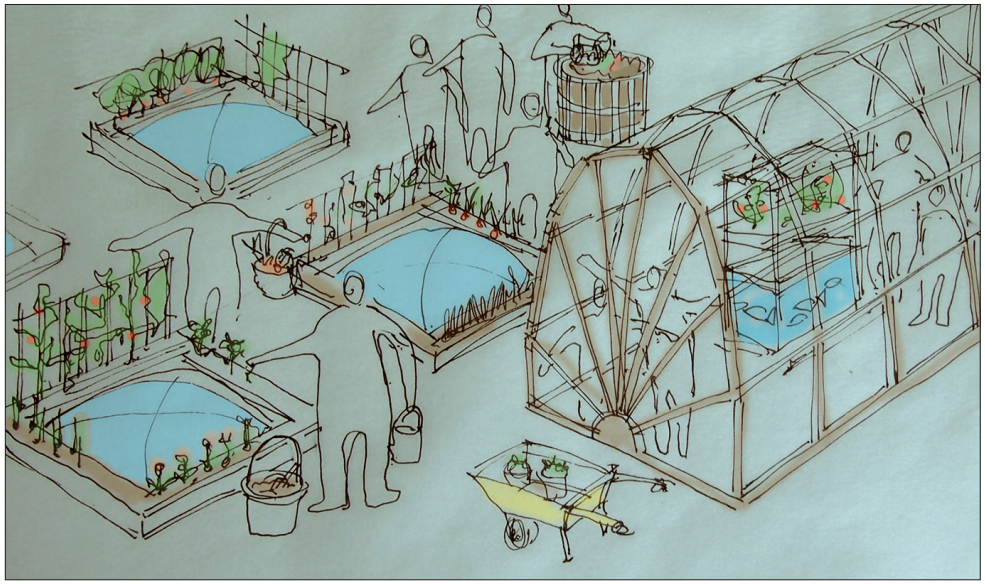
The Food-Lab

The Food-Lab addresses the students' senses and initiate a variation of perception modalities. Through the work on future food: Insects, seaweed, oceanic gardens, aqua-ponics, cofee sponges and more the students are enabled to combine the STEM disciplines through practical, theoretical, explorative, and experimental modalities of work. When the visions are about to turn into reality the test site is set up in The Science-Factory.

The School Garden

The students should have easy access to trying out their thoughts on their close to practice ideas and they should get inspired by the nature around school. The alignment can be made up by large windows, folding walls, and by establishing students' gardens that can be integrated in the learning. This is an option for adding an out-door activity to The Food-Lab and products from the students' gardens can be used in the school kitchen to develop the students' knowledge on food.

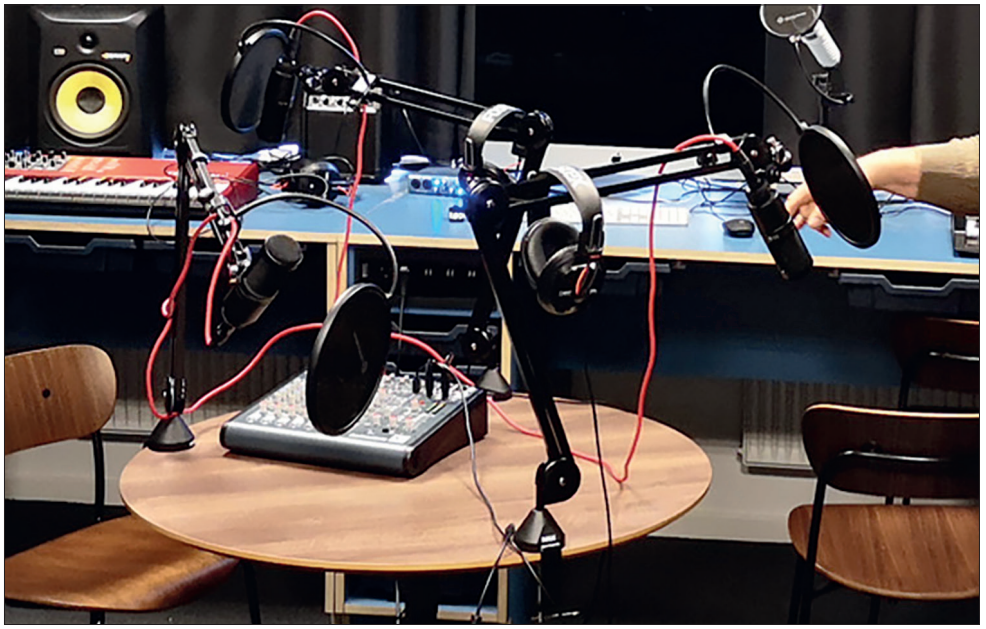


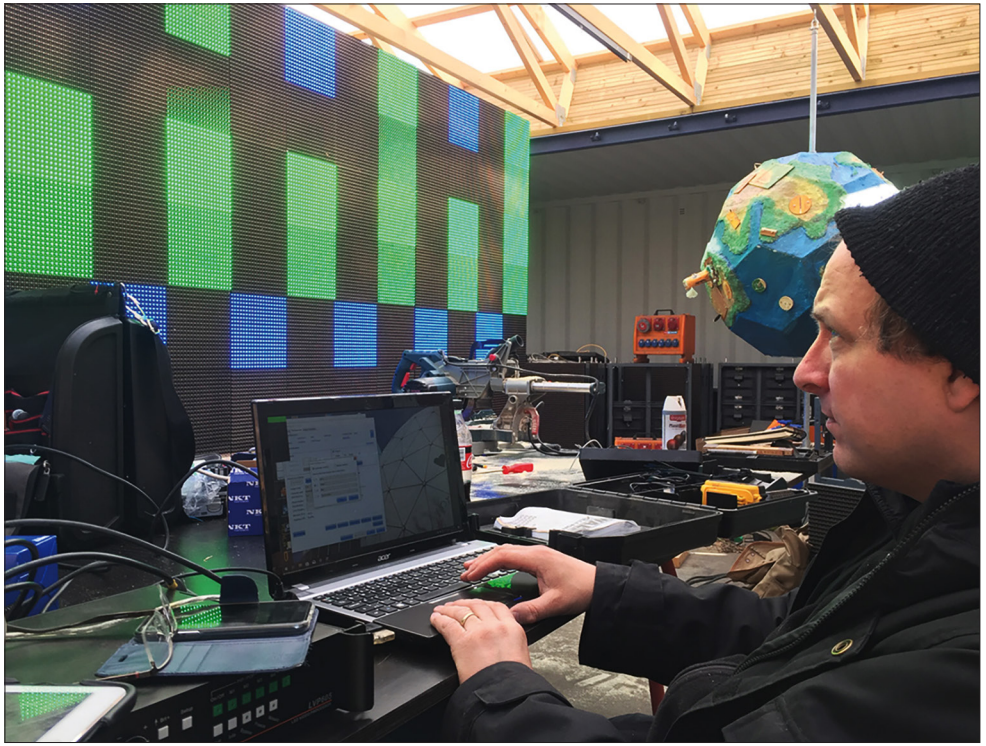


The Music and Video Studio

To edit film and sound has become an ever more integrated part of the everyday life of young people. In the studio the students can work in a more professional manner on images, videos, and sound. The students can record and mix music and they can be taught in studio techniques and the production of recorded music. They will experience how professional film editors work and they get involved in the creative process of telling stories orally and visually. The soundtrack and the images will become an essential part of the students' presentations.

Translation by Jørn Skovsgaard
Counter Current Consult





KlimaZirkus functions as a practical operator that provides expertise enhancement, premises design, consulting services, and courses geared towards project-based learning in real-world situations.

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