Action – Structure and Teaching Methods for Lectures and Seminars

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1 Introduction and Personal Motivation

Activating teaching methods can support the learning achievement of students and therefore are attested ways to improve teaching. Individual activity and subjective experience of the purpose of the learning matter are central categories, which may lead to a higher motivation for learning and improved performance. The teachers coordinate their courses with sophisticated teaching methods for better student learning, they guide them and give advice. In contrast to traditional lectures, the evaluation of learning outcomes is done by the teacher and the students. For the use of activating methods the teacher needs enough time for the preparation and a good piece of flexibility.

Since I had the chance to take part in a special teacher’s training five years ago, I improved my courses and adapted these and other methods for landscape architecture, I’d like to share the experience with teaching staff and students to help improve the education in landscape architecture in Europe. Not only the content of courses, but also the methods of teaching and learning should be discussed in meetings of landscape architecture schools. I would be glad if this text would be a start for a serious discussion.

2 Teaching Landscape Architecture

There is no discussion that design studios are a very suitable method for teaching complex problem solving techniques in landscape architecture. But typically, also lectures and seminars are very common in teaching basic and advanced knowledge. We know that in general, students capture only 20 to 40 percent of a lecture’s main ideas in their notes (KIEWRA 2002, p. 72). Without reviewing the lecture material, they remember less than 10 percent after three weeks (BLIGH 2000, p. 40). It must be called a big mistake in courses typically focused on teaching that one (the teacher) speaks the whole time alone and the group (of students) is expected to listen all the time and get all the information as they were intended to be understood by listening to them for the first time. There are possibilities to improve the learning process and it is crucial to change the focus from teaching to learning. It is necessary to identify relationships, to transmit connections, to solve problems and to train key competences. Is learning the main focus, also the courses need to be planned with the learning skills of students in the focus.

The most important part in teaching is not to give as many facts as possible – but make the group understand and able to learn what is needed to know. Students and everyone who is learning remember best and most permanently the knowledge they have been actively developed and processed. To improve the learning process, activating teaching methods
that appeal to multiple senses and promote actions of students should be also used in lectures and seminars.

Lectures usually mean that one teaching person gives most of the input and learning means listening for the given time. Lectures are usually longer than the attention of students can be kept. Also, the groups of listeners are usually relatively large and the students come with different knowledge and interests which make it difficult to respond to everyone’s expectations.

Seminars are structured with more active methods but still mostly mean a big part as input from the teacher and from the students only when they are asked (activated). For both types of courses it is important to find the right balance between input (= lecture) and individual learning/processing phases. The structure called Sandwich Method (see below) helps to plan a course with alternation of these types of teaching.

3 Teaching Methods

Methods to support activating the students can be the Advance Organizer as an inspiration in the introductory part of a course unit, the Partner Interview for the motivation, the Group Puzzle as an assignment, Mind Mapping for the discussion or solution, and the Feedback Method during the conclusion. In the following, these methods are described in more detail as examples.

3.1 Advance Organizer (AO)

Advance Organizers are devices that are used to present global summarizations of content to be learned to the student (COFFEY 2005).

Especially for students of landscape architecture as visual discipline which produces and leads to a good understanding of images, a graphic design as Advance Organizer may help to bridge known knowledge with new contents of a course. This can be very useful in courses about construction, history or planning methods.

An Advance Organizer is information that is presented prior to learning and that can be used by the learner to organize and interpret new incoming information (MAYER 2003). It should mark the beginning of a new learning phase, i.e. the start of a new module, the beginning of a workshop or project. An Advance Organizer makes it easier to link and connect the new knowledge with the already existing (pre-) knowledge or the fundamentals to be activated by a fairly general conceptual structure (organizer).

As the capacity of the human reception of information is limited, we help ourselves by perceiving and receiving selectively. The Advance Organizer is a method to focus the “cognitive tuning” and help to select the relevant information. With the help of Advance Organizers a new problem area is first applied in a scientific context, although students at this time are not yet able to understand details. The explanation of the survey is initially limited to the affiliations of the new with the familiar knowledge and to the knowledge to be acquired. The academic depth of knowledge is achieved gradually and by dealing with the problem and its structures.
Fig. 1: This is an example of a beginning of an Advance Organizer I used to go with the agenda of each teaching unit every week, it got more and more luggage = knowledge visible to the students during the semester. This picture doesn’t visualize the content of the module “garden and landscape architecture” but was a nice companion and actually made it easier to focus attention at the beginning of each teaching unit.

Research on the effects of Advance Organizers states that they facilitate meaningful inclusion of information. They integrate new knowledge into the existing mental structure. They create a framework that helps to anchor especially detailed information. This may increase the learning performance in the same study time, depending on the research study by 10% to 18%. The differences in retention performance in comparison to courses without Advance Organizer are measured to be better the longer the course lies back. The reason is the stable, coherent conceptual framework, which is resistant to be forgotten easily. Since the AO emphasizes fundamental insights and relationships, the benefits are especially in the range of transfers, e.g. in the application of newly acquired knowledge to new problems, on average by 10% to 50% higher (depending on the research study) than if no AO was used.

The elements used in an Advance Organizer should be rather simple and clear, it may start with an easy-to-understand and remember graphic that could be added by pictures, graphs, words, short texts, and later combined according to the principles of a presentation to a “learning map”.

**Objectives of the Advance Organizer**

- Overview and networking of new subject areas
- Embedding of new learning content on existing knowledge
- Focused attention
- Better understanding
- Clarification of misunderstandings
- Long-term retention
- Improved transfer performance

**To arrange an Advance Organizer**

Collect the key terms of the thematic unit and write down about 20 to 40 tags. Arrange those terms in a graphic design or in form of a mind map. Use both verbal and graphic elements.

Create a large bulletin board display (big size/flip chart) of your AO (alternative: set of slides).
Plan 10 to 15 minutes for the explanation of the AO. Include the Advance Organizer in your teaching and learning setting and use one of the following or another technique to continue with the subject matter.

**Advice**
- A list of themes and a timetable are not *Advance Organizers*. They only mention topics, but don’t sufficiently clarify the conceptual relationships.
- The Graphic Organizer as the visual representation of knowledge is related to an *Advance Organizer*, it is often much more complex than an *Advance Organizer*.

### 3.2 Sandwich Method

Phases of learning in universities are usually too long to be suitable to teach the subject matter in the form of lectures. The duration of attention is not as long as the lecture time and during long lectures there is no time for reflection and application of the teaching matter. The Sandwich Method organizes learning processes in such a way that periods of collective learning alternate with periods of highly individual learning. In this way, new information is particularly well integrated into the student’s own unique mental structure.

For example, in teaching planning methods, the teacher could ask the students to collect methods they know and discuss them in teams, then structure the methods the students already know and give new input. Using the sandwich method in this way, the students also learn more about different methods by talking and discussing with their fellow students.

**Fig. 2:** Visualization of the basic structure of a teaching unit according to the Sandwich Method, it can be modified e.g. the input can be split and divided by more active phases/ assignments for the students and different techniques for activating the students may be employed

**The phases of a teaching and learning unit according to the Sandwich Method**

It is important that in the phases of collective learning a high density of information is offered. Similarly, the phases of individual learning must be designed demanding, so that the learner is given a significant incentive to deal with the content. In the case of obvious differences in performance between the individual learners, various tasks should be offered. Then, everyone can benefit and use the available learning time best.
How long should the phases of a Sandwich be? This depends on many factors and cannot be stated for every teaching/learning unit in the same way. In general, the phases of collective learning should not be too long, it is useful to change to a individual learning phase after about 20 to 30 minutes.

**The transition between the phases of a Sandwich**

Significant are the transitions between the phases of collective and individual learning, they have to be well planned also. The beginning of a thematic unit needs an introduction, e.g. the specific structure or the demonstration of thematic contexts, a possible method is the Advance Organizer. The change from the collective learning phase to the individual learning and application phase needs clear assignments, maybe different tasks for different students. If a method is used that needs extra material, e.g. a group puzzle, the material and space for the students must be prepared that the students can start working without a loss of time. At the end of an individual learning phase and at the beginning of the next collective phase, it is important to reflect on the results of the students which they gained during the individual phase. Here it is important to compare solutions of the students, to present their results, to clarify any questions and to share their opinions. In this transitional phase the teacher has to keep in mind the topic and the time in addition to the learning outcomes of students. At the end of the whole teaching unit or the whole course the teacher needs to secure the learning process with suitable methods and/or with a concluding statement.

The methods used to introduce and implement individual learning phases can vary, they depend much on the size and homogeneity of the student group. In many cases, teachers state that they cannot apply activating methods in large groups of students as the noise would get too loud. Also, they are afraid that the transition to the collective learning phase would be impossible. Moreover, they are afraid that theses phases need too much time and the delay seems too large. The teaching matter would be too substantial and voluminous to be minimized and cut at any point to save time for the individual learning phases. This attitude is very sad and hinders the students to understand and apply the matter – very often a requirement for learning. New information has to be integrated in the individual and personal conceptual structure to be understood and remembered. Each person has her/his own conceptual structure with all the nerves, nerve synapses and connections between nerve cells. The integration of new knowledge in the individual memory structure is self-paced learning through personal strategies for the reception, processing and recollection. Consequently, periods should always be included in which the individual has the opportunity to translate the new information into its own internal memory, i.e., to anchor new information in one’s own subjective mental structure. If these times are not made available, the learning rate for the same period is much lower, although, paradoxically, more information can been provided!

To apply the sandwich method in large groups of students and to bring the individual learning phase to an end, the help of student tutors may be helpful. They can collect written results quickly so that these can be used in the following phase. Also, students can be asked about their personal opinion by raising hands, the alternatives should then be the subject of the further lecture. It is also possible to print statements on large sheets of paper and ask students either to stick adhesive dots on the paper they agree most/least or to ask them to move to the statement they agree most/least. Both ways are suitable to teach the students different statements which should be well explained in the following phase of the lecture.
Advice for planning a lecture or seminar according to the **Sandwich Method**

- Give compact information at a high level in the presentation/collective learning phases, give demanding tasks for the processing/individual learning phases, maybe in different levels.
- Set a close time limit for individual learning phases but give as much time as possible in the overall setting of the time available.
- Use different methods for the individual learning to meet different learning strategies of the students.
- Plan the transitions between different phases well ahead and don’t lose time.

**Variations of the Sandwich**

![Variations of the Sandwich](image)

**Fig. 3:** The basic structure of a Sandwich can be altered according to the length of a teaching unit and according to the needs of the teacher and students. Possible variations to Fig. 2.

According to the length of the whole session, the middle parts of the Sandwich can be divided in more phases of input and different phases for active transfer, reflexion, and problem solving with appropriate methods applied. The beginning and end should never be skipped.

### 3.3 Partner Interview

In the Partner Interview the students get into contact and gradually acquainted with the large group. They learn to cooperate with different persons and find out about other people’s learning habits, thinking and concluding. Also, not less important, the teacher gets information about the motivation of the students for that special course, their level of knowledge and their ability to apply what they have learned before. If the group knows each other person, e.g. the individual learning phases of the Sandwich Method can be a lot more fruitful than if they didn’t have the chance to know each other at all. Also, it is helpful to give each student the possibility to talk and express their expectations and get a clear idea about their interest in the specific course. It is my experience that it is advantageous if the students stand up, use the room with all corners and move instead of sitting at the same place during the whole course. They come back more motivated and are curious to listen to the answers of the rest of the group.

Since landscape architects always have to do with different people and with their different objectives, students quickly understand to use the chance to get to know someone else’s attitude towards certain facts. Another possibility is a role play if different motives should
be shown. So, the partner interview is helpful within the learning process as well as educating landscape architects.

A Partner Interview brings two persons to a talk, the partners should not be friends or people who know each other well already. Use the alphabet or other means to mix the students and bring together people who don’t sit together anyway. Give each group a clear and specific assignment and tell everyone the time you plan for them to talk. Announce the time and ask them to switch roles at half time and tell them early enough that the time will run out in one minute, 30 seconds...

The questions to be answered or discussed at the beginning of a course unit, workshop or seminar should be reflected by the partners and then shortly in the plenary. The teacher may give a conclusion if appropriate.

Another possibility of using the Partner Interview is as a repetition of a taught subject matter. In this case, the teacher gives questions to the subject and also answers to secure that the right information is learned. The partners take turns in questioning and answering.

A third possibility for the Partner Interview is the individual leaning phase in a lecture arranged as a Sandwich. Especially if the group is big, the learning phase is short and the questions must be very specific. The students will not be able to move in the room but have the opportunity to speak and discuss with their neighbours. The reflection in the plenary can be short by raising hands to possible answers or attitudes of the auditorium.

The Partner Interview can be used in any size of a group, but the group should not be larger than 16 if the results of each couple should be reflected in the plenary. It may be possible to divide the group into smaller penuries but this has to be well planned. It is already helpful for the learners to be able to talk to one other person in the group.

The Partner Interview takes about 10 to 15 minutes for the partners, depending on the size of the whole group it takes another 30 (to 45) minutes in the plenary. A big room is advantageous, tables are not necessary, movable chairs help to arrange a suitable setting. If the students are asked to answer questions, they should be provided with papers, if they are asked to prepare a flipchart paper, they should be given the necessary material.

### 3.4 Group Puzzle

The Group Puzzle Method is developed out of the expert group method. Here, the students learn to present results of their work and discuss them with the other students directly. Different learning contents are assigned to different groups. Students learn by themselves first and afterwards in the group. The teacher gives the necessary input, the group becomes an expert group for this aspect of the whole theme. This method can be used within a project work where each student or small groups get tasks to become experts in a special field and to report to the rest of the group. Also, longer but important texts can be divided with this methods into smaller pieces, and in the end, every students has got a deeper understanding of the whole text than if everyone had read the text by her-/himself.

For the Group Puzzle, the expert group is a necessary input. Here, the aim is also to present work results and talk about them in the peer group (learning by teaching). Each student reports about what he just learned, each student learns the results of the other expert groups.
The role of the teacher is important, she/he must complete the results if they lack information and has to make sure that questions are answered correctly.

The way I use Group Puzzles in a group up to 30 students: I divide a text into 4 single and understandable parts and copy each part on different coloured paper, each paper is marked with an individual combination of numbers and letters, see Fig. 4. During the course, I divide the group in small groups of 4 (-6) students. With a plenary of 32 I get 8 groups of 4, a plenary of 16 makes 4 groups of 4, any number in between will have to be planned in that way that each small group gets about the same number of students.

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Fig. 4: Scheme of the numeration of the papers for the group puzzle, here for a plenary group of 16, and the steps to read and discuss the texts in different expert groups

In the first step, every student gets one part of the whole text and reads it individually. The teacher answers individual questions and gives support if there are questions or misunderstanding of the text. After everyone has read her/his text well, the expert group, everyone has the same text (and the same colour to make it easy to distinguish between the groups), gets together. They discuss the content of their text and possibly draw a visualization of the main aspects on a flipchart. In the third phase, all As, Bs, Cs and Ds get together and each person presents her/his part of the full text to the other members of the group. Each group gives a conclusion and/or may draw a visualization. As a result, 4 final presentations can be compared and discussed, each student has to get the full text to read again in context.

Students like the Group Puzzle a lot because they work on the special assignment and understand the content of a longer text without having to read it entirely in the beginning. This method takes time, depending on the length and complexity of the text, but it is a way of making the students understand important issues. It is my experience that the results of learning using the Group Puzzle are much better compared to assignments of reading and preparing a presentation of a text as homework.

### 3.5 Feedback Method

The Feedback Method gives a response from the students to the teacher of a learning unit. It allows a better and more effective design of future courses. This method calls for and promotes criticism according to fixed rules. These rules can be applied also for presentations, discussions, and role-playing games (RPG) and they help to learn to
articulate criticism as well as listening to it, both important factors in communication. The feedback rules must be known by every student in the group and everyone has to follow them.

Feedback rules include respect and empathy, feedback is personal, specific and refers to certain events and behaviours, it concentrates on behaviours that can be changed by the recipient and should in teaching and learning contexts focus on the best results for everyone involved.

Initiated by the teacher, the feedback should be started with precise introductory questions such as “at what point am I progressed?” “is there something that has disappointed me?”. The students have the opportunity to express their opinion, it is important that the statements will not be commented or justified. A discussion may follow this Feedback session but doesn’t have to.

References

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Pädagogische Hochschule Heidelberg, Institut für Weiterbildung (Hrsg.) (2005), Methodenreader. Heidelberg.