

Teaching Methods

Teaching methods are the different methods that a teacher can use to support and shape the learning process of students. The objective is to realise competences. The way in which the learning material is presented and processed depends on a variety of factors: the nature of the learning material, the teacher's intent and the culture of the educational system. The method may be important for the students' motivation to learn. The more diverse the number of teaching methods, the greater the chance that each student will be satisfied, which promotes the learning process.

The cards present various activating methods that support competences for sustainable development. Each card gives a summary description of the method, its application, the most significant preconditions (e.g. size of group, teacher experience) and a link to the practical example cards in which this method is applied. You will find tips and tricks in the guide.

Recurring sources for the methods in this EHE kit are: Lambrechts et al. (2009), Van Petegem (2009), Teacher's Guide Het IVOOR (2007), Sleurs (2009), Scoullos and Malotidi (2004), Baert et al. (2002) and BVdatabank.be.

Overview of teaching method cards

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The Teaching method cards are also available at: www.ecodesignlink.be/en/tools.

Activating lecture

During an activating lecture, when communicating the course material, the teacher alternates between moments of teaching and activating moments. This increases the efficiency of the lecture and ensures that information is better processed and remembered.

The students are activated with different teaching methods, such as:

- Questions;
- Short assignments directly after a portion of theory taught;
- Taking stock of opinions;
- Discussing theories or examples;
- Dividing the discourse into smaller key points;
- Discussion groups: short consultation of a few minutes among the students in order to then share their opinions with the class;
- Voting: by raising hand or colour cards with a Yes, No or Abstain;
- One-minute paper: 5 minutes before the end of the class, the students are asked what they learned today; they drop their answers into a box on their way out of the lecture hall.

This teaching method is perfect for large groups.

Practical example cards

EX. 5, EX. 6, EX. 8, EX. 9, EX. 10, EX. 21, EX. 25

Brainstorming

Brainstorming is intended to obtain many different and new ideas about a topic or question quickly and creatively. Typical of a brainstorming session is that the value judgment about the ideas suggested is delayed until all ideas have been captured. Thinking outside the box is encouraged.

In general, a brainstorming session consists of preparation, generating ideas and an evaluation.



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There are a variety of brainstorming techniques. You will find an overview at: www.flandersdc.be/en.

A toolkit and guide that can lead you through the creative process efficiently is the *Idea-to-market tool* developed at Artesis University College Antwerp, Product Development programme. More information at: designresearch.be/?page_id=140.

Practical example cards

EX. 2, EX. 4, EX. 10, EX. 13, EX. 25, EX. 29

Case method or case study

In the case method or case study, specific and realistic situations are discussed in group, to train the problem-solving ability of the participants.

Students receive all information required for the analysis ahead of time. This may include graphs and tables, observation reports or research reports. Sometimes they have to look up additional information. Based on the information received, the students analyse, individually or in small groups, a case and think about decisions or solutions. After this, a discussion follows in which students present their own vision and, by consultation and discussion, arrive at a solution to the case. The teacher facilitates and structures this discussion.

A case is an interesting way to put knowledge to practice, to transfer knowledge or to train problem-solving abilities. It is a highly motivating teaching method for students because of its high practical relevance.

It is important that the case seems realistic and that the objective is clear. The most interesting cases promote

discussion in which several opinions are possible. Together with a good description of the case, proper guidance is crucial: the teacher is the process supervisor in this regard and provides appropriate support.

Practical example card

EX. 2, EX. 24, EX. 25, EX. 26, EX. 28, EX. 29

Demonstration

In a demonstration, the teacher demonstrates a certain activity or test and explains the various steps and components. Important in this regard are verbalising (oral presentation of activities), structuring and indicating matters to pay extra attention to.

A summary may follow the demonstration, possibly with preconditions (for example: when is something usable or not; when may one do something or not ...).

Of course, the students must be able to see the demonstration well; consequently, this teaching method is mainly appropriate for small groups.

The demonstration lasts 15 to 20 minutes. The teacher may of course ask questions to the students during the demonstration.



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Practical example cards

EX. 15, EX. 19

Discussion

In a discussion, the students debate a certain topic. This is also sometimes called a group discussion. It is advantageous to the discussion if it is based on a shared experience such as a film or article. The students need to have time to prepare for this; this can possibly be done at home.

The teacher leads the discussion or gives a short assignment to get warmed up. The discussion follows, whereby the role of the teacher is that of a process supervisor. The teacher monitors the structure of the discussion by varying the tone, taking notes, maintaining the focus, occasionally summarising, by asking questions or comparing opinions. The teacher concludes the discussion with a general summary.

Since every student should have their say, this teaching method is usually not applied to groups larger than 20 students. The classroom is preferably set up in a U-formation so that the students have eye contact during the discussion.

It is important to specify beforehand the learning objectives for a discussion. Indicate the key points in this regard. There must be sufficient background knowledge of the topic of the discussion. Furthermore, proper questioning is also very important during the discussion. Some students must be encouraged to participate, while more dominating students must be held back.

Practical example cards

EX. 12, EX. 14, EX. 17, EX. 18, EX. 29

Group work

For group work, students complete an assignment in groups of 4 to 5. Each group includes a reporter.

The students receive instructions for the assignment and then work in a group. Thereafter follows a follow-up discussion in which each reporter presents the contribution of his/her group. The teacher keeps the follow-up discussion on the right track by giving guidance by specific questions, highlighting the differences between the groups, giving direction to the discussion ...

All the groups receive the same assignment. In this way, the different perspectives can be pooled and discussed in the follow-up discussion. This is called parallel group work. The groups may also be assigned various complementary tasks. The connections are then established in the follow-up discussion and they are constructed into a whole.

What is interesting about this teaching method is that the students can learn from one another (peer learning). Another way to put together newly acquired knowledge is with a summary of the work done, drawn up by the teacher.

Group work is a teaching method for groups of up to 60 students.

Group work is a time-intensive teaching method. Make sure to provide proper guidance during the task.

Practical example cards

EX. 1, EX. 2, EX. 4, EX. 8, EX. 10, EX. 16, EX. 20, EX. 22, EX. 27, EX. 28, EX. 29

Jigsaw

Jigsaw is a teaching method that combines group work in a parallel and complementary manner. The various groups obtain expertise about various topics (complementary part). In the parallel part, the various expertises are then combined.

Jigsaw is a form of cooperative learning in which the composition of the student groups changes during realisation of a complex assignment.

In order to work through the complex assignment, students obtain knowledge and expertise in a first sub-group (or research group).

Afterwards, the members of the first sub-group split up and form a second sub-group (or learning group) with new members. Expertise from the first sub-group is provided to this second sub-group in order to bring the assignment to a good end.

Source: 'Praktijkboek Activerend hoger onderwijs', Peter Van Petegem, ECHO.

Jigsaw is a teaching method that can be used when:

- the assignment is sufficiently complex. (no simple answer or no obvious solution)
- the assignment includes several aspects or components.
- the emphasis lies on the assignment-oriented rather than on the group-oriented aspect of group work.
- the students are familiar with group work.

Jigsaw is a reasonably time-consuming method of group work and is mainly intended for groups no larger than 60 students.

Practical example card

No card available

Educational discussion

The educational discussion is a structured discussion in which the teacher leads the student step-by-step to certain insights or to solving a problem by asking questions.

The teacher does not give any instructions, but simply asks questions. After the questions, the teacher gives students some time for consideration (teacher counts to 5). If no answer is forthcoming, the next question is asked or a hint is given.

The teacher extracts the necessary insights and/or new questions from the students' answers, or the lack of answers. By asking targeted questions, a clear topic is defined. Targeted questions, together with the use of efficient questioning techniques, gives students the opportunity to form new ideas on their own, to obtain insight or establish relationships in the curriculum; it allows them to think of solutions to a problem on their own, or to discover the implications of the curriculum.

Since all students should have their say, this teaching method is usually not applied to groups larger than 30 students.

This way of working demands a good questioning technique from the teacher. The questions should not be too easy; otherwise there is no honour in giving an answer. Proper preparation that responds to students' prior knowledge is indispensable.

Practical example cards

EX. 3, EX. 12, EX. 15, EX. 19, EX. 23, EX. 26, EX. 29

Assignments

The teacher can give assignments to the students during class. The objective of these assignments is to stimulate the students to work actively on the learning content. The examples are legion: completing an exercise, interpreting research results, working through a problem, developing a case, explaining a project ...

Assignments can be given in combination with other teaching methods, such as discussion groups, group work, a presentation ...

The duration of the assignment may vary from a few minutes to a few weeks or even longer. The final product is a written thesis, a presentation, a demonstration, an exhibition, a website ...

Assignments are suitable for teaching basic knowledge and skills, but also for learning more complex skills

We distinguish four types of assignments:

- assignments aimed at reproducing information previously obtained
- assignments aimed at applying algorithms whereby students learn to apply the solution methods provided to them

- assignments aimed at inciting a personal opinion or expression
- assignments aimed at solving complex problems. These latter assignments are suitable for learning and exercising higher cognitive abilities, such as analysing and synthesising

Giving assignments to students takes place in 4 steps:

1. the teacher creates the assignment
2. the teacher gives the students the necessary instructions
3. the students complete the assignment
4. the teacher and students discuss and evaluate the assignment

Practical example cards

EX. 1, EX. 4, EX. 5, EX. 8, EX. 9, EX. 14, EX. 16, EX. 20, EX. 29

Presentation

The teacher may have the students put together a presentation during class. You can also consider this as giving an assignment to the students (see also: Card TM. 9 Assignments). The presentation may go from explaining a theory or model to clarifying an individual or group assignment, to explaining their own research or case. The presentation can be prepared and conducted individually as well as in group.

It is important that the students have sufficient presentation abilities, or that they receive support in developing these abilities.



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Practical example cards

EX. 9, EX. 16, EX. 22

Project education

In project education, a group of students from the same or different years of study and majors work for a longer period of time on a project, respectively a (practical) problem, as a task-oriented group in consultation with a permanent or alternate supervisor from the programme (educator, reader, assistant) and possibly a principal from an active organisation.

In doing so they acquire knowledge, insights, abilities and attitudes. The students may substantiate and reformulate the project in respect to the problem and structure an approach to the problem. They work out a solution making use of theoretical and practical knowledge.

Broadly speaking, project education takes place in 6 phases:

- preparation
- introduction and start
- planning
- implementation
- reporting
- evaluation

Practical example cards

EX. 7, EX. 21, EX. 22, EX. 24

Socratic method

The Greek philosopher Socrates was convinced that wisdom is hidden within one's own experience and that everyone can discover it by using one's own intelligence. He offered us a method to determine whether or not an assumed thesis or opinion is indeed properly justified. The core of the Socratic method is asking critical questions about one's own ideas.

Start with a statement that seems to be a sensible idea. For instance: wood is a natural material, thus it is ecological. Then we ask about the meaning of the statement; for instance: what is ecological?

Can we think of a situation or context in which the statement does not fit? For instance: what if we have to protect the wood against rot? If this situation exists, then the statement must be incorrect, or at least imprecise. The statement must be refined so that the exception fits into it. For instance: wood is an ecological material provided that the measures to protect the wood against rot are ecological.

Repeat this process with new questions about the meaning of and exceptions to the improved statement.

You can apply the Socratic method in a dialogue, for instance in a discussion between two opponents, or in an educational conversation between teacher and student:

- in order to demonstrate that someone's statements are not properly substantiated,
- to stimulate someone to reflection,
- to arrive at new ideas and insights about a certain topic.

Essential to a good debate is a relevant, current and interesting thesis. The thesis should be controversial: pro and contra are indeed required to have a debate. Proper preparation is necessary in order to substantiate arguments. Make sure that the debate does not slip into a yes/no game. The teacher guides the debate in the right direction: time management, remaining on topic...

Practical example cards

EX. 9, EX. 11