Marianne Hemminki – Miia Leppänen – Taru Valovirta

Get *inspired!*

A guide for successful teaching

Aalto University

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Contents

Foreword

This guide is designed for those who have entered the world of teaching and are curious to know what teaching entails. It covers the key areas of university teaching without a heavy focus on the science and theories of education. We have chosen a pragmatic approach complemented with supporting material and views from the field of university pedagogy. Our guiding principle has been to make the guide easy to read. It was a challenge that required certain compromises, particularly in terms of the referencing conventions used in the academic world. Where necessary, we have included references to key sources in footnotes and have included a list of literature at the end of the guide. However, the main source we have drawn upon has been the overall knowledge and experience we have accumulated in our work.

This guide is a result of the initiative taken by the experts in pedagogy working at the Aalto University Strategic Support for Research and Education. The authors have spent the past ten years working with educational development and pedagogical training, cooperating with the staff of Aalto University and the three universities that formed the new organisation. This guide draws together the questions and themes that teachers typically face, especially at the beginning of their teaching careers.

Marianne Hemminki, Miia Leppänen and Taru Valovirta have been responsible for writing this the guide. Outi Rautakoura has contributed to chapter 3.2 and Kari Peltola to chapter 7. Rautakoura and Peltola are experts working at the Strategic Support for Research and Education. In addition, the following people have commented on and checked the manuscript: Olli Hyppönen, Jenni Koponen, Tuomas Paloposki, Jukka Parviainen, Leena Plym-Rissanen, Tuula Rosin, Johanna Söderholm, Maire Syrjäkari, Markus Torkkeli and Minna Vänskä. We would like to thank all the contributors for their help and cooperation!

Marianne, Miia and Taru

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Being a teacher at Aalto University

Aalto University is a multidisciplinary university where art and science meet technology and business. Aalto is also a place that brings together students and teachers from different backgrounds, from Finland and abroad. The multidisciplinary university enables teachers to peek into fields other than their own and to learn from them. At Aalto, teaching and research are closely connected. In the best case, they also support each other and the latest research can be used in teaching. Correspondingly, teaching tasks can give teachers new ideas and approaches for conducting research.

University teaching has traditionally been largely based on lectures during which students listen to a talk given by the teacher. However, the world around us is changing all the time, presenting new challenges and opportunities for university teaching. Lecture-based teaching alone is not enough to give students the capacities and skills they need when they enter professional life. Moreover, research on learning has also taken huge leaps forward over the past decades, thus providing new information on learning. The ideas about learning and teaching presented in this guide are in line with recent research and comply with the Aalto University strategy that is based on a student-centred[1] approach.

Because teaching always reflects the field and teacher in question, the aim of this guide is to provide general advice that helps new teachers who are just beginning to develop their own teaching to get started. In the guide, the term teacher is used broadly to mean all members of the university staff who are involved in teaching or advisory and supervisory tasks.

The guide focuses on certain key areas that are central to teaching skills at the university level; it provides information on topics that range from planning to implementation and personal development as a teacher. The tips, ideas and practical implementation alternatives provided in the guide help teachers expand their idea of teaching and give them practical information that they need right from the first teaching session. Learning is also examined from a student's viewpoint. That will help teachers to understand all sides of teaching as a whole and to pay attention to how they can support student learning. In this guide, teaching is considered first and foremost a skill that can be practised.

At Aalto University, teaching is increasingly seen as a matter of common interest. In practise this means more discussions about

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1   See chapter 2, What generates learning?

the skills and competence that degree programmes should aim for and the way teaching should be arranged in the programmes. The earlier approach in which each teacher is independently responsible for his or her own course is being replaced with closer cooperation among teachers between and within courses. One approach that is gaining ground is to have two teachers share equal responsibility for a course, with the assistance of other members of the teaching staff or visiting experts.

The last but not the least of our advice is that you should always ask help from a friend. The power of cooperation cannot be overemphasised: it is always needed at universities. You do not have to try and solve everything alone; your colleague next door, or on the other side of the campus, may be wrestling with the same teaching-related questions. Teaching connects people, across disciplines!

1. Becoming a teacher

Have you ever thought about what makes teaching successful? Have you perhaps also thought about what makes you a teacher? Reflecting on teachership brings up many questions, such as what you are like as a teacher. You may first end up analysing what your own teachers have been like and what makes a good teacher.

At first, a university teacher may find it difficult to understand his or her role as a teacher and an instructor who facilitates learning. It may be easier to see yourself as a researcher and an expert, a member of the scientific community. Working as a teacher requires, of course, competence in the field in question, but teaching involves much more than delivering expert knowledge. What makes teaching difficult is that it requires an expert to remember the time when he or she was not yet an expert. Good teaching always takes into account the target group. When you are thoroughly familiar with the topic, it may be hard to remember how difficult it was to learn things right from the beginning and how much time studying took.

There are different routes into teaching at university. It is common to hear teachers describe their careers as a path on which they have worked their way up from part-time assistants to even professors. Teaching is rarely what university teachers originally came to do at the university. It is more common that the main focus of a teacher's career has been on research and that teaching has just become part of the job along the way. However, many are open to the challenge and want to expand their skills from being leading experts in their fields to becoming university teachers, experts in learning. In doing that, they are faced with new questions: What am I like as a teacher? How do people learn? How can I best support student learning?

The key duty of a university teacher is to arouse the students' interest and to catalyse the students' own studying and thinking processes, in other words, to get them to commit to what they are about to learn. At its best, teaching is a good counterbalance for conducting research and may give teachers new ideas for their research. Teachers are experts in their fields, whereas students are usually novices. However, university teachers may encounter students who already know a lot about a topic (for example, because of a hobby or personal interest), even as much as the teacher. In such cases, teachers can build on the students' prior skills and knowledge to motivate the students and make them committed to learning more. Although many guidebooks describe the characteristics of a good teacher, it is impossible to give an all-inclusive general definition of what a good teacher is like.

Your teachership is a part of your personality, and what you are like as a teacher depends on yourself. The main thing is to enjoy teaching, to show that to your students and to have the courage to be yourself. Good teachers focus on listening to students and build their teaching in interaction with the students. That way, teaching supports student learning and motivation.

Teacher's role and identity

A central aspect of teaching is the teacher's own understanding of how learning is achieved and what he or she is like as a teacher. These views are often called teacher identity. A teacher's identity evolves as the teacher gains professional experience and a teacher's skills and style improve and develop over time. [2] Teachers can change the way they teach. To succeed in that, they have to be aware of what they are like as teachers and what they base their thinking upon. Thinking about your own identity may seem distant from the practical side of teaching, but in the end your teacher identity forms the basis of everything you do. For example, it impacts the goals you set for teaching, the teaching methods you choose and your role in relation to your students. Of course, the conventions of your field of science and the environment impact teaching too.

In the classroom, a teacher can take on different roles, such as expert, instructor or coach. **In the role of an expert**, a teacher feels that his or her most important task is to share deep and timely expert knowledge with the students. If interaction with the students is not systematic or a planned part of teaching, the teacher may not get an overall picture of what students have learned or how they experienced the course as a whole.

On the other hand, **in the role of an instructor** the main duty is to guide student learning. As an instructor, a teacher is not necessarily a source of all expert information and knowledge but rather a link to that information. The teacher must be able to choose the most appropriate ways to teach and guide students, to commit them to studying and learning and to get them excited about it. When a teacher takes on the role of an instructor, students may feel insecure in the learning situation. That is because they have to be active and search for information instead of being given the answers by the teacher. The teacher also makes a conscious choice not to control teaching and learning and allows the students to learn on their own.

Sometimes a teacher can also take **the role of a coach**. As a coach, the teacher does not necessarily determine learning contents but focuses only on facilitating and supervising student learning (e.g. project work). Students have to be particularly active as they produce all the contents of the course. It is also possible to use external experts in assessing the contents of what students have learned. [3]

A student-centred approach is best supported with the roles of instructor and coach. In these roles, the focus is on student learning and supporting active action instead of merely transmitting expert knowledge.

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2   Teacher Student Union of Finland (SOOL), Suositukset opetusharjoittelulle [Recommendations for practical teacher training].

3   For more information on different ways of analysing the role of a teacher, see Biggs & Tang (2011), pp. 16-20.

2. What generates learning?

One of the aims of university teaching is to develop high-level cognitive skills. Learning things by heart is not enough; instead, students must be able to apply what they have learned and use it to solve complex problems. Learning is not an automatic process: students must practise and revise actively. Moreover, students' capacity to absorb information is limited. Teachers should consider how much new information students can take in during one session. To help students remember and understand things, it is important to connect pieces of information to wider contexts. Deep learning is rarely achieved if a teacher simply presents information and students listen. If the aim is to enable students to apply the things they have learned, students should process the information, for instance, by discussing the topic or writing about it, by completing assignments or by answering related questions. Interaction with others also contributes to learning. When students have to explain or justify something to other students, they will notice what they have already learned what they might not yet master. Interaction also allows students to learn from each other as they can learn complex matters together.

Learning is always connected to previously accumulated knowledge. Students nearly always connect what they learn to what they have learned or experienced before.[4] Things that students have learned before may include, for example, attitudes that may make it difficult to learn new things. Sometimes learning may require students to abandon previous conceptions and views in order to change the way they understand the matter in question.[5] That is why teachers should try to determine students' prior knowledge and preconceptions before beginning a course.

To support learning, things should be taught in a manner that is as similar as possible to the situation in which students will later use the information. If the learning situation is completely different from the situation in which students need the information, they will forget a lot of the information they have learned and are unable to connect it to anything. That is why different simulations, case examples, exercises and projects support learning because they are connected to the environment in which the information will be used.*

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* For more information, see Nevgi & Lindblom-Ylänne (2009), p. 231.

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4   For more information, see for example Rauste von Wright, von Wright & Soini (2003), pp. 90–95.

5   For more information on accommodation and assimilation, see for example Illeris (2009), p. 13.

2.1. Towards deep learning

Different approaches to studying can be roughly divided into surface and deep learning. At the university level, studying often also includes elements of strategic learning which means, for example, that the importance of grades is a factor that guides studying.[6]

In their work, experts must be able to grasp and manage large entities, see connections between things, and understand, interpret and analyse the surrounding world through their own fields of expertise. New information is constantly being accumulated, and gaining an overall understanding is a big challenge for students. Coping with a lack of time, vast amounts of information, a performance-oriented culture and the nature and culture of a particular field may cause students to study by memorising individual scraps of information and simply repeating them when being assessed (for instance, in exams). Teachers should always consider, for example when making teaching plans, how they could support students in moving from superficial surface studying towards deep learning and processing of information. Such an approach that focuses on student learning is called a student-centred approach. In the approach, the teacher's focus is not only on presenting information but on how learning takes place and how the teacher can support it.

In the **surface approach to learning**, the focus is on taking and passing courses. Students try to find out what the teacher requires

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6   For more information on approaches to learning, see for example Biggs & Tang (2007), pp. 22–30; Marton & Säljö (1997), pp. 39–58.

and adapt their own actions so that they pass the course with minimum effort. This often leads to cramming information right before being assessed. The little the student learns before the exam is easily forgotten because the information is not stored in long-term memory[7]. The worst fear of a surface-oriented student is to put in a lot effort 'in vain', without passing the course.

In the **deep approach to learning**, the focus is on understanding. Students using the approach are active and set personal goals without depending on the teacher to guide their learning. They try to meet their own targets and informational needs. They actively search for information and try to connect the contents of different courses to form larger entities. For deep-oriented students, the worst thing is to be forced to complete assignments just for the sake of completing them and not be allowed to focus on the aspects that interest them. Students using the deep approach may sometimes get so absorbed in the course topics that they are unable to finish the required assignments. And that, of course, is in no way detrimental to the ultimate goal, learning!

In the **strategic approach to learning**, the aim is to get good grades and make progress in one's studies. Students using this approach are very aware of the assessment criteria. Like the surface approach, strategic studying focuses on what is required, but instead of merely passing courses the goal is to achieve success. In the strategic approach, the study method used (for example, working during the course vs. cramming before final assessment) depends largely on which method the student believes will deliver best results. Students using the strategic approach get frustrated if the assessment criteria change during the course or if they misunderstand them. From the teacher's point of view, student action is easy to steer towards good learning if good grades can only be achieved by high-quality learning!

Inborn or learned

The above approaches to learning have been recognised by many researchers across the world since the 1960s and 1970s. Nowadays, research is focused on how permanent the characteristics are and to what extent they can be influenced in the learning environment. On the one hand, good teaching takes into account students' different objectives and, on the other hand, tries to steer them in the desired direction. Even though students base course work on a pre-determined foundation (such as goals and learning habits and skills), teachers can influence their studying and learning by means of different choices concerning instruction, guidance and planning. Table 1 presents ways in which teachers can influence how students act and work during a course.

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7   For more information on the structure and functioning of memory,
     see Kalakoski (2007).

Table 1: How can teachers influence the approaches used by students?

	Surface approach	Deep approach	Strategic approach
Course contents and subject matter taught: limiting their scope	The use of the surface approach can be decreased by avoiding contents that are too broad and focus on trivia. The key thing is how the core contents1 are defined, because they form the elements that are required to complete the course.	By giving students more choice and influence, teachers support learning that results in gaining understanding and allow students to focus on contents that they find interesting, within the limits of the course topic.	Assessment guides student action. By taking into account the connection between course contents and assessment criteria, teachers can influence the focus of students' learning efforts and time use.
Learning outcomes	Too many low-level targets that students can reach by quick rote learning.	Outcomes focus on analysing, linking and applying information and build on the student's own skills and knowledge.	It is important that outcomes are connected to the assessment criteria. Learning outcomes and course working methods can be used to help students learn to study systematically.
Teaching methods	Methods that transmit and repeat information and do not require students to process information or support them in doing that. For instance, combining lectures with a final exam offers a good setting for using the surface approach to learning.	The course requires students to use a range of different study methods and to process information actively. Deep learning can be supported by, for example, reading relevant literature during the course, discussing the literature during teaching sessions, doing projects and discussing connections between different matters.	The strategic approach can be promoted by planning a good pace and schedule for the course and by dividing the workload evenly. Students' time use can also be supported by making a study plan.
Assessment of learning	Assessment plays a key role: the more detail with which students are expected to repeat information as such, the greater the risk of students using the surface approach, cramming for exams and forgetting the information quickly.	Giving the students more influence in defining the assessment criteria supports the deep approach. The following assessment methods support deep learning: qualitative assessment, process assessment, independent writing assignments and projects that require active student participation.	Assessment criteria are central: If the criteria for a good grade and the work methods used support deep learning, students will choose study methods that support learning. If good grades can be attained by cramming and memorising the facts the day before, students will use the surface approach.
Guidance	The use of the surface approach can be decreased by systematically contacting all students/groups at the beginning of the course and by jointly planning studying and learning (for example, identifying one's own skills and knowledge, defining learning objectives, planning time management).	Guidance from the course teacher may not be needed to a great extent. If a student has difficulties with limiting the scope of independent work or projects or with finishing them, the teacher and the student should discuss the overall aim of the studies: completing the degree programme within relevant time limits and completing mandatory courses on time.	Teachers may need to give guidance on course requirements: students may want the teacher to further specify the assessment criteria. Students may try to fish for information about the assessment. Guiding students to think about what they are interested in may decrease the focus on course performance and grades.

*   See chapter 4.2 for more information on core content analysis. On conducting a core content analysis, see Karjalainen, Jaakkola, Alha & Lapinlampi (2007), pp. 73–84.

The basic mission of the university is to produce experts that have profound knowledge and excellent skills in their own field and the capacity to work in society, carrying out challenging and changing tasks. Surely we all agree that our students cannot afford to complete their degrees using only the surface approach. It is also noteworthy that both the university and society at large benefit if students study systematically and steer their own actions. Therefore, the strategic dimension of studying should also be taken into account when planning teaching and guiding students. In an ideal situation, students are guided by a desire for deep learning and they are able to plan their studies strategically. The aim of teaching is to support these goals in the manner described above.

'Does everything require deep learning?'

– Understanding is a key part of deep learning. Instead of having profound knowledge of something, understanding can also mean understanding the connections between things or grasping larger entities. The opposite of deep learning could mean, for instance, that a student superficially memorises individual facts or theories. It may seem like the student has 'learned' the facts and theories well even though he or she does not really understand how to use or apply them in practise.

– Using the deep approach does not always mean that students spend more time on studying than they do when using the surface approach, sometimes it could even be the other way around. It is perhaps safe to say that deep learning always pays off, because things that are learned superficially, for example, by rote learning, are easily forgotten and useless in the long run. 'Deep learning', on the other hand, may mean a range of ways of mastering something, including very general competence.

2.2. Supporting studying and study skills

Teachers often say things like 'students are like that' or 'that is what students do'. In such situations, it is good to find out and think about whether a student always acts in a certain way or whether he or she has already gotten used to a certain way of doing things. Would the student benefit from learning a new way of studying that he or she has not needed before? Teachers should keep in mind that each course and learning experience impact students' actions in the future. Sometimes it might be good to work with the students to analyse the teaching and learning culture the teacher is aiming for and to discuss what the students are used to.

Student's prior experiences, skills and knowledge	Actions during the course	Experience gained during the course and its future effects
Knowledge of the contents of the field of study	Prior knowledge and skills affect opportunities and performance during the course	Future actions (courses, professional life) are influenced by the feedback the student gets on his/her competence
Study experiences, self-image as a learner	Prior study experiences and self-image as a learner affect actions during the course	In the future, studying will be linked to how the student experienced learning during the course

Figure 1: Influencing student action through contents and learning

Figure 1 describes how students' actions are influenced by how they see themselves and their own abilities with respect to the field and to studying in general. Students' 'starting level' or prior knowledge about the field of study is often discussed, but students' actions are equally influenced by their actual study skills and how they see their own chances and opportunities. These skills and experiences continue to develop during the years they study at university.

2.3. Building study motivation – a teacher's and student's responsibility

Motivation can be described as a driving force that directs our behaviour. The most important thing in studying is learning. Learning is a result of study efforts which, in turn, require study motivation. Building study motivation is one of the most important tasks of students and teachers, because motivation is a prerequisite for studying and studying is a prerequisite for learning.

Motivation is built through a complex process that teachers can either promote or (unconsciously) hinder with their choices. The main factors that teachers can influence are **arousing student interest** and **supporting students' expectations of success**[8]. Expectation of success means that students feel that they are able

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8   For more information on self-efficacy and self-esteem, see for example Helkama, Myllyniemi & Liebkind (2007), pp. 361–380.

to learn a certain matter or complete a given assignment. Teachers can boost student confidence with a 'yes we can' attitude.

Being interested in a subject often requires students to understand **why** they are studying in the first place or to grasp the **significance** a certain course or topic has for the future. At Aalto University, studying has significance, for instance, because it will result in a degree that is valued on the labour market. However, that alone is not a sufficient source of motivation because graduation is still too far off for first-year students. They need small and attainable interim goals. [9]

Table 2 presents practical examples of how teachers can promote study motivation.

Table 2: Building and promoting motivation as a teacher

Making studying meaningful, arousing interest	Supporting expectation of success, 'Yes we can!'
- Make sure the information is relevant now and in the future. Tell and explain that to the students.	- Find out about students' prior skills and knowledge: where applicable, acknowledge competence relating to the field, background and studying, and give related feedback.
- Begin by giving the students an assignment they can work on together.	- Make sure the workload is realistic with regard to the students' situation. Take into account students' linguistic backgrounds and the language in which they are studying. The language in which the course is given may not be everyone's mother tongue.
- If a student has a relevant personal experience or interest, utilise it: use it as an exercise topic, share the case with others, use it as an individual method for completing required work, etc.	- Reward students for their efforts, give assignments and assess students along the way.
- Make business contacts and get genuine case examples. Let students participate in solving them.	- Give feedback on strengths as well as areas that need work. Build student confidence by letting them know they can succeed if they put enough effort.
- Utilise the group setting: team spirit and fun make studying meaningful.	- Utilise the group setting: allow and encourage students to cooperate; use peer feedback and assessment.
- The teacher's own example and enthusiasm are important.	- Allow students to complete the required work in different ways. Encourage students to challenge their own skills and knowledge: reward them for trying and effort instead of just the results.

'My students are unmotivated. Is there anything I can do?'

– If you believe your students are not motivated about studying, try to find out the reason for that and whether or not it is true in the first place. Courses are very different in terms of how important students consider the subject for their future careers. When it comes to importance and significance, the most challenging courses are the general studies that are taught at the beginning of a degree programme and lay the foundation for future studies. It is important to remember that students

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9   For more information, see Lindblom-Ylänne, Mikkonen, Parpala & Pyhältö (2009), pp. 83–88; Brophy (2004), pp. 1–25.

can be motivated by giving examples or providing them with experiences that show how a piece of information or a skill may be useful in the future.

– In addition to interest and significance, another cornerstone of motivation is that assignments are at the right level and sufficiently challenging. To be more precise, students should feel that they have a chance of succeeding in their studies. If possible, you can allow students to complete the course in alternative ways with varying levels of difficulty.

– The most important thing is that everyone gets started and gains positive experiences of success. After that, some students may surprise you with the progress they make. When planning a course, think about how you could make the topic of your course as interesting, meaningful and inspiring as possible.

– One aspect of study motivation is the social dimension of studying. For people (especially the young), fellow students and the social dimension of studying are elements that make studying more meaningful. You should utilise that when you plan teaching. You also need to get the group to focus their attention and interest on the subject they are learning about.

2.4. Enhancing learning through study skills support

When students start studying at university, they enter a whole new world. Everything around them is new and different: teachers, fellow students, physical environment, subjects, learning materials, and perhaps even the city or country. Above all, they have more responsibility for their own studies. When you take into account students' backgrounds and plan your teaching with consideration to the study methods you want to promote, you gradually teach students to take responsibility and acquire new study skills.

To take responsibility, students need to feel they have influence over their own studies. In other words, there should be a balance between responsibility and influence. Students' sense of control can be increased with optional courses, alternative ways of taking courses, prearranged schedules, different kinds of learning materials, free choice of topics for project/group/seminar assignments, assignments serving different purposes, balanced workload, or opportunities to give feedback during the course. Students' responsibilities and independence should gradually increase during their studies, thus making the transition to professional life easier.

Study skills

Studying requires many skills, such as time management skills, self-regulation, persistence and the ability to ask for help[10]. Students' study skills vary greatly, which is also reflected in their learning results. Supporting students in developing their study skills at the beginning of their studies will make studying easier later on. Each course gives students some experiences of studying and of themselves as students. In the future, the experiences will have an impact on studying through motivation, as described above.

Study skills can be grouped in the following categories:

» **Time management:** Course-based studying involves overlapping 'projects' that are of different lengths and require scheduling. Students must learn to plan their time use and use their time for activities that contribute to learning.
» **Self-regulation:** The ability to adapt your actions according to your goals. In terms of studying, self-regulation means choosing the right study methods in different situations. Self-regulation requires students to adjust their actions and environments in changing situations. It involves, for example, planning time use, choosing the right place to study and prioritising assignments.
» **Persistence:** Students need persistence to finish their assignments and complete their courses. Students may learn to adapt their own resources and focus them according to needs. The key is to understand how one's own actions affect the end result.
» **Asking for help:** If students understand when they need guidance or support, they know their own skills and their limits. A key part of learning is to be able to identify what you know and can do and what you need to do to develop further.

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10   IQ Form: time management, self-regulation, persistence, help-seeking strategies.

Figure 2 includes suggestions on how teachers can influence students' time management, self-regulation, persistence and ability and courage to ask for help.

TIME MANAGEMENT
- Plan and announce the course schedule and deadlines early enough.
- Encourage students to keep to the schedule.
- Ensure the course workload is evenly distributed.
- Instruct students on how to schedule their independent work.

SELF-REGULATION
- Help students to identify the study skills needed during the course.
- Remind students of the different facilities at their disposal and encourage them to use them.
- Instruct students in prioritising assignments or use assessment as a tool to signal their order of importance.
- Create a model schedule for the course or instruct students how to make their own schedules.

PERSISTENCE
- Plan your course so that students are rewarded for trying: assess the process and value work done during the course. Tell students about the criteria and value of effort in advance.
- Keep in touch with students during the course, and contact them if you do not hear from them.

ASKING FOR HELP
- Encourage students to ask questions and involve other students in answering them.
- Encourage cooperation among students and take it into account in the assessment, for instance, by giving credit for being a good opponent.
- Help students to find information if they do not know something.

Figure 2: Ideas for how teachers can support students' study skills

3. How do I create an environment that supports learning?

In this chapter, environment means the physical, social and virtual elements and elements relating to learning material that form the basis of teaching and learning. An environment that is favourable to learning makes students feel comfortable and supports their learning. A learning environment is the physical, virtual and social 'space' to which students become connected during their studies and in which they study. Overall, it is essential to plan teaching sessions and learning environments so that the environment is as similar as possible to the environment in which experts work and use the information[11]. A recent trend has been to develop learning environments and assignments in which the physical and social environment are as close to real life as possible, including case exercises, training simulations, project work, problem-based learning etc.

3.1. Stimulating interaction

Interaction is a key part of learning. Interaction can take place between a student and a teacher, between a student and other students, and between a student and the surrounding environment. Interaction is linked to creating a learning atmosphere that promotes learning. Such an atmosphere does not come about automatically but requires, in particular, advance planning and an ability to read a situation on the part of the teacher. Learning also depends on how students feel about learning. In an open and trusting atmosphere, interaction is possible and students can learn from each other too. The atmosphere also enables students to tell and show if they do not know or understand something. At the beginning of a course, the teacher plays an important role in determining the eventual learning environment.

People often think that students learn and know something when they have been told about it and they have heard it. However, students interpret information in different ways and understand it from their own perspectives. For a teacher to know how students have understood what they have been taught, communication must be a two-way process. Communication does not always have to

Your reaction to the first question from a student is very important. No matter what the question is (whether you think it is irrelevant or very simple or difficult), show that you think it is very good that the student asked it. If you cannot answer the question, ask other students what they think or get back to the question later.

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11   For more information about the situated nature of learning and the concept of transfer, see for example Rauste von Wright, von Wright & Soini (2003), pp. 54–56.

be spoken, it can also be written and take place, for example, in a virtual learning environment.

Interaction during teaching sessions is much easier if the teacher is easy to approach. By being available before and after a session, the teacher enables interaction also with quiet students. They get a chance to ask course-related questions, and the teacher can ask what students think about the course and thus get feedback.

Here are some methods that may promote or hinder communication and interaction during teaching[12]:

» **Learn the names of your students** if possible. It is more difficult for students to skip teaching sessions if they feel they receive personal attention.
» **Get closer to students.** Physical distances decrease interaction. Every now and then, it is good to walk around and get closer to students, especially in large lecture halls.
» **Non-verbal communication**, such as making eye contact and smiling, shows students that you are happy to be teaching.
» **Begin by acknowledging or greeting each student**. With large groups you can do that by making eye contact. Some teachers shake hands with each student at the beginning of a course, regardless of the number of students.
» **Verbal communication** matters. Using language that is too difficult or complicated or moving on too quickly may hinder interaction. You should speak relatively slowly and use clear standard language.

Important elements of interaction:

» The ability to ask questions that inspire students to answer them and are suitably challenging for the target group. Use open-ended questions for which there is no single correct answer. Good questions begin, for example, with 'how', 'why', 'what', 'what do you think about' and 'how do you feel about'.
» The ability to listen to students' answers, give them time to think about the questions and come up with an answer by themselves. Students often need more time to answer questions than teachers consider necessary in the situation.
» The ability to give feedback in a way that enables students to understand how they can develop and improve their competences.

When teaching, allow time for interaction. Students do not always engage in interaction automatically; instead, you should think, in advance, about how to activate students during a teaching session.

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12   Cross (2009), pp. 129-130.

'My students are passive and do not answer my questions. What can I do?'

– In large groups, it is more likely that students are afraid of standing out. To make that easier, you can first make students discuss the topic in pairs or small groups so that they get an idea of what other students know. As a group, it is easier to admit not understanding something or to be sure that your answer is 'correct'. Getting to know other students at the beginning of the course also lowers the threshold for participating in interaction.

– Students quickly form a set way of acting, for example, at lectures. It is therefore important to engage students in interaction (asking questions and opinions) at the very beginning of studies or a course.

– Another key aspect is what and how students are asked. It may be difficult to form questions during a teaching session, so you should come up with some in advance. Use questions for which there is no single correct answer. You can begin your questions for example with 'what', 'how' 'what do you think about' and 'how do you feel about'.

– Another challenge is to know how difficult your questions to students should be. To make that easier, you can, for example, test students' prior knowledge at the beginning of the course. You can also ask students to write down any questions they may have. That way, you can make students interested in the topic in advance. For more information, see chapter 4.

– It is always good to emphasise that all answers are valued and that there are no correct answers. Students are encouraged by the feeling that you are genuinely interested in hearing what they have to say.

3.2. Creating physical, social and virtual learning environments

Physical environment

The physical environment involves elements which teachers may only be able to influence by requesting certain features when booking facilities. When facilities are renovated at Aalto University, the aim is to make rooms easy to change and adapt. Facilities are often defined as group spaces and public spaces. The following focuses mainly on facilities meant for groups but some references are also made to public spaces.

Furniture, student seating arrangements: When you choose facilities and plan the teaching session, think about how the room supports the learning outcomes and teaching methods you have chosen. Facilities differ considerably in terms of how well they enable students to interact with each other or move around the room. Sometimes rooms can be made more suitable by rearranging furniture.

The traditional classroom with the teacher's desk is in the front, facing rows of student desks, is the most typical teaching facility at the university. The classroom is functional because it allows the teacher to make eye contact with students. On the other hand, group work and interaction between students may be difficult in this seating arrangement.
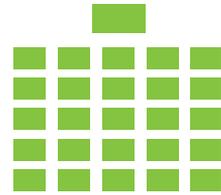
A classroom designed for group work may be a good choice if you want students to work together. Desks arranged in groups enable interaction between the teacher and the students and among the students. The teacher can also guide and instruct student groups if they are, for example, expected to work on assignments or projects together. However, in this arrangement the teacher should ensure that no one has to sit with his or her back towards the teacher or in some other un-ergonomic position.
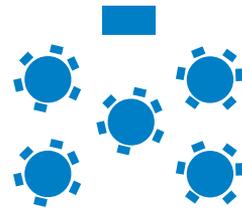
Arranging desks in the shape of a horseshoe may be efficient for interaction with students. It is easy for the teacher to contact students or to have them discuss a topic with the person sitting next to them. Interaction is also promoted by the fact that students can make eye contact with fellow students.
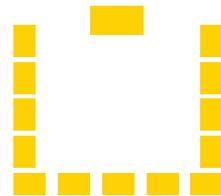
In computer labs, students can work on independent assignments as a part of teaching, but the computer itself may form an obstacle between the teacher and the student. When possible, the teacher should walk around in the room and guide students. It may also be a good idea to ask students to sit in pairs or small groups and share a computer so that they can work together and the teacher can help several students at a time, if necessary.
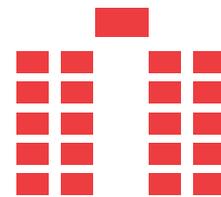
Modern classrooms are designed to allow for as many different arrangements as possible and may not include separate desks. Such rooms without desks are suitable for all the alternative arrangements described above and offer other options too, such as the opportunity to alter the space quickly or to arrange it so that people can move around in the room.
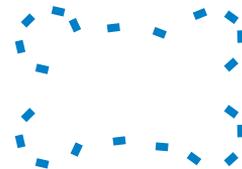
Sometimes it is impossible to arrange the classroom according to your wishes or change it in any way. Therefore, it is smart to visit the classroom in advance and plan your teaching based on the classroom you have chosen. Teachers can also book facilities on the university's other campuses and thereby enable a change of environment, which may have a positive impact on the group. You can also use spaces outside the classroom, such as corridors and lobbies, for team building and other activities to help students to get to know each other.

1. **Teacher's position**: Think about your position in relation to the students. If you want to encourage interaction, try to be on the same 'level' as the students. Do not hide behind your desk; instead, walk around in the classroom, sit down, talk with small

groups or stand by the door to welcome the students to the first session.

2. **Audibility**: Make sure your voice reaches all parts of the room well enough and use a sound system if it otherwise seems difficult for students to follow teaching. If the room is too large for the group, you can ask or tell students to sit at the front. That will also facilitate interaction among students. If you use a sound system, make sure it does not prevent you from moving around the room, making you less accessible.

Social environment

The social environment is the community to which students become connected during their studies. Student organisations (student union and student associations) have traditionally played a key role in welcoming new students and making them a part of the social environment. Leisure-time student activities are an important part of the social dimension, and the university is considered to have an increasingly important role in helping students orientate themselves to university studies.

The social environment is very important to new students. It poses a challenge for the university but also presents it with opportunities:

1. **Social aspect of learning and interaction**: Interaction and social aspects are key elements of learning. The teaching methods chosen by teachers can help students to get to know each other and the teacher during each course. Social situations also teach students interaction skills that they will need later in professional life. The development of social skills can be considered one of the objectives of university studies.

2. **Commitment to studying:** The university should pay special attention to the progress students make in their studies and to how the university can support their graduation and prevent students from dropping out. That is why supporting students in being committed to their studies (not only to student activities) is considered important.

3. **Added value to studying**: With its social environment, the university can give added value to student learning and studying. The university environment enables students, for instance, to discuss things with more experienced students, form networks within and across disciplines, and practice in real-life work places with university partners. All these activities involve social contacts. Students are constantly prioritising and balancing their time use and often try to use their time for activities they find somehow rewarding and meaningful. While information is widely available (for example on the internet), the social environment can provide students with something they cannot get elsewhere. In general, people need social interaction. At university, it is natural to connect that need for interaction with studying and learning.

You can also consider organising small group sessions outside the classroom every now and then. A new environment often makes students more alert and enthusiastic. Could small group meetings be held in a café, over lunch or, weather permitting, outdoors?

Sometimes the university staff are worried about students being too involved in student activities, to the extent that it may hinder their study performance. It is good to keep in mind that students who start at the university right after secondary education are at an age in which peer groups are important for their development. Could you turn that to your advantage in teaching?

Virtual learning environment

A virtual learning environment is a shared online platform that course participants can access also between lectures or teaching sessions. The platform includes course information, materials and instructions, all in one place.

The virtual learning environment is also a place where students can have discussions and work on assignments and teachers can share electronic material, such as electronic articles, lecture videos, visual illustrations and hand-outs and other lecture material. The internet can make studying more flexible in terms of time and place. Of course, you do not need to use the full potential of the online environment at once; instead, you can try the features one by one. Aalto University provides support services for using ICT in teaching.

The internet allows course participants to process and produce information together and, in that way, may lead to deeper learning. In the discussions, the teacher and students get to know each other's thoughts and ideas. In the best case, students study and learn together. Teachers can support student learning, for instance, with peer assessment: you can ask students to hand in their assignments in a discussion forum. That way, students can see each other's answers and comment on them.

The following platforms are used at Aalto University:

» wiki and blog applications for documentation, sharing and collaborative writing. A blog can be used for imitating a publication process or for keeping a learning diary. In a wiki, a group of students can work on an article or a group project together.
» Moodle and other learning environments that offer plenty of opportunities for interaction, various kinds of assignments, collaborative studying, discussions, group work and peer assessment. Virtual learning environments can also be used during teaching for discussions, questions and voting.
» reference management software that facilitate academic writing and the gathering and sharing of sources.

On the internet, even shy students may have the courage to ask questions and give comments because in written communication they have time to think about what they want to say and do not have to compete for time and space. Online communication can also be more informal and chatty, if that feels comfortable. The most important thing is to allow and approve of different views and even 'stupid questions'. With supportive comments and questions, you can encourage student thinking and contribute to creating a positive and active study culture.
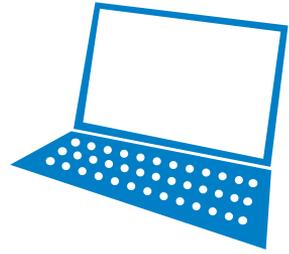
3.3. Teaching materials to support learning

Teaching materials are an important part of teaching and learning. Good teaching materials make students more interested in the matter being taught, enable a deeper understanding and inspire students to search for more information. PowerPoint presentations are a common teaching tool at universities. This section lists things to consider when creating and using teaching materials.

First think about the purpose and objective of the material: is it meant to support teaching or does it need to work as a self-study material? Consider carefully for whom the material is intended and how it will support learning. To best aid learning, you may need to create two different sets of material with different emphases. Including a glossary of key terms also helps students to learn.

If you publish your PowerPoint presentation afterwards online as extra material for those who did not attend the lecture, you can include additional (text-based) slides that are hidden during the lecture. That way, the extra slides will serve as explanatory information or model notes for the figures/pictures presented but will not create confusion or unnecessary repetition during your talk.

If students feel that they can learn as much by studying the material independently as by attending the lecture, is the teaching time used efficiently? Is the session used for interaction and joint activities or mere transmission of information from the teacher to the students? To exaggerate, all teaching without student participation can these days be replaced with e-learning.

Table 3: Things to consider when creating teaching support material and self-study material

	Teaching material	Self-study material
Pictures	Pictures work well because they activate a different part of the brain than speech. Pictures combined with explanations are mutually supportive. Pictures can also be used as stimuli and catalysts for interaction: 'How do you interpret...?', 'What comes to mind...?'or 'How is this related to topic X?'. The emphasis is on interpretations: there is no single correct answer. A good aid in a multicultural group!	Pictures require an accompanying explanation or assignment as they do not necessarily 'teach on their own'. You can include in the self-study material independent assignments that require students to reflect on or analyse a topic or search for information etc. Check the copyrights of pictures, especially if you distribute material online.
Text	Use with care. Transparencies and slides full of text make teaching more difficult to follow because text and speech activate the same area of the brain2. If you use text, use key words or concepts (e.g. a concept or mind map) that you explain in your own words or students discuss in pairs or groups.	Text works best if sentences are complete and understandable as such. PowerPoint slides easily become too full of text when using complete sentences. In self-study material, however, small font size does not make studying more difficult like during lectures. In terms of text, material used as support during lectures and independent learning material serve opposite needs. Consider also whether everything needs to be written on slides or whether you could refer to a good article or book chapter on the topic.
Figures	Figures work well in lectures when they are connected to speech, because they activate a different part of the brain than speech. You can also complete figures gradually, first allowing students to try to complete them (alone, in pairs or in groups) before revealing the 'model'. Figures clarify and summarise information and therefore support understanding and illustrate connections.	In independent learning, figures often need to be accompanied by explanatory information (PowerPoint, article, book chapter). Studying a figure could also include a self-study assignment similar to the exercise used in class or an exercise on searching information.
Videos	Using videos – taking into account copyright matters – is a good way to give structure and rhythm to a lecture and give students a case to solve. Before showing the video, you can give students an assignment that will be discussed afterwards. If the video is long, you can use it as a homework assignment, allowing you to spend shared group time more efficiently for interaction. Check in advance that the sound, other video-related technology and the internet connection work.	Videos are very good self-study material. Additional course materials can include videos that are related to the topic but are not watched during lectures. You can guide students in watching the videos by providing supporting questions or background information on the videos: for example, explain which parts are related to the course and which are not.
Assignments and questions	Different small assignments and questions prepared in advance help you to pace lecture-based teaching. It may be difficult to come up with good questions in front of an audience, so think about them in advance. If you are unable to spark interaction right away, try making students discuss the questions in pairs or groups.	Assignments and questions that help students to process the topic and are aimed at the set learning outcomes support independent work too. You should allow students to ask about the assignment, for example, in the virtual learning environment. You can set up a related discussion forum where students can discuss the matter among themselves, allowing you to save your own time.
Demonstrative aids	Concrete experiences often help students to gain a deeper understanding of a matter. During a session, you can show and circulate various tools, materials, finished products, broken/destroyed models or anything that will instil curiosity in students and lower the threshold for investigating the matter on their own.	For students studying independently, you can give tips about what to observe in their living environment and where to focus their attention. You can also give additional information on possible places to visit.

* For more information on how memory works and on selective attention, see Lindblom-Ylänne, Mikkonen, Heikkilä, Parpala & Pyhältö (2009), pp. 74–79.

4. How do I plan teaching?

Courses are usually planned as part of a study module. If the aim of teaching is to ensure continuity in student learning and allow students' skills to develop as a continuum, teachers need to support student learning with solutions that permeate and span several courses. Aligning a study module means that the desired outcomes, contents, methods and evaluation of the courses included in the module are consistent and mutually supportive. Evaluation should involve the set goals, and teaching methods should be chosen so that they support learning outcomes and course contents. The key to the success of an aligned study module is cooperation among teachers.

Building a good study module requires teachers to create a shared vision and integrate it into their own courses. The joint objectives and contents of courses may create cumulative learning objects that link courses with one another. Learning outcomes must be supported with appropriate teaching methods and learning environments, which help to ensure that the connections are present in what the students do, not just in teachers' plans. In addition to learning outcomes that link courses, teachers designing a study module must also take into account the timing and contents of courses taught simultaneously, ensuring they do not overlap.

> A well-planned aligned study module will become a part of the students' daily life and may steer their learning toward developing competence as a whole instead of focusing on individual course assignments. Therefore, the success of a study module should be determined on the basis of what students do and not by examining teaching objectives or curricula. This means that, in addition to or instead of course-specific assessment, the assessment of teaching and learning should also include elements that concern the study module as a whole.

4.1. Planning principles

There are certain basic principles that should be taken into account when planning teaching for student groups of any size. Regardless of group size, the aim of teaching should be to offer students an opportunity for deep learning.

According to Biggs (1989), deep learning[13] can be achieved by using the following four approaches:

» **Student motivation**: Students need to feel that teaching is meaningful and interesting. You should explain what kinds of skills and knowledge students are expected to have. In that context, you can take into account that students may have enrolled on the course with different expectations (compulsory vs. optional course). Practical examples help you to motivate even those students who do not find the subject interesting.

» **Student activation**: For students to be able to understand the things they have learned, they should process the matters

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13   See chapter 2.1, Towards deep learning: Approaches to learning.

themselves rather than passively receive information from the teacher. An active role in learning steers students learning towards a deep understanding.

» **Interaction with other students**: Discussing the topics with peers requires students to explain how they understand the matter, which may, in turn, help students to gain a better understanding.

» **Well-built knowledge base**: When teaching new things, it is always good to provide students with both content and experiential knowledge. You should connect the new information to prior knowledge and try to form interconnections between things instead of teaching them as separate entities.

Determining students' prior knowledge and skills

Well-designed teaching builds on what students already know and can do. In the best case, the teacher is able to map the group's prior knowledge and skills before the course begins. At the same time, the teacher can enquire about students' expectations for the course. That way, the teacher can begin teaching at the right level, corresponding to the students' level of knowledge. It is problematic if teaching is too difficult or easy at the outset; both situations will decrease student commitment and interest.

To help student orientation, teachers should clearly indicate all the skills and knowledge students need to have before the course. Sometimes identifying prior knowledge may also serve as a way of revising the old. Students' prior knowledge can be mapped, for example, with an advance survey or different assignments. The time spent on the assignments is taken into account when determining the workload of the course[14]. If you are unable to do the mapping before the course begins, you can use teaching time to determine students' prior knowledge and any lay beliefs they may have on the topic. That is also a good opportunity to correct misconceptions and false information.

14   For more information on determining the scope of a course and estimating the workload, see chapter 4.3.
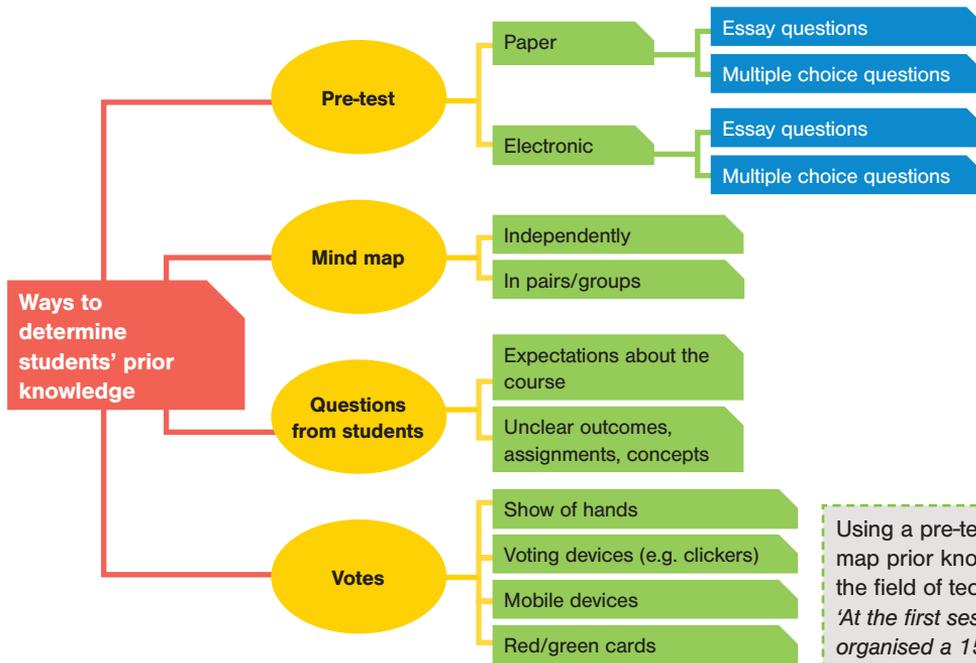
Figure 3: Example of a mind map, cf. list below

Ways to determine students' prior knowledge:

» Diagnostic pre-test: Multiple choice questions or essay questions created by the teacher. Can be carried out online or in contact teaching using electronic voting devices.
» Mind map: Alone or in groups, students produce a mind map of the topic to be studied. That way, students and the teacher will get an idea of the different ways the topic is understood.
» Student questions: Students write down, for example on Post-it notes, questions about matters they have not understood or find difficult. That will enable them to reflect their own skills and knowledge on the intended learning outcomes of the course.
» Voting: Students are asked to reply to quick questions, for example, with yes or no. Voting can be done by a show of hands or by using green/red cards or Post-it notes, etc.

4.2. Designing learning outcomes and contents

Before beginning a course, teachers have to set goals for what the students should know, ensuring these goals are in line with the objectives of the degree programme. When planning each teaching session, teachers should focus on how the teaching will contribute to achieving the learning outcomes. In order to learn, it is important that students understand the outcomes and can steer their own actions and time use accordingly. At university, outcomes are based on skills and knowledge. Teachers can ask themselves **'What do I expect students to know after the course/session and at which**

Using a pre-test to map prior knowledge in the field of technology: *'At the first session, I organised a 15-minute pre-test for 300 students. I introduced the test by explaining that it would not affect the course grade, but I also encouraged students to do their best. Students were given answer sheets and the questions were projected on the screen. The test began with really easy warm-up questions that gradually became more difficult, up to the level of course exam questions. That way, everyone was able to take part and the students with more advanced prior knowledge could learn more. After 15 minutes, I asked students to hand their papers to the person next to them who would then check and grade the answers. At the end, I collected all the papers and got an overall picture of the group's knowledge level. That made it easier for me to plan the course and to take into account the needs of different students.'*

level do I expect their skills and knowledge to be?' This question is the starting point for writing learning outcomes. [15]

Sometimes outcomes and contents are considered one and the same. However, contents and outcomes are considerably different, especially from a student's perspective. A singe theory may be so vast and extensive that you could build an entire degree around it; therefore, mentioning such a theory as a part of course content is not very informative for students. At the course level, teachers should define what students should be able to do on the basis of the theory or how they should be able to use the information. That way, the contents are translated into a concrete learning outcome that is easy for the students to understand.

When defining learning outcomes, teachers should estimate how much time students need for attaining the outcome. **Time is a prerequisite for learning and deep learning takes time.**
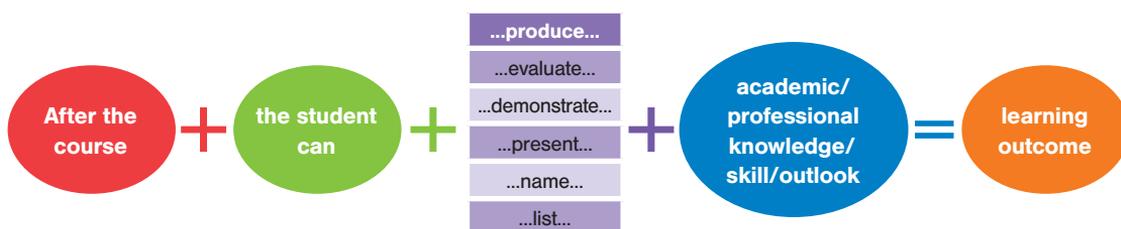
Figure 4: Writing a learning outcome clause

Characteristics of a good learning outcome:

» **Attainable**: The outcome is proportional to students' prior skills and knowledge, the time at their disposal and the guidance and support provided to them.
» **Understandable**: The intended learning and contents are defined in a concrete way. This means that you should not use expressions such as 'the basics', 'basic knowledge' and 'basic principles' because they mean nothing to a novice.
» **Measurable**: The course assessment methods and objects have been designed in relation to the outcomes. For example, the verb 'to understand' is challenging because it does not explain the level of knowledge and skills required. In addition, understanding should be expressed or demonstrated in one way or another in order for the teacher to be able to assess it. Thus, it makes more sense to define the outcome as an action that expresses what 'understanding' means, using expressions like 'can explain' or 'can apply the information/theory'. When students explain or apply information, they show how they have understood it.

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15   See the instructions on writing learning outcomes (in Finnish): Honkala, Isola, Jutila, Savilampi, Rahkonen & Wennström (2009).

Attaining learning outcomes depends greatly on getting students to commit to the outcomes. Teachers should discuss the outcomes with their students and explain the choices they have made. If students disagree with the outcomes, teachers can also consider whether they could be weighted differently for different students. In terms of study motivation, it is important that students are committed to studying, and this requires that they accept the outcomes.

Choosing contents is not easy; usually there are more things to cover than the time allows. One good way to choose contents is to begin by making a course or session outline for your own information, for example, in a hand-sketched or electronic table. Then you can start cutting down the number of topics, thinking about what constitutes the essential core contents of the course or session (see Table 4). At that point, or earlier, you can begin planning learning outcomes related to the topic. The majority of teaching time should be spent covering the core contents of the course. After that, you can think about the supplementary and special knowledge to be covered during the course. A core content analysis makes it easier to plan a schedule for a course or a lesson.

Table 4 is an example of a core content analysis tool[16] to support the planning of teaching. This model makes a distinction between academic and professional skills, which may clarify the course focus and facilitate the choice of teaching and assessment methods.

Table 4: Example table for core content analysis (Core Content Divider)

Course	Essential knowledge *Must know* Mastery is necessary for future studies, understanding enables the student to acquire advanced / wider knowledge	Supplementary knowledge *Should know* Supplementary knowledge means adding theoretical details and explaining less common applications	Specialised knowledge *Nice to know* Specialised knowledge that gives a deeper insight into a certain field
Academic skills			
Professional skills			

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16   For more information on core content analysis, see Karjalainen, Jaakkola, Alha & Lapinlampi (2007), pp. 73–84.

4.3. Estimating course workload

Determining study time means estimating and calculating the time needed for learning, or time allocated for studying. The credit system we use is based on a common European agreement on the commensurability and extent of degrees. The Bologna process was launched in Finland in 2005. In the reform, all old master's degrees granted by universities were given a two-tier structure. Bachelor's degrees were defined to include 180 credits and master's degrees 120 credits[17]. Students were given three years to complete a bachelor's degree and two years to complete a master's degree. The number of hours corresponding to one credit unit is based on that principle of 60 credits / academic year. An academic year is defined as 1,600 hours, even though the teaching periods do not fully cover that calculated amount. Thus, one credit is equal to 1,600 hrs / 60 credits = 26.7 hrs / credit.

Study time is always determined on the basis of estimating the student workload; thus, there is no absolutely correct definition of the 'right study time' allocated to a course. **The balance between the course workload and time allocation is right** when students do not feel overloaded, learning outcomes are achieved within the time allocated for the course and the amount of work done by most students does not exceed the intended workload. The theoretical workload corresponds to the time an average student uses for completing a course. This does not mean the average amount of work students do, because that would mean that half of the students use more time than intended. All course grades should be attainable within the course 'work time' (e.g. 5 credits = approx. 130 hrs). However, grades also depend on other key factors, such as students' prior skills and knowledge and level of commitment.

Factors that make it difficult to determine the workload of university studies include **broadly defined** outcomes, students' **different backgrounds** and **competences** and the great **amount of independent work** involved. All these factors cause the time needed by individual students to vary. Teachers have to base their estimations on calculations of how much time an 'average student' needs for deep learning. Determining the study time and workload is easier if the outcomes are clearly defined and include a plan of concrete actions students must take. Finding the right balance also becomes easier with experience, if you **regularly collect student feedback** on the time they have used for different assignments and on how they perceived the workload.

The concept of perceived workload further complicates the estimation of required study time. Even if a student uses the same amount of time for completing two different study assignments, he or she may experience the workload as being higher in one of them.

In terms of learning, it is essential that students have enough time to achieve the set objectives. If students are overloaded, they may easily resort to using the surface approach to learning. Therefore, in terms of learning, it is safer to round the study time up rather than down.*

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* See chapter 2.1, Towards deep learning: Approaches to learning.

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17 The old 160–180-credit master's degrees are nowadays two-tier degrees and consist of 180+120=300 credits.

In terms of students' coping and workload, the situation is most difficult when students spend a lot of time completing assignments without understanding their purpose. Similarly, if students are highly interested in and committed to learning, they may not feel overworked despite spending a lot of time working on assignments.

Figure 5 presents ways to decrease or (unconsciously) increase the course workload as perceived by students. Teachers can also use the scales to self-evaluate their courses.

Decreases	Course workload	Increases
even	The course workload is...	uneven
interest	Student motivation is based on...	duty
main ideas / large entities	Teaching and learning material is focused on...	details
get peer support, guidance	Students feel that they...	are left on their own
a permissive culture	The department / student group is characterised by...	a pressure to succeed
concrete and clear	Learning outcomes are...	unclear
able to complete assignments	Students feel...	inadequate

Figure 5: Factors affecting student workload and how to manage them during courses

'I have too much content to cover and cannot teach everything in the time given to me. What can I do?'

– Everything is based on defining the objectives of the course (and the entire degree) and narrowing down the contents. Sometimes you have to review the contents critically and consider whether all of them are still relevant or whether you should update the contents and let go of the old.

– Sometimes you might have to choose between covering all the planned contents and focusing only on a part of them. When making the decision, keep in mind that covering a lot of information does not necessarily mean that the students will learn a lot. If the amount of information covered is right but you still feel that you keep running out of teaching time, you can cover some of the contents with self-study assignments accompanied by suitable learning material.

– Teaching is easier if students come to sessions better prepared. You can use continuous assessment (mid-term exams, exercises) to encourage students to study independently during the course.

4.4. Designing assessment to support learning

In order to learn, it is important that students receive feedback on their performance. The aim of feedback is to encourage certain student actions and correct others. Assessment can be followed up with a feedback session to ensure that students have understood the matter taught and to enable the teacher to ask students for comments on the assignment assessed. In all feedback sessions, teachers should ask questions to make sure that students have understood the message as intended.

Assessment should be in line with the other elements of teaching. Learning outcomes play a key role in that. Assessment should be designed so that it enables the teacher to analyse the set learning outcomes. On the other hand, teachers should think about how learning outcomes can be assessed already when defining them. Examining learning outcomes and assessment methods together lays a foundation for aligned teaching.

The aim of assessment is to give a snapshot of students' skills and knowledge at a given moment. Based on its timing during a course, assessment can be divided into three categories:

1. Assessment can be used, for example, for selecting students to a course if the course requires certain prior skills or knowledge. Assessment carried out before the course is called **diagnostic assessment**.
2. For students' own learning, it is important that students get feedback on their performance during the course. There are different ways to do that, and the assessment type is called **formative assessment**.
3. Unfortunately, assessment is often carried out at the end of a course, as **summative assessment**. An inevitable consequence is that assessment cannot be used as a tool for developing student learning but merely as a declarative reporting tool.

Figures 6 and 7 illustrate the main difference between formative and non-formative assessment. If assessment is performed throughout a course, students get to show their progress even after the assessment. As the figures show, such formative assessment is an integral part of completing a course and will support students in developing their competence. However, if course assessment comprises multiple exams that measure students' knowledge of different thematic entities, the assessment is not formative. Instead, the course is divided into smaller parts with each part ending in its own final assessment. As figure 7 illustrates, there are several ways of carrying out formative assessment, or to provide students with the opportunity to show their skills or knowledge after the first assessment. On the other hand, the aim of summative assessment is to demonstrate students' skills and knowledge as a whole. Summative assessment should be connected to the course learning outcomes, because it should demonstrate students' competence with respect to the outcomes defined.

Topic X TEACHING	Topic X ASSESSMENT	Topic Y TEACHING	Topic Y ASSESSMENT

Figure 6: Non-formative, 'divided final assessment'

Topic X TEACHING	Topic X ASSESSMENT	Topic X FURTHER WORK	Topic Y TEACHING	Topic Y ASSESSMENT	Topic Y FURTHERWORK

Topic X TEACHING	Topic X ASSESSMENT	Topic Y TEACHING	Topic Y ASSESSMENT	Topic Y FURTHER WORK (if necessary)

Topic X FURTHER WORK (if necessary)

| Topic X ASSESSMENT "level 1"	Topic X ASSESSMENT "level 2"	Topic X TEACHING	Topic X ASSESSMENT "level 3"	Topic X ASSESSMENT "level 4"

Figure 7: Different variations of formative assessment

Assessment methods[18] can be examined based on who carries out the assessment. Usually there are three alternative angles: assessment carried out by a teacher, assessment carried out by a student peer and assessment carried out by students themselves.

Assessment planning with different assessors:

» **Self-assessment** is a process in which students assess their own performance. It is essential to give students assessment criteria to which they can compare their own skills and knowledge or progress. Self-assessment is a way to improve and support students' study skills, such as persistence and the ability to ask for help.

» **Peer assessment** means student assessment carried out by other students. Planning should take into account the assessment criteria and ensure equal treatment as well as possible. Individual students can assess one another, groups can assess other groups, individual students / groups can assess all other groups based on one criterion and so forth. Peer assessment often includes many ways to combine assessment with development-focused and feedback-giving roles.

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18   For ideas on assessment methods, see for example Hyppönen & Lindén, 2009, pp. 79–84.

» **Teacher assessment** is often the most popular and most commonly used assessment method concerning individual students or groups. Due to time available, feedback is often limited even though it would be important to student learning.

4.5. Planning courses and individual sessions

Figure 8 presents a summary of the stages of planning a course. When planning a course, pay attention to scheduling and timing, because some of the course planning stages depend on the annual programme of the school or department. Planning is easier if you systematically write down, for instance, development ideas after each course you give.

Reserve time for planning, preferably three times the teaching time.	→	Analyse the target group and use previous feedback.	→	Check the contents: relevance and scope. In learning, less is more!
Plan the student feedback to be collected during the course.	←	Choose the right teaching methods. (Must support the learning outcomes!)	←	Define learning outcomes. Estimate workload and study time. ↑
Plan the assessment (assess what is defined as an outcome).	→	Test the plan on a colleague.	→	Evaluate your own work after the course.

Figure 8: Stages of planning a course

Planning an individual teaching session

A simple way to plan a teaching session is to divide it into 1) an introduction, 2) teaching/practising theory and new information, and 3) summary/revision. When introducing a topic, keep in mind that the contents may concern a field that is completely new to the students. In that case, you should focus on ensuring that students understand how the things relate to and connect with what they already know. When teaching new information, it is a part of your professional competence as a teacher to explain complicated matters so that students understand what they mean in practice. Even if students are unfamiliar with the topic, you should make

You should really put effort into the first teaching session. It will have a significant impact on student commitment and enthusiasm to attend future sessions.

them work actively as much as possible because that promotes deep learning.

At the end of the session, it is good to go back to the beginning and summarise what you have covered during the session. Going back to what you started with is a quick way of repeating the key contents and presenting the main points one more time. It benefits both the students and the teacher to review what the students have learned and what they will do at the next session (or at home).

Figure 9 includes a simplified model for planning an individual lecture to activate students[19].

	Teacher's actions, planning of teaching	Students' actions
Introduction • At the first session, it is good to get to know each other: knowing the other participants makes interaction easier and more relaxed (safe environment). • Introducing the topic arouses interest and gives students an idea of their skills, knowledge and level of interest concerning the course.	**Basis of planning:** How will you present the learning outcomes of the course? For what reason do students need the information or skill? Which question does the course aim to answer?	What students already know or aim to achieve: own skills and knowledge in relation to the course. **TASK: Form a question, write down your own goal and give it to the teacher.** produces information for the teacher, creates study motivation
Theory, new contents • To integrate new information into previous knowledge, students should process it actively during teaching. Interaction and diverse observation methods facilitate learning.	Teach the contents in a way that corresponds to the course outcomes or students' objectives and questions. Diverse material, different ways of teaching: pictures, video clips, question-based discussions, exercises, assignments... A change of pace every 20 minutes keeps students alert.	Active processing of information during teaching: taking notes, working on assignments, participating in discussions. Interaction between own prior knowledge and new information and with other people.
Summary, revision: • A summary will help students to get the big picture regarding session contents; revision can emphasise the key points. At the same time, you get information on what students have learned. That will make it easier to plan the next session.	Revision, going through discussed and open questions, looking at the future programme. Collect questions (e.g. on Post-it notes, via an online platform) with which you can start the next session.	Revising what they have learned, writing down unanswered questions: producing information for themselves and for the teacher on what they learned and where to continue next time.

Figure 9: Planning activating lectures

19 For more information on activating lectures, please see Nevgi, Lonka & Lindblom-Ylänne (2009), pp. 237–253.

Appendix 1 includes another model for an activating teaching session.

'What can I do if a teaching session does not go according to my plan?'

– *It is good to plan your teaching in advance, but you can never be prepared for everything; interaction between people is always more or less unpredictable. Even a good plan needs a backup plan, especially for the elements that feel unpredictable in advance, such as interaction in a large group, the number of students in the group and its effect on how different methods work, and so forth.*

– *If you end up in a difficult situation mid-session, try to find a moment to come up with a backup plan. To do that, you should prepare, in advance, a reflective assignment for the students or an independent exercise or video/online material that they can focus on. Afterwards, you should analyse what prevented your plan from working and make notes about changing the plan for the next time.*

– *If you feel that the situation was uncomfortable or awkward for you, you can discuss it with the students at the next session. You should explain your original idea and your analysis of why it did not work. If necessary, you can ask students how they experienced the situation. That may enable you to have a discussion about the responsibilities different parties have during a teaching session. The main framework and directions fall within the teacher's responsibility and influence, but students' actions also play a role.*

5. How do I teach?

Good planning forms the basis of successful teaching, but this alone is not enough. A teaching session involves many different factors that the teacher has to control simultaneously. Even experienced teachers may encounter surprises or feel insecure in new kinds of teaching situations. Everything does not always go as planned, no matter how good the teaching plans are. A good teacher lives in the moment and can adapt his or her teaching accordingly. It is good to make plans broad enough: this helps in adapting to sudden changes.

5.1. Ideas for new teaching situations

It may be difficult for a teacher to know in advance what kinds of students will attend a course. Students' prior skills and knowledge of the subject may vary greatly and the teacher may feel incompetent with students who already know a lot about the subject. These things happen even to the most experienced teachers, and the important thing is to avoid thinking that the situation is impossible. If a student asks a question that the teacher is unable to answer straight away, it is good to utilise the skills of the other students, for example, by asking 'Would anyone else happen to have an opinion/answer to the question?'. Another good option is to promise to look into the matter and get back to the question at the next session. Sometimes it is better to admit not knowing something than to try to come up with an answer on the fly, often slightly missing the point.

Everyone who has worked as a teacher has, at first, been nervous about teaching. People often remember their first lessons years later. It is quite common to be nervous about new and unfamiliar situations. In particular, standing in front of a large group of students may cause teachers to feel like the centre of attention, which may feel uncomfortable. In such situations, teachers may end up focusing on their own performance and appearance instead of observing how students act during teaching.

The following may help you feel more comfortable in the new situation:

1. Analyse **what causes you to feel insecure**. What is the worst thing that could happen when you are teaching? Positive visualisation before teaching may be useful. Think about similar situations in which you have succeeded before.
2. Insecurity may be also be reduced by **going to the teaching venue early**. That way you get, for example, a chance to have natural, less formal conversations with students before beginning the session.

> Do not get stuck with your PowerPoint presentation. The most important thing is not whether you get through all the slides but to ensure that the teaching situation meets the needs of the students. If students begin to discuss a certain point (using a lot of time), you need to have the courage to change your plans and cut out certain contents.

3. Stress and nervousness may also be a result of having a **too tight schedule** for the teaching session and **too much content to cover**. If you plan the session well, you will feel more secure and in control. During the first time teaching, use familiar **methods** of which you have good experiences.
4. Engage **students in interaction right away**, for example, by asking them to discuss in pairs an introductory question that you have planned in advance.

'I am nervous about teaching. What can I do?'

– *Figure out why you are nervous. You can also ask yourself what is the worst thing that could happen and what could be the consequences of that. Such analysis will help you put things into perspective: one failure is not the end of the world. The main thing is that you learn from it and grow as a teacher.*

– *Nervousness is typically caused by the teacher's insecurity about the contents of the course, about being a teacher or about meeting students. If you are insecure about the contents, try to create a collegial and relaxed atmosphere with the students. You can also use video clips or other additional material so that you will have a common basis for discussion.*

– *In terms of student learning, it may be good to focus on a few matters that you consider your strong areas or use an interesting example from a field that is related to the topic and that is more familiar to you.*

– *If you are nervous about being the centre of attention, try to emphasise the students' role during the session. Using different assignments and exercises makes the situation more student-centred.*

– *Meeting students may be unnerving if you have no idea what they think about you or the subject you are teaching. It may help to get to know the students, engage in interaction and break the ice.*

Figure 10 includes factors that should be kept in mind when teaching[20].

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20   Adapted from University College Dublin: Teaching and learning.

1. Arrive early and prepared.	8. Show respect for student participation. Do not judge wrong answers.	9. Collect feedback on your teaching from multiple sources.
2. Make sure your voice carries across the room	7. Use a diverse range of teaching methods.	10. After teaching, allow time for informal questions.
3. Remember to make eye contact.	6. Observe the situation and change your plan if necessary.	
4. Take into account the physical surroundings.	5. Use visual aids.	

Figure 10: A check list for teaching sessions

5.2. Activities for team building and getting to know each other

Different teaching methods help teachers to make teaching sessions interesting to students and to promote student commitment and learning. **The key thing to consider when choosing methods is the objective**. The choice of method also depends on situational factors which include **time, place, resources, group size and the teacher's skills**. When choosing methods, it is also good to analyse the participants: to think about what the student group is like and whether the group members know each other already. How well students know each other affects how safe they feel the situation and how they act in the group. If students are nervous or afraid of being embarrassed in front of the group, certain methods may not work. In that case, you need to begin by getting to know each other and creating a safe atmosphere before people can embrace the new situation.

If there are more than 20 students, it might be better to allow students to get to know each other in small groups or in pairs instead of having the whole group take turns in introducing themselves. The following list includes different ways to create an atmosphere that supports learning and enables students to get to know each other and the teacher. Some of the methods are different from the usual introduction methods. Teachers may need to explain why they chose a certain activity and to have the courage to stand up for the method.

Methods should be chosen based on the goals set for student learning. Students process and absorb information in different ways, which increases the need to use diverse methods. Different methods may also help keep students interested in the information or skill they are learning.

The introductions can also be presented in the online learning environment where even a large group of students can get to know each other or recall other participants.

1. **Pair interview**: Ask students to interview one another for about 2–4 minutes. If you want, you can come up with a list of questions beforehand. Students can write down the answers if the idea is to present the other person to the rest of the group.

2. **Three words:** Each person names three things or adjectives that best describe them. For example, 'electricity, guild and athlete' or 'art, books and travelling'. The activity can be carried out in small groups.

3. **If you were X, what would you be:** Ask students to describe themselves through a concept or factor relating to the field or the course topic. Examples include chemical elements, road surface materials, art trends, currencies, operating systems, management theories, physical laws, sound effects... The only limit is your imagination. As the teacher, you can go first and set an example: 'If I were an X, I would be XXX because...' To lower the threshold, you can ask students to describe themselves first in pairs or groups and then give examples to the rest of the group or present their partners to the others.

4. **Introduction line**: Students choose positions on a line (e.g. from 1 to 10). The teacher reads out statements and students go stand at the number that describes how well the statement corresponds to their own views (1 = not at all, 10 = very well). After each statement, students introduce themselves to the others that share their views (stand by the same number) and discuss the topic with them. Example statements include: 'I am good at planning my time use' or 'The course topic is a central element of my future expertise'. You can also include more casual statements, such as 'Today I woke up feeling fresh'.

5. **Introduce yourself with a picture:** Ask students to introduce themselves using a picture. There are many ways to get pictures: you can ask students to bring one in advance, they can use mobile phones to search for a picture during the session or you can give students pictures to choose from (cards, pictures projected on the wall).
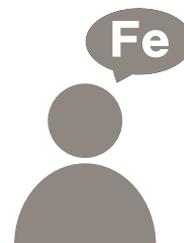
5.3. Activating students at teaching sessions

Many teachers find it challenging to activate large groups. With large groups, teaching is often lecture-based instruction with very little interaction. Students are also used to simply listening to the teacher talk about the subject being taught. A long lecture with students only focusing on listening will result in decreased alertness and poor learning. From a teacher's point of view, spending a whole session lecturing is hard and it is impossible to know what students have learned and understood.

The following list includes advice on activating large groups.

Despite the challenge, activating large groups is possible. It simply requires some advance planning and the courage to meet students and form a connection with them.

Teacher's actions that promote learning:

» Get an energetic start and engage and activate students from the first minute. An easy way to do that is to pose questions that students answer by raising their hand, using red/green cards or using an online platform (e.g. Presemo, Socrates).
» Present a problem that could be solved through the subject of the session. A concrete need for information and its applicability arouse student interest and improve student motivation.
» Tell a story that connects the subject to something else. A good story captures students' interest, activates them and will be remembered.
» Use pictures and other props to capture and maintain interest.
» Even if the audience is large, do not lecture. Instead of transmitting information, try to use a conversational style.
» Take enough breaks. They help students stay alert. During breaks, students can also get to know other students.
» You can use clickers[21] to ask multiple choice questions and quickly find out what students know or to activate students or arouse interest. As an alternative to clickers, there are different online applications with which students can ask questions, make comments or otherwise participate in the teaching by using their own mobile phones, tablets or laptops.

'Students are used to lectures. Should the established practice be changed?'

– Using as many different teaching methods as possible at the beginning of studies will help students to get used to different ways of working.

– If you feel students are used to lectures, explain why you have chosen a different method. First, however, you should think about how the method will contribute to the set outcomes. If you like, you can also present these grounds to the students.

– Many academic fields have a long tradition of lectures even though they are problematic in terms of learning: it is difficult for people to listen actively for more than 20 minutes, the amount of new information presented may be too vast (especially if the teacher is unaware of students' prior knowledge), and new information may be difficult to apply if it is not practised right away.

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21   Clickers are electronic voting devices that are handed out to students at the beginning of a teaching session. For more information on peer instruction, please see Mazur, 1997.

Individual, pair or small group learning when teaching large groups

Even when teaching large groups, teachers can help students to process information and guide their work in pairs or small groups. Working in pairs or small groups is a very useful technique because it can be used irrespective of the overall group size. Allowing students to process information and test their own ideas first with a partner or in a small group may also lower the threshold to interaction in a large group. In front of the whole class, it is easier for students to bring up questions and comments from the small group rather than to present their own questions and ideas.

Table 5 presents different exercise and assignment types that can be used with large student groups by making students work in pairs or small groups. The first column describes the objective of the activity (e.g. processing information through questions). The second column includes examples of instructions to students and the third provides instructions for pair work.

Objective	Independent work	Pair work
Processing information through questions	Reflect on the topic provided and form a question.	Ask your partner a question about the topic or material provided.
Problem solving	Answer the questions provided.	Compare your answers with your partner and solve the problem together based on your answers.
Summarising and processing information	Answer the questions provided independently or write a free-form summary.	Switch answer papers with your partner and discuss your answers.
Testing what has been learned	Take a test that the teacher has made on the topic (students can also form the questions together).	Discuss your answers and interpretations with your partner.
Planning future actions	Think about how you will use what you have learned or how you will continue studying. Write down your thoughts.	Combine your plans or take ideas from each other.

5.4. Student learning in small groups

A small group typically includes 3–7 students. In terms of interaction, pair work is also a good alternative to working alone. Efforts have been made to increase the use of group work in students' seminar, laboratory and project assignments because the technique contributes to learning in many ways[22].

Advantages of group work include the following:

» Students learn to **interact with different people** (field of study, culture, gender, age, knowledge level). This skill is necessary in professional life and it is good to practise it.
» **Interaction contributes to learning**: identifying one's own learning through discussions, negotiating objectives, discussing the topics studied and asking questions to ensure understanding.
» Brainstorming in a group often provides **new ideas** and encourages learning.
» Project work encourages students to **take responsibility** because group performance depends on everyone's effort: there is positive interdependence.
» In groups, students can practice the **project management skills** that they will need in their future work.

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22   For more information on small groups and related phenomena, see Vuorinen (1998), pp. 92–106; Helkama, Myllyniemi & Liebkind (2007), pp. 293–324.

- » In groups, with help from others, students can achieve **higher-level goals** than on their own; that will lead to experiences of success – and motivation! Yes we can!
- » Group work will enable students to satisfy their **social needs**, which means that social life and studying are not mutually exclusive and do not take resources from each other.
- » By observing group work, **teachers get a good idea** of students' skills and knowledge and their progress in learning. That enables teachers to direct and target their teaching better.

Appendices 2–5 include tables on alternative ways of carrying out group work:

- » **Size of a small group**: What different advantages, special needs and considerations are involved when the group size varies from 2–3 to 4–5 or 6+ students?
- » **Structural examples for launching small group activities at the first meeting**: What should be taken into account and what arrangements should be made?
- » **Examples of ways to divide students into groups**: The pros and cons of techniques like drawing lots, free choice, teacher's choice, characteristic-based groups and topic-based groups.
- » **Examples of different group formation techniques**: How to divide students into groups based on their prior skills and knowledge or their interests?

5.5. Teaching a culturally diverse group

Because of the internationalisation of universities, many teachers are teaching students from different cultures. All in all, diversity in teaching may be based on factors like nationality, field of science, age or gender. Generally, courses may include students from different fields, with varying background skills and knowledge. The teaching methods used in different fields also vary; at the beginning of their studies, students become accustomed to the ways of teaching and learning used in their fields. Even different orientation periods and first encounters with the staff influence students' ideas of studying in the field they have chosen. Due to their different backgrounds, students may come to the teaching situation with different ideas of teacher and student roles and with different expectations for teaching. Based on all that, students adapt their roles as students in their own field. If a teacher uses methods that students are not used to, students may be confused and even turn against the teacher. If that happens, the teacher should explain his or her choices and decisions and discuss them with the students.

Due to international student mobility, multicultural teaching situations are becoming more and more common. Culturally diverse groups are often taught in English. However, it is good to remember that teaching culturally diverse groups involves a lot more than just communicating in a foreign language. The field of

When teaching, teachers can explicitly state that students are not expected to have perfect language skills and that the most important thing is to make oneself understood. If teachers feel their own language skills are insufficient, they should favour methods in which they do not have to be talking all the time. Teachers can openly remind students that different accents may sometimes be difficult to understand and that students should say right away if they cannot understand what the teacher or another student is saying.

study connects students across borders, but the conventions of interaction differ greatly from one culture to another. Of course, there are similarities, too.

When teaching, nothing should be considered self-evident; instead, it is good to talk to students about course practices and principles from the start (this applies to other groups too). Differences may manifest themselves in different teaching practices and conventions (for example, using the so-called academic quarter, having double lessons, allowing snacks) that may or may not be apparent.

At the beginning of a course, it is good to discuss the following matters/practices with the group:

» How do students perceive the teacher's role? Do they consider the teacher an authority, an expert or a learning resource?
» Are students allowed to interrupt the teacher or question his or her knowledge and expertise?
» How are students assessed and are grades negotiable?
» How much guidance should students be given? Are students allowed to admit to not understanding something?
» How much help and guidance can student request from the teacher?
» Do students expect the teacher to remind them of assignment deadlines?

Sometimes cultural differences become apparent through misunderstandings. Often teachers do not even realise that a certain teaching technique is culturally bound until some sort of a collision takes place. These collisions are not always visible and teachers may not always understand that the reasons behind them are cultural. For example, a student's decision to drop out of a course may be based on reasons having to do with cultural misunderstandings. [23]

When teaching a culturally diverse group, learning outcomes should express how the diversity is utilised in learning. For example, will students learn to work in a multinational group by doing group projects or to examine phenomena from a global perspective? Or is one of the course outcomes to learn to communicate about one's field of expertise in a foreign language?

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23   Gaffney (2008), pp. 111–125.

'I teach a field that is the same all over the world, and the students in my group represent several nationalities. Should I somehow take that into account in my teaching?'

– *It is true that in the academic world many things are understood in a similar way in different countries. However, when you teach you are dealing with people. You are no longer working only within your own discipline but crossing over to another, such as behavioural sciences. Thus, the focus is on the different ways in which people cooperate or understand roles and responsibilities, rules relating to studying and so forth. Many things may be easier if you take nothing for granted, but tell and explain things rather than expect students to know them.*

– *The culturally diverse group may also present you with an interesting learning experience. When you plan your teaching, think about how you could enable everyone to benefit from the students' experiences and knowledge. Students also benefit from getting to practice working with people from different backgrounds and cultures, a skill they will need later on in their professional lives.*

Perspectives into teaching culturally diverse groups[24]:

» At the beginning, establish common **ground rules**: What kind of behaviour do you expect from students? How would you like to be approached if the students want to ask questions? What mode of address would you prefer as a teacher (first or last name)?
» Know **your own cultural background** as a teacher and be aware of your own ideas of learning and teaching.
» Use **examples** that are not bound to a single cultural background.
» **Explain concepts** using both words and pictures and explain the comparisons you make: compared to what is something, for example, modern?
» Avoid using **stereotypes** or categorising students based on nationality or field of study. Similarly, an individual student cannot speak on behalf of the whole nationality.
» Utilise the students' diverse backgrounds as a resource and provide students with the **opportunity to share their experiences**, for example, through group work.
» **Explain the assessment criteria** to students openly and clarify how the overall course grade is determined. For example, specify whether students are rewarded for assignments or active participation during sessions or whether cooperation with other students is encouraged or prohibited.
» Make sure that everyone understands the **ethical rules** on, for example, plagiarism.

Chapter 5.4 above explains the benefits of group work. In a multicultural setting, group work also involves certain special characteristics that teachers should be aware of. Culturally diverse groups need **more time** to get started. Students need time for building trust and may, at first, need a lot of support from the teacher to launch the group process. Take that into account when planning your teaching. In a culturally diverse group, the members may give **different meanings and interpretations to concepts**. Explain to students how they should work as a group and what group work means. At their most fruitful, culturally diverse groups can come up with **innovative solutions** and are able to utilise networks and information sources across national borders. Working in a culturally diverse group improves students' language and working life skills and their ability to **work in a global environment**.

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24   Adapted from University of New England, Academic Development Unit, Theory Into Practice Strategies: Designing Culturally Inclusive Environments.

6. How do I develop my own competence?

6.1. Collecting and using feedback

Feedback is a tool that teachers can use for evaluating the results of their work. Feedback gives teachers an idea of the level of student understanding and helps teachers to develop their own ways of working. Thus, collecting feedback is an essential part of developing teaching. In addition to being an information source for teachers, feedback also helps students to assess their own learning.

Feedback can be collected in many ways and forms. Like the assessment of learning (see chapter 4.4), feedback is often divided into *diagnostic*, *formative* and *summative* feedback, depending on when it is collected. In addition, there are also many different ways of collecting feedback, which are examined more closely in this section.

When should feedback be collected?

By collecting feedback, teachers can target their teaching to better meet students' needs and level of knowledge. Diagnostic information, or information that is collected in advance, enables teachers to get to know students' level of competence before beginning the actual teaching. Based on information collected beforehand, teachers can adapt their teaching plans and leave out things that all students already know well.

Feedback should form a constant part of teaching during courses to enable interaction between the teacher and students. Collecting feedback throughout a course also supports the learning process. Information collected during a course is called formative feedback and is used to find out how students' understanding improves during the course. After examining students' level of knowledge and understanding, the teacher may have to teach certain matters again if the feedback reveals gaps in student learning. Despite the repetition, it is better to notice the gaps during the course than at the end of it!

Summative feedback sums up the course and provides the teacher with information on student competence after the course. In summative feedback, teachers can ask students to assess the course as a whole and, correspondingly, show students their level of competence after the course. The key weakness of summative feedback is that it cannot be used for changing or adapting the course or work methods. However, together with other forms of feedback it complements the teacher's idea of his or her own teaching and student learning.

There are many different ways of collecting oral and written feedback. Feedback can be built into teaching and when it is collected in diverse ways it does not have to be a burden for the students. In addition to individual feedback, feedback can be collected from small groups: instead of individual views, the group gives their joint opinion.

How can feedback be collected during the course?

The following list includes ways of collecting feedback during a course:

» writing down the **pros and cons** of the session, either on Post-it notes or on a flip chart, individually, in pairs or in groups
» **voting by a show of hands or short check box questionnaires** for mapping student learning or things that they may not have understood
» organising a light-hearted **quiz** between groups on the subject taught
» **creating a concept map** of the course subject alone or in pairs
» describing learning through **visual means**: choosing a picture or a postcard that describes one's learning during the session
» **summarising what you have learned** in a single sentence or word (and sharing it with the group).

6.2. Portfolio as a tool for developing competence

By observing their own teaching and the work of others, teachers can analyse their own teachership in relation to their own personalities. Teachership-related feedback from other teachers is extremely useful in developing one's teaching.

Teaching competence and its development have been made key assessment criteria in the career systems introduced at Aalto University, especially in the tenure track system for professors and the lecturer career system[25]. Teachers are encouraged to describe their personal skills and competence in a continuously updated teaching portfolio.

A teaching portfolio is a tool for the systematic documentation and assessment of teaching competence and pedagogical work. With the portfolio, teachers can demonstrate their teaching skills, highlighting aspects that they consider important for their work. Many may consider creating a portfolio a one-off task, but that is not how portfolios are intended to be used. A teaching portfolio is a continuously updated document that includes current description of a teacher's work and key achievements.

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25   Tenure track and lecturer career system.

Showcase portfolio
- A sample of competence that is compiled for a specific purpose, based on the basic portfolio

Basic portfolio
- An archive of concrete documents on personal competence (e.g. teaching, supervision, feedback, development)

Portfolio work
- Continuous collection and evaluation of material on personal competence
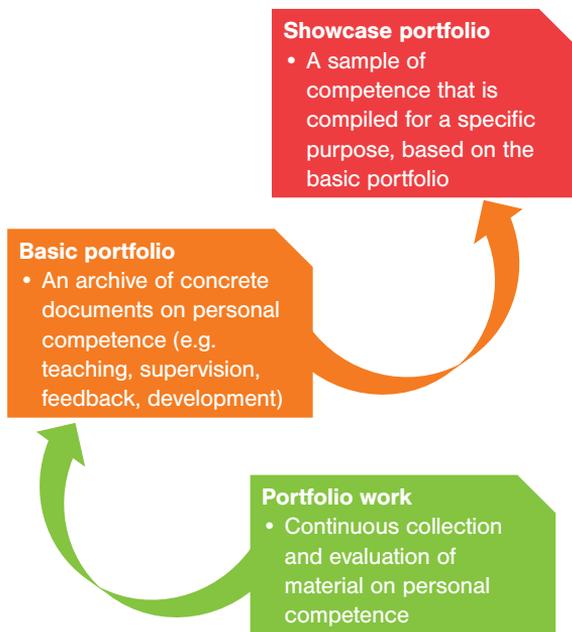
Figure 11: Different levels and stages of compiling a teaching portfolio

It is often recommended that a teaching portfolio be approached from different angles, depending on whether a teacher compiles the portfolio for his or her own use (portfolio work and basic portfolio) or for a particular purpose, such as a job application process (sample portfolio). The terms basic portfolio and portfolio work refer to the work of compiling documents and examples of competence, which is something that teachers should do all the time. Such work is not very structured in itself, and competencies may represent different forms and levels. A sample portfolio is always compiled with a specific task or position in mind. The aim is to use the basic portfolio material to present a clear description of competence that fits the position in question.

7. Guiding and supervising thesis work

Projects carried out during earlier studies support the thesis writing process. Through projects, students learn to manage large entities, work independently and search for and produce information, and they get used to scientific work. Learning by doing research is a skill that each degree student can use to update his or her skills and competence. Teaching students to learn by conducting research can also be called research training. However, it is more commonly called thesis supervision, including bachelor, master and doctoral level theses. The following gives a brief description of different thesis types and the challenges they may pose to teachers and advisors or supervisors.

These days, each degree level includes a thesis. The aim of harmonising degree structures is to increase and facilitate international mobility, for example, in Europe[26].

Different theses in brief

» **A bachelor's thesis** is the final project of a bachelor's degree. Guidance and advice on thesis work may be provided in groups (seminars, etc.) and to individual students.
» **A master's thesis** has different names in Finnish, depending on the field of study. In the field of technology, the thesis may also be called diploma work or diploma thesis. In other fields, the thesis is often called a pro gradu thesis, with the expression pro gradu or gradu being especially common in Finnish. Fields and universities differ in terms of how much they use the different forms and advantages of group learning, such as seminar work.
» **A doctoral thesis** is called a doctoral dissertation. The traditional independent and personal dissertation writing process is being increasingly replaced with a more group-oriented approach. In terms of producing new information and knowledge, research groups are ideal learning environments in which researchers who are at different stages in their careers act as each other's sparring partners and support one another.

> Studies on learning strongly encourage using peer support to promote learning, highlighting the usefulness of seminar groups.

Three stages of research-led learning

Table 6 presents an overview of the assignments, outputs, learning outcomes and gained competencies involved in the theses described above.

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26   The European Higher Education Area (2009).

Table 6: Stages of research-led learning

	Bachelor's thesis	Master's thesis	Doctoral dissertation
Assignments, outputs	• Literature review • Short research report	• Practical assignment based on the rules of science • Scientific research report / article	• A scientific research process providing new information • Scientific publication(s)
Learning outcomes	• Ability to write a report or a review demonstrating source criticism • Ability to write a summary or report based on sources • Ability to carry out a small research assignment	• Ability to apply the principles of scientific research • Ability to work independently under supervision and guidance • Ability to produce a coherent research report	• Ability to carry out an independent scientific research project • Ability to write scientific texts approved by the academic community • Ability to defend one's own scientific research at a public event
General skills	• Academic reading and writing	• Conducting research and reporting on it	• The process of producing scientific information and knowledge and scientific publication

Different needs for guidance and advice in the thesis project

The following section focuses on the typical needs for guidance and advice in the different thesis types. It also discusses the challenges the process poses to teachers acting as thesis advisors/supervisors.

In bachelor's theses, the advisor's task is to open doors and windows to a new world, encouraging students to adopt a new working method. The key challenges typically concern choosing and narrowing down a topic, setting reasonable learning outcomes and content-related objectives, and mastering academic communication skills. Students benefit from systematic and active guidance and discussions. Good guidance involves giving regular feedback and encouraging students to face different challenges.

In master's theses, the challenges that students face are partly similar to those at the bachelor level. In particular, the challenges of choosing and narrowing down a topic are similar. Personal and structural goals become more central, because the thesis is longer than a bachelor's thesis. Providing appropriate guidance and advice and giving feedback are the advisor's most important tools.

At the master's degree level, students are required to have stronger method skills than in the bachelor's thesis. Therefore, the challenges usually involve planning the research design and making methodological decisions. Guiding students and giving advice is easier if the curriculum is planned so that different methodology courses are offered and placed around the beginning of the thesis project.

> You should also find out whether the student uses up-to-date online tools to search for information and reference management software for keeping track of sources.

A master's thesis project is spiced up if the thesis is commissioned by a third party. Third parties and external partners often work in a way that is very different from academic practices and conventions, which may create certain challenges during the process. The parties involved may have different requirements and expectations, making it difficult for the student to choose the right solutions. In practice, this often leads to the student having two or more advisors. In terms of guidance and student progress, it is important to find a good balance between the different sources of guidance and advice.

In doctoral dissertations, the challenges concern, in particular, how guidance is and should be arranged. In research groups, the doctoral candidate is often supported by a master-apprentice model. Large research groups also provide peer support opportunities. Research groups have an internal guidance structure that doctoral candidates working without a research group often lack. With them, it is important to make an oral or written agreement on how guidance and supervision are arranged and what responsibilities and duties the parties have, etc.

At this level, the special challenges stem from the assumption that students are adults and independent self-directed players who do not need guidance. However, research on adult education shows that self-direction in learning is not to be taken for granted [27]. According to research, most doctoral candidates writing their dissertations would benefit from guidance that takes into account the candidate's baseline skills in the different competence areas involved in research.

Tools for guiding and supervising thesis work

The challenges relating to guiding and supervising theses can be summarised in three questions:
1. How can you illustrate the independent stages of the research process?
2. How can you guide students in controlling the research process through project management?
3. How can you manage different expectations concerning guidance and supervision?

Studies have shown that peer support and group-based teaching and guidance contribute to learning*. With respect to master's theses, teachers often feel that such activities are difficult to arrange because of the guidance and advice provided by external parties. For the advisor, the challenge is to avoid situations in which the student receives contradicting guidance and advice.

* For example, Penttinen, Plihtari, Skaniakos & Valkonen (eds.) (2001).

At the beginning of their own research projects, most students would benefit from a general outline and a multi-stage model of the research process. Better awareness of the independent stages and tasks involved in the thesis process and the opportunity to build and compile the thesis of different parts facilitate the student's work. Students also learn some essential and general elements of research processes and conducting research.

27 Cf. Grow (1991).

1. Illustrating process stages

The thesis process begins with focusing the student's interest and choosing a topic, continues with further specifying the research framework, and requires the student to master the chosen research methods and be able to interpret the research results, etc. The simplest model would be to describe the research process as comprising three stages: the initial stage, processing stage and final stage. Each stage has its own challenges and tasks that can be described at the general level.

For one reason or another, the presentation of a multi-stage model and illustrating the process is often unsuccessful or neglected. This will cause difficulties for students as they will end up with only a vague idea of the thesis writing process. Students often describe the thesis as a mountain that is impossible to climb. In practice, that impression may cause students to interrupt their studies – to simply give up.

2. Project management skills

Relating to the above, each research process can also be considered as a project that requires project management skills. There is ample material on project management that can also be used in guiding thesis work. Project management skills are obviously needed in professional life and are useful for all academic knowledge workers.

Project management skills are a competence area that is partly neglected in the academic world. Perhaps project management skills are considered useful tools rather than an element of academic competence. However, students would benefit from these skills in their thesis projects. The regular stages of a project (e.g. planning and scheduling the project, launching its execution, managing the project, holding project meetings, and monitoring, reporting on, documenting and closing the project) are also connected to academic research processes. In their thesis work, students would benefit, in particular, from skills that concern the planning and management of their time use and are closely related to project management skills. If project work is common already during the general studies of bachelor's and master's degrees, writing the thesis will be easier. Managing projects is a skill that everyone can improve.

3. Managing guidance expectations

The expectations students have about thesis guidance and supervision are often a challenging element. Different parties may have very different expectations, which slows down and hinders progress during the thesis process. Studies have shown that differing expectations cause doctoral candidates writing their

The supervision agreement can be documented in an online workspace (e.g. Moodle), where you can also save thesis-related instructions, deadlines for submitting work and meeting dates. After each meeting, you can also use the workspace to record the things that the parties have agreed to do before the next meeting. Documenting the guidance and supervision process online will also facilitate communication if there are several advisors/supervisors or if the advisor/supervisor changes.

dissertations to experience frustration and consider interrupting their studies[28].

Some of the challenges relating to expectations for guidance and supervision can be solved by making a supervision agreement. The agreement can be written or oral (a so-called psychological contract). A written agreement can include the forms and frequency of guidance, ways of contacting each other, timetable, plans, the responsibilities and duties of both parties etc.

Expectations for guidance and supervision can also be managed in groups. In group processes, the whole group discusses what kinds of guidance methods will be used, what are the rules of group work, what group members are expected to do between group sessions, etc. What is noteworthy is that interaction is a key guidance element that can be managed with agreements. The goal is to find a suitable model that best serves all partners.

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28   For example, Nummenmaa, Pyhältö & Soini (eds.), 2008.

8. Together towards successful teaching

At today's universities, teaching is a part of everyone's work. In an ideal situation, research and teaching form a dialogue that will give your own work more meaning. Teaching is simultaneously challenging and rewarding. Growing and developing as a teacher is a lifelong process, and you can always develop your teachership. When you engage in open interaction with students, you can also learn a lot from them.

This guide has presented an overview of the different pedagogical situations that teachers face and it has offered various solutions to help teachers to prepare their teaching. Of course, it has been impossible to cover all possible practices and viewpoints; in the end, all teachers must build their own way of teaching.

To support teachers, Aalto University organises various training sessions and events where you can take a deeper look at the questions discussed in this book, together with the teaching community. You can also develop your teaching in the wider sense of developing your own skills and competences. For more information on skills development and the related support services, please visit Aalto Inside.

Developing teaching is a shared goal to which everyone can contribute. Most importantly, teaching is developed together with students. To quote the Aalto University strategy, 'Aalto students are members of an international network of experts, building an open and encouraging learning community together with other students and teachers.'

Let's work together towards successful teaching!

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Appendix 1: Lesson structure model: activating lectures

Teaching time: 2 x 45 min., the course is in progress (not the first lecture).

Number of students: 8–30. Room: Regular classroom. You can take breaks as you see fit. The model structure is only intended as a guideline; keep in mind the goals set for the teaching session.

	Teacher's actions & contents	What students do	Why
Orientations and objectives	Explain how the current session is connected to the previous one or the course in general. Explain the objectives and outcomes to students. Introduce the new subject by giving examples, connecting it to a wider context e.g. with a mind map, video clips, questions.	Students are asked questions that they can answer, for example, in pairs, by voting (agree/disagree) or by discussing them in small groups.	Students always come to lectures from some other situation. The aim of the orientation is to introduce the topic to the students and to strengthen their presence in the situation.
Theory and practice, part 1	Begin the session by telling students that the information learned will be used during the session. Present the information. Then let students immediately discuss how it is used and applied. Tips on structuring the information presented: not too much information on one slide; pictures, figures and tables help students understand the structure and explain the causes and effects. If the subject involves calculating, it is good to have pauses and repeat the steps taken so far or ask students how they would proceed.	The application can be a calculation exercise, a case example, some other small exercise or a written assignment. Students can work on them alone, in pairs or in small groups.	When the information learned is processed right after the presentation, learning is more efficient and students form a more personal connection to the information because they have had to process it. If students only listen, learning will be very superficial and the information quickly forgotten.
Theory and practice, part 2	Give a 20-minute overview of the subject/theory to be learned, and then divide students into groups of 4–6 people. Give the groups a problem to solve and supportive material or website links that will help them find answers. You can also encourage them to search for information on their own. The groups can be given the same or different problems to solve. They can continue the work during the next session, or you can use the next session to go through their solutions. It is important that the problem is challenging enough to make students feel group work is necessary.	Students look for information independently. Their output can be presented in written or oral form. To make use of the different skills and knowledge of the groups, students can also be allowed to ask for help from other groups too.	Arouses student interest, teaches them to apply information they have acquired and to understand phenomena relating to the subject, and improves their information skills and ability to present information to others.
Summary	At the end of the lecture, ask students to summarise the subjects discussed and write down things they did not thoroughly understand. At the end, document the matters students had not understood and begin the next session by explaining them.	Creating a summary in pairs or small groups. Students can use the board to write down things that they think require further explanation, guidance or assistance.	Students get an overall picture of what they can do and know and what they do not. They become more aware of their own learning. The teacher gets an idea of student learning.

Appendix 2: Group size and its effect on group work

What	Suitability	Pros	Cons
Small group (2–3)	Suitable for first assignments; works also within large groups, with tight schedules and for easy assignments.	+ interaction is easy, a safe start, lots of room for personal views + getting started is quick + agreeing on schedules and goals is easy without 'too many moving parts' + students can cope even with weaker group work skills + a more personal approach, easy to commit to	- interaction less rich with fewer views - skills base may be limited - the more personal approach may lead to greater conflicts - vulnerable, for example, to students dropping out or falling ill
Medium-size group (4–5)	'A basic group guaranteed to work.' Work efficiency is fairly optimal, also suitable for longer and more challenging assignments,. In long-term assignments, assign 5 people per group rather than 4, if 3 is too few (possibility of students dropping out).	+ enables fairly balanced interaction + working face to face, as one group, is fairly easy + does not require members to have strict roles + enables cumulative work: individual-pair-group + skills base and number of ideas is fairly good	- getting started takes longer than in a small group - independent work may need to be structured - the group may need a chairperson, especially in groups of 5 people
Large group (6+)	Longer-term processes with clearly defined roles and responsibilities, project management and schedule. More suitable for experts than novices.	+ a lot of skills and knowledge + many ideas + can be divided into smaller subgroups + members can be given different roles and partial responsibilities	- establishing a shared approach and a good rapport, setting goals and creating interaction take time - members need to have good social and group skills and be self-directed - members must be assigned different roles - requires intermediate goals and deadlines - requires joint rules

Appendix 3: Launching small group projects

A model structure for launching small group activities (e.g. projects) at the first course meeting.

What	How	Why
Getting to know each other	See chapter 5.2 on methods for team building and getting to know each other	When students get to know each other, it is easier to get them to commit to studying and joint goals and to engage in interaction. It is more difficult for students to abandon 'friends' than strangers!
Forming groups	See Appendix 4 on different ways of forming groups.	How groups are formed has an essential impact on the success and nature of group work. Teachers can influence this when choosing the method of forming groups.
Choosing a topic	The topic should be chosen carefully, with respect to the course learning outcomes. The topic can be chosen by students or the teacher, or it can be defined together as a group or in cooperation with businesses.	The method of choosing a topic depends on, for example, whether the contents of group work belong to the core, supplementary or specialised knowledge of the course. Giving students a choice increases their level of commitment and motivation but decreases your chances of steering the topic, for example, towards the core contents of the course. The most important thing is to explain the reasons behind your decision.
Setting goals	Goals can be set at the individual or group level and they should be connected to the learning outcomes of the course.	Setting goals enables the group and its individual members to better understand what is expected of them during the project / group work. Setting their own goals makes students more committed to the work and makes it easier to set intermediate goals. Intermediate goals help students manage their time and give them feedback on their work.
Deciding on working methods	Groups can decide how they communicate, whether members will have different roles, whether they will have their work checked during the process, and where and when they will meet face to face or on the internet.	Agreeing on work methods facilitates making progress, makes the process more concrete and eliminates confusion during the project or group work. The importance of agreeing on methods increases as groups get larger and more heterogeneous (culture, age, field, gender), projects get longer and topics become more demanding.
Making a plan	The group makes a tentative but concrete plan on how the work will proceed and outlines the work stages. Members can also be given different roles and responsibilities.	To get started, it is important that everyone knows what the group has agreed on and how it will proceed. If making a detailed plan is difficult, group members can decide when they will specify and update the plan. In any case, some kind of a preliminary plan is recommended. Giving group members different roles clarifies the work, especially in large groups. Roles can also be rotated (for example, the minutes of each meeting are recorded by a different person).

Appendix 4: Different ways to divide students into small groups

The table below presents different ways of dividing students into small groups, explains how to do that and outlines the pros and cons to be taken into account. Ideas for implementing the different options are given on the next page.

What	How	Pros	Cons
Students choose	Students get to form groups in the way they choose.	+ work gets started immediately, students often already know the other group members + scheduling is easier if students come from the same programme, etc. + achieving a 'friendly environment' is easier if members already know each other	– students may not necessarily meet other students from different backgrounds; if the goal is to learn group skills, this method is not recommended – some students may feel left out if, unlike others, they do not know anyone – upholds old power structures and roles
Drawing lots	This can be done, for example, by assigning students numbers from one to four, handing out cards or paper slips, using a puzzle.	+ students meet new people, groups are more likely to be heterogeneous + impartial à easy for students to accept? + ensures little variance in group size	– random selection may also result in very unequal groups – getting started in groups may take time – setting a common goal may be difficult
Teacher chooses	Divide students into groups in advance. This requires you to know students rather well. You can also ask for specific background information in connection with course enrolment.	+ you have great responsibility for and influence over how well groups work + enables the use of different roles (e.g. if course participants include students from different fields) + enables setting different goals and tasks (specialisation) for groups, based on prior skills and knowledge + you can decide on the group size	– you have great responsibility for and influence over how well groups work: this requires careful consideration and takes time – may be difficult for students to accept if the grounds are not explained well – you may assume too much in advance, which may cause you to give a poorer assessment of group performances à labels and stereotypes
Based on characteristics	Students take places on an axis (see Appendix 5) based on a characteristic. According to their places, students are then divided into groups that are as heterogeneous or homogeneous as possible. For example, prior skills and knowledge relating to the subject, time management skills, level of alertness on the day, time available or interest in the topic. For example, an axis.	+ allows you to manage group formation on the basis of the chosen grounds + easy to combine with getting to know each other (see axis, Appendix 5) + improves student study skills by promoting self-evaluation + easy for students to accept because they have defined their own 'levels'	– enables grouping only on the basis of one characteristic – is likely to result in groups in which students do not know each other, getting started takes time
Based on topics	Students form groups on the basis of certain topics. You can choose the topics in advance or students can form groups by negotiating on their own goals or interests à similar goals in the same group.	+ students get to influence the topic/goal, which increases their motivation + topics do not have to be chosen/given separately + team building begins right away when students start discussing their own goals in respect to other students' goals	– students may choose certain groups also for other reasons, covering them with interests or goals à leads to the same results as the option 'students choose' – may result in homogeneous groups because similar students have similar goals and interests

Appendix 5: Group formation methods

The table below includes practical methods and instructions on ways to divide students into small groups.

Method	How	Ideas	NB!
Drawing lots – pieces of paper or cards	In advance, make different pieces of paper or cards that are randomly handed out to students. Make as many cards with each symbol as you want students in a group. Put the cards or pictures in a bag/box/hat and let each student draw one.	The symbols can be, for example, numbers, colours or pictures.	If you make the cards in advance, make sure that total number of cards is the same as the total number of students if you want the groups to be of the same size.
Drawing lots – puzzle	Hand each student a piece of a puzzle. First the students need to find their groups and then put together their puzzles.	The first group to finish the puzzle gets, for instance, to choose their topic first (or some other advantage). That way, you can ensure that groups start working quickly. The theme of the puzzle can be, for example, a picture relating to the course topic, a mathematical or chemical formula, a definition or a key figure in the field (name as syllables).	All pieces should be handed out; if necessary, one person can be given several pieces (if the number of members in a group is not important). That way, the problem can definitely be solved. By changing the number of pieces, you can change the group size.
Drawing lots – numbers	Give each student a number between one and four: 1-2-3-4-1-2-3-4, with each student saying the next number when it is his or her turn.	This is a very common way of forming groups in Finland. In international groups, you might have to explain how the system works.	An easy way to divide students into groups so that people sitting next to each other will not end up in the same group.
Based on characteristics – axis	Make statements, such as 'I am full of energy today' or 'I have a lot of time for doing the course assignments'. Students take a place on an axis (e.g. 1–5 or 1–10), based on how well the statement corresponds to their situation/characteristics.	Ideas for statements = grouping criteria: energy level, prior skills and knowledge or time available.	Students are divided into groups, for example, on the basis of the order in which they are after the last statement, for example, by assigning students numbers between 1 and 4 or by placing students standing next to each other in the same group. In the first alternative, the groups will be more balanced in terms of the characteristic in question (internally heterogeneous groups), in the latter alternative, the differences between groups will be greater in terms of the characteristic in question (internally homogeneous groups). You can also do this in advance on the internet by asking students to respond to various statements and forming the groups based on their answers.
Based on topics – market	You can set certain constraints on the basis of the course topic and give certain topics, but students can also suggest their own ideas. Students can first think about their own goal/interests and then go to the 'market' to sell their topics to others. The aim is that each student finds a group through the negotiations, forming groups that are based on their personal interests and goals as much as possible.	You can write down topic categories, subjects, themes, methods, keywords etc., for example, on flip chart sheets posted on the wall. Include empty sheets too, so that students can add their own ideas. Students can first write a short goal/topic on their own piece of paper (e.g. Post-it note) and take that with them to the 'market'. You can also implement the method online.	In a face-to-face meeting, group sizes may be difficult to control because students may want to form groups that are too big (6 members or more). In that case, you can join the negotiations and try to help students reach a more equal distribution. Students can have 'negotiations' with people representing several topics before making a decision. They can also abandon their own original ideas if they get more excited about some other topic.

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